PROJECT MANUAL

NMSU NMDA New Office Building

DPS Project Number: 22-0227.001

NM STATE UNIVERSITY

NMDA
New Mexico Department of Agriculture

Volume 1 of 2

Date: 08/07/2024

Bid Set

DEKKER PERICH SABATINI
Architecture in Progress

www.dpsdesign.org

NMSU NMDA Office
Las Cruces, NM

DOCUMENT 00 0107 – SEALS PAGE

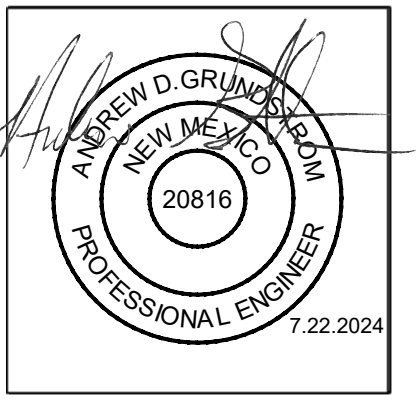
ARCHITECT



Responsible For Sections:

Division 00	All Sections
Division 01	All Sections
Division 02	Section 02 4100 - Demolition
Division 03	Section 03 3511 - Concrete Floor Finishes
Division 04	Section 04 2000 – Unit Masonry
Division 05	Section 05 5000 - Metal Fabrication
	Section 05 5213 - Pipe and Tube Railings
Division 06	All Sections
Division 07	All Sections
Division 08	Section 08 1113 – Hollow Metal Doors
	Section 08 1213 – Hollow Metal Frames
	Section 08 1416 – Flush Wood Doors
	Section 08 3100 – Access Doors and Panels
	Section 08 3223 – Sliding and Folding Glazed Walls and Doors
	Section 08 3323 – Overhead Coiling Doors
	Section 08 4313 – Aluminum-Framed Storefronts
	Section 08 4413 – Glazed Aluminum Curtain Walls
	Section 08 7100 – Door Hardware
	Section 08 8000 – Glazing
Division 09	All Sections except 09 8410 – Acoustical Treatment
Division 10	All Sections except 10 7316.13-Metal Canopies
Division 11	All Sections
Division 12	All Sections

STRUCTURAL



Responsible For Sections:

Division 03	Section 03 0516 – Underslab Vapor Retarder
	Section 03 3000 – Cast-In-Place Concrete
Division 05	Section 05 1200 – Structural Steel Framing
	Section 05 2100 – Steel Joist Framing
	Section 05 3100 – Steel Decking
	Section 05 4000 – Cold-Formed Metal Framing
Division 31	Section 31 6316 – Auger Cast Grout Piles

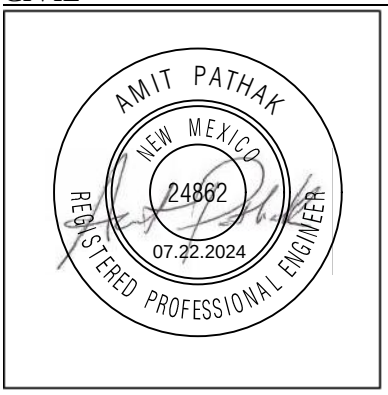
LANDSCAPE — Responsible For Sections:

Division 10	Section 10 7316.13 – Metal Canopies
Division 32	Section 32 1723.13 – Pavement Markings
	Section 32 3119 – Decorative Metal Fences and Gates
	Section 32 8423 – Irrigation System
	Section 32 9300 – Plants



CIVIL — Responsible For Sections:

Division 31	Section 31 0000 – Earthwork
Division 32	Section 32 1200 – Flexible Paving
	Section 32 1300 – Concrete Pavement, Curb and Sidewalks



PLUMBING & MECHANICAL — Responsible For Sections:

Division 21	All Sections
Division 22	All Sections
Division 23	All Sections



ELECTRICAL — Responsible For Sections:

Division 25	All Sections
Division 26	All Sections
Division 28	Section 28 3111 – Digital Addressable Fire Alarm System

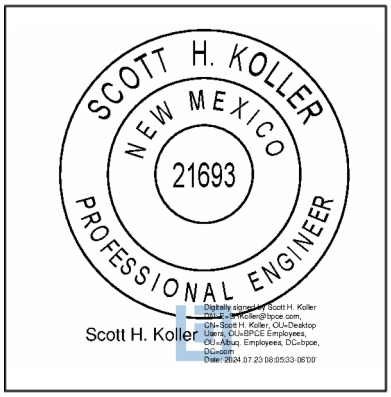


TECHNOLOGY — Responsible For Sections:

Division 08	Section 08 3473 – Sound Control Door Assemblies
	Section 08 5673 – Sound Control Windows
Division 09	Section 09 8410 – Acoustical Treatment
Division 26	Section 26 5583 – Broadcast Lighting
Division 27	Section 27 4100 – Common Work Results for Audio Video Systems
	Section 27 4100.10 – Audio Video Systems and Equipment for Test Kitchen and Recording Suite



COMMUNICATIONS Responsible For Sections:



Division 27

Section 27 0500 - Common Work Results for Communications
Section 27 0526 - Grounding and Bonding for Communications Systems
Section 27 0528 - Pathways for Communications Systems
Section 27 0536 - Cable Trays for Communications Systems
Section 27 0544 - Sleeves and Sleeve Seals for Communications
Section 27 0553 - Identification for Communications Systems
Section 27 1100 - Communications Equipment Room Fittings
Section 27 1116 - Communications Cabinets, Racks, Frames, and Enclosures
Section 27 1300 - Communications Backbone Cabling
Section 27 1500 - Communications Horizontal Cabling
Section 27 1543 - Communications Faceplates and Connectors
Section 27 4100.20 - Audio-Visual Systems For Conference Rooms and other spaces
Section 27 5119 - Sound Masking Systems

ELECRTONIC SAFETY AND SECURITY Responsible For Sections:



Division 28

Section 28 0526 - Grounding and Bonding for Electronic Safety and Security
Section 28 0528 - Pathways for Electronic Safety and Security
Section 28 0544 - Sleeves and Sleeve Seals for Electronic Safety and Security Pathways and Cabling
Section 28 1300 - Access Control
Section 28 1600 - Intrusion Detection

END OF DOCUMENT

SECTION 00 0110 - TABLE OF CONTENTS

VOLUME 1 of 2

PROCUREMENT AND CONTRACTING REQUIREMENTS

DIVISION 00 -- PROCUREMENT AND CONTRACTING REQUIREMENTS

00 0107 - Seals Page

00 0110 - Table of Contents

00 3100 - Available Project Information

00 7343 - Wage Rate Requirements

SPECIFICATIONS

DIVISION 01 -- GENERAL REQUIREMENTS

01 1000 - Summary

01 2300 - Alternates

01 2500 - Substitution Procedures

01 3000 - Administrative Requirements

01 4000 - Quality Requirements

01 4533 - Code-Required Special Inspections

01 5000 – Temporary Facilities and Controls

01 5639 - Temporary Tree and Plant Protection

01 6000 - Product Requirements

01 7000 - Execution and Closeout Requirements

01 7419 - Construction Waste Management and Disposal

01 7800 - Closeout Submittals

DIVISION 02 -- EXISTING CONDITIONS

02 4100 – Demolition

DIVISION 03 -- CONCRETE

03 0516 – Underslab Vapor Retarder

03 3000 – Cast-In-Place Concrete

03 3511 – Concrete Floor Finishes

DIVISION 04 -- MASONRY

04 2000 – Unit Masonry

DIVISION 05 -- METALS

05 1200 - Structural Steel Framing

05 2100 - Steel Joist Framing

05 3100 - Steel Decking

05 4000 - Cold-Formed Metal Framing

05 5000 - Metal Fabrications

05 5213 - Pipe and Tube Railings

DIVISION 06 -- WOOD, PLASTICS, AND COMPOSITES

06 1000 - Rough Carpentry

06 4100 - Architectural Wood Casework

06 8316 - Fiberglass Reinforced Paneling

DIVISION 07 -- THERMAL AND MOISTURE PROTECTION

07 1113 - Bituminous Dampproofing

07 2100 – Thermal Insulation

07 2119 - Foamed-In-Place Insulation

07 2500 - Weather Barriers

07 4113 - Metal Roof Panels

07 4213 - Metal Wall Panels

07 5400 - Thermoplastic Membrane Roofing

07 6200 - Sheet Metal Flashing and Trim

07 7100 - Roof Specialties

07 7200 - Roof Accessories

07 9200 - Joint Sealants

DIVISION 08 -- OPENINGS

08 1113 - Hollow Metal Doors and Frames

08 1416 - Flush Wood Doors

08 3100 - Access Doors and Panels

08 3223 - Sliding and Folding Glazed Walls and Doors

08 3313 - Coiling Counter Doors

08 3473 – Sound Control Door Assemblies

08 4313 - Aluminum-Framed Storefronts

08 4413 - Glazed Aluminum Curtain Walls

08 7100 – Door Hardware

08 8000 - Glazing

DIVISION 09 -- FINISHES

09 2116 - Gypsum Board Assemblies

09 2400 - Cement Plastering

09 3000 - Tiling

09 5100 - Acoustical Ceilings

09 6500 - Resilient Flooring

09 6700 – Fluid Applied Flooring

09 6813 - Tile Carpeting

09 7200 - Wall Coverings

09 8430 - Sound-Absorbing Wall and Ceiling Units

09 9113 - Exterior Painting

09 9123 - Interior Painting

DIVISION 10 -- SPECIALTIES

10 1400 - Signage

10 2113.13 - Metal Toilet Compartments

10 2600 - Wall and Door Protection

10 2800 - Toilet, Bath, and Laundry Accessories

10 4400 - Fire Protection Specialties

10 5723 - Closet Utility Shelving

10 7316.13 - Metal Canopies

DIVISION 11 -- EQUIPMENT

11 4000 - Foodservice Equipment

DIVISION 12 -- FURNISHINGS

12 2400 - Window Shades

12 3600 – Countertops

DIVISION 13 -- SPECIAL CONSTRUCTION (NOT USED)

DIVISION 14 -- CONVEYING EQUIPMENT (NOT USED)

VOLUME 2 of 2

PROCUREMENT AND CONTRACTING REQUIREMENTS

DIVISION 00 -- PROCUREMENT AND CONTRACTING REQUIREMENTS

00 0107 - Seals Page

00 0110 - Table of Contents

SPECIFICATIONS

DIVISION 21 -- FIRE SUPPRESSION

21 0500 – Common Work Results for Fire Suppression

21 0553 – Identification for Fire-Suppression Piping and Equipment

21 1313 – Wet-Pipe Sprinkler Systems

DIVISION 22 -- PLUMBING

22 0000 - General Plumbing Requirements

22 0503 – Pipe and Tubers for Plumbing

22 0523 - General Duty Valves for Plumbing Piping

22 0529 - Hangers and Supports for Plumbing Piping and Equipment

22 0553 - Identification for Plumbing Piping and Equipment

22 0700 - Plumbing Insulation

22 1100 - Plumbing Specialties and Cleaning

22 1123 - Facility Natural Gas Piping

22 4000 - Plumbing Fixtures and Trim

DIVISION 23 -- HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

23 0000 - General Mechanical Requirements

23 0513 - Common Motor Requirements for HVAC

23 0517 – Sleeves and Sleeve Seals for HVAC Piping

23 0518 – Escutcheons for HVAC Piping

23 0519 – Meters and Gages for HVAC Piping

23 0523 – Valves for HVAC Piping

23 0529 – Hangars and Supports for HVAC

23 0530 – Roof Accessories

23 0548 - Vibration Isolation

23 0553 - Identification for HVAC Piping and Equipment

23 0593 - Testing, Adjusting, and Balancing

23 0700 - HVAC Insulation

23 0713 - Duct Insulation

23 0716 – HVAC Equipment Insulation

23 0719 – HVAC Piping Insulation

23 0800 - Commissioning of HVAC

23 0923.11 - Control Valves

23 0923.12 – Control Dampers

23 0923.13 – Energy Meters

23 0923.27 – Temperature Instruments

23 2113 - Hydronic Piping

23 2116 - Hydronic Piping Specialties

23 2123 - Hydronic Pumps

23 2300 – Refrigerant Piping

23 3100 - HVAC Ducts & Casings

23 3113 – Metal Ducts

23 3300 - Air Duct Accessories

23 3346 – Flexible Ducts

23 3400 - HVAC Fans

23 3600 - Air Terminal Units

23 3700 - Inlets and Outlets

23 4000 - HVAC Air Cleaning Devices

23 7300 – Air handling Units

23 7310 - Outdoor Central-Station Air-Handling Units

23 8103 - Packaged Rooftop Air Conditioning Units

23 8126 - Split-System Air Conditioners

23 8219 - Fan Coil Units

23 8239.16 - Propeller Unit Heaters

23 8400 – Humidity Control Equipment

DIVISION 25 – INTEGRATED AUTOMATION

25 1000 - Integrated Automation Network Equipment

25 3000 - Integrated Automation Instrumentation & Terminal Devices

DIVISION 26 -- ELECTRICAL

26 0000 - Electrical General Requirements

26 0500 - Basic Electrical Materials and Methods

26 0519 - Conductors and Cables 600V and Less

26 0526 - Grounding and Bonding for Electrical Systems

26 0529 - Hangers and Supports for Electrical Systems

26 0533 - Raceway and Boxes for Electrical Systems

26 0553 - Identification for Electrical

26 0573 - Overcurrent Protective Device Coordination Study

26 0575 - Arc Flash Hazard Analysis Study

26 0923 - Lighting Control Devices

26 2413 - Switchboards

26 2416 - Panelboards

26 2420 - Surge Protection Devices

26 2726 - Wiring Devices

26 2819 - Enclosed Switches and Circuit Breakers

26 5100 - LED Interior Lighting

26 5583 – Broadcast Lighting

DIVISION 27 -- COMMUNICATIONS

27 0500 - Common Work Results for Communications

27 0526 - Grounding and Bonding for Communication Systems

27 0528 - Pathways for Communication Systems

27 0536 - Cable trays for Communications Systems

27 0544 – Sleeves and Sleeve Seals for Communications Pathways and Cabling

27 0553 - Identification for Communication Systems

27 1100 - Communications Room Fittings

27 1116 - Communications Cabinets, Racks, Frames, and Enclosures

27 1300 - Backbone Cabling

27 1500 - Horizontal Cabling

27 1543 – Communications Faceplates and Connectors

27 4100 – Common Work Results for Audio Video Systems

27 4100.10 – Audio Video Systems and Equipment for Test Kitchen and Recording Suite

27 4100.20 – Audio Video Systems and Equipment for Conference Rooms and Other Spaces

27 5119 – Sound Masking System

DIVISION 28 -- ELECTRONIC SAFETY AND SECURITY

28 0526 – Grounding and Bonding for Electronic Safety and Security

28 0528 – Pathways for Electronic Safety and Security

28 0544 - Sleeves and Sleeve Seals for Electronic Safety and Security Pathways and Cabling

28 1300 - Access Control

28 1600 - Intrusion Detection

28 3111 - Digital Addressable Fire Alarm System

DIVISION 31 -- EARTHWORK

31 0000 - Earthwork

31 6316 – Auger Cast Grout Piles

DIVISION 32 -- EXTERIOR IMPROVEMENTS

32 1200 – Flexible Paving

32 1300 – Concrete Pavement Curb and Sidewalks

32 1723.13 - Pavement Markings

32 3119 – Decorative Metal Fences and Gates

32 3300 - Site Furnishings

32 8423 - Irrigation System

32 9300 - Plants

DIVISION 33 -- UTILITIES (NOT USED)

END OF SECTION

SECTION 00 3100 - AVAILABLE PROJECT INFORMATION

PART 1 GENERAL

1.1 EXISTING CONDITIONS

A. Certain information relating to existing surface and subsurface conditions and structures is available to bidders but will not be part of Contract Documents, as follows:

B. Geotechnical Report: Entitled fill in title, report #, by consultant name, dated enter date.

1. This report identifies properties of below grade conditions and offers recommendations for the design of foundations, prepared primarily for the use of Architect.
2. The recommendations described shall not be construed as a requirement of this Contract, unless specifically referenced in Contract Documents.
3. This report, by its nature, cannot reveal all conditions that exist on the site. Should subsurface conditions be found to vary substantially from this report, changes in the design and construction of foundations will be made, with resulting credits or expenditures to the Contract Sum accruing to Owner.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 00 7343 - WAGE RATE REQUIREMENTS

THE NEW MEXICO STATE MINIMUM WAGE RATES APPLICABLE FOR THIS CONTRACT, AS DETERMINATION BY THE NEW MEXICO LABOR AND INDUSTRIAL COMMISSION, SHALL BE PAID TO ALL WORKERS EMPLOYED IN THE PERFORMANCE OF THE WORK.

WAGE RATE INFORMATION: FOR BIDDING PURPOSES SEE THE WEB SITE HTTPS://WWW.DWS.STATE.NM.US/PUBLIC-WORKS

PUBLIC WORKS PREVAILING WAGE RATES, TYPE B - GENERAL BUILDING, BASE RATES AND FRINGE RATES UNDER "EFFECTIVE JANUARY 1, 2024".

END OF SECTION

SECTION 01 1000 - SUMMARY

PART 1 GENERAL

1.1 PROJECT

A. Project Name: NMSU NMDA Office

B. Owner's Name: New Mexico State University.

C. Architect's Name: Dekker Perich Sabatini.

D. The NMSU NMDA Office Building replaces the recently demolished Building 330. The project consists of the construction of a new one-story New Mexico Department of Agriculture (NMDA) Office Building approximately 27,470 sf designed with a 2000 sf large conference room / hearing room, test kitchen with kitchen support spaces, entomology lab, offices, open office areas, and building support spaces.

1.2 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 00 5200 - Agreement Form.

1.3 DESCRIPTION OF ALTERATIONS WORK

A. Scope of demolition and removal work is indicated on drawings and specified in Section 02 4100.

B. Scope of alterations work is indicated on drawings.

C. Plumbing: Alter existing and add new construction.

D. HVAC: Alter existing system and add new construction, keeping existing in operation.

E. Electrical Power and Lighting: Alter existing system and add new construction, keeping existing in operation.

F. Fire Suppression Sprinklers: Alter existing and add new construction.

G. Fire Alarm: Alter existing system and add new construction, keeping existing in operation.

H. Security System: Alter existing system and add new construction, keeping existing in operation.

1.4 WORK BY OWNER

A. Items noted NIC (Not in Contract) or OFOI (Owner Furnished Owner Installed) will be supplied and installed by Owner before Substantial Completion. Some items include:

1. Movable cabinets and shelving.
2. Small equipment.
3. Lab equipment as indicated in the drawings..
4. Appliances..

1.5 OWNER OCCUPANCY

A. Owner intends to continue to occupy adjacent portions of the existing building during the entire construction period.

B. Owner intends to occupy the Project upon Substantial Completion.

C. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

D. Schedule the Work to accommodate Owner occupancy.

1.6 CONTRACTOR USE OF SITE AND PREMISES

A. Arrange use of site and premises to allow:

1. Owner occupancy.

B. Provide access to and from site as required by law and by Owner:

1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
2. Do not obstruct roadways, sidewalks, or other public ways without permit.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 2310 - BID LOTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Descriptions for Bid Lots which isolate certain portions of the Work for identification in the Proposal or Bid Form.

1.2 RELATED REQUIREMENTS

A. All requirements of General and Supplementary Conditions, applicable sections of Specifications, and applicable portions of Drawings shall govern scope, quality, and execution of Bid Lots.

1.3 ACCEPTANCE OF BID LOTS

A. Owner reserves the right to accept Bid Lot alternates in any order, not in the order listed below or on Proposal Form.

1.4 SCHEDULE OF BID LOTS

A. BASE BID - Base Bid Proposal: NMSU NMDA Office :

1. Include a lump sum proposal amount to complete all work for construction of the NMSU NMDA Office and associated demolition, site work and utilities.

B. BID LOT NO. 1: FOODSERVICE EQUIPMENT:

1. Include a lump sum proposal amount which shall apply to all work to include adding Foodservice Equipment.
2. Refer to Drawings and related sections in the Project Manual.

C. BID LOT NO. 2: AV EQUIPMENT:

1. Include a proposal amount which shall apply to all work to include adding AV Equipment.
2. Refer to Drawings and related sections in the Project Manual.

D. BID LOT NO. 3: ADDITIONAL ACOUSTICS:

1. Include a proposal amount which shall apply to all work to include adding Additional Acoustics.
2. Refer to Drawings and related sections in the Project Manual.

E. BID LOT NO. 4: CROSSWALK:

1. Include a proposal amount which shall apply to all work to include adding a Crosswalk.
2. Refer to Drawings and related sections in the Project Manual.

F. BID LOT NO. 5: ORNAMENTAL FENCE (INFILL):

1. Include a proposal amount which shall apply to all work to include adding Ornamental Fencing (Infill).
2. Refer to Drawings and related sections in the Project Manual.

G. BID LOT NO. 6: CANOPY 3-REMOVE EXISTING CANOPY AND REPLACE:

1. Include a proposal amount which shall apply to all work to include adding Canopy 3-Remove Existing and Replace.
2. Refer to Drawings and related sections in the Project Manual.

H. BID LOT NO. 7: CANOPY 4-ADDITIONAL CANOPY:

1. Include a proposal amount which shall apply to all work to include adding Canopy 4-Additional Canopy.
2. Refer to Drawings and related sections in the Project Manual.

I. BID LOT NO. 8: UPDATE ACOUSTIC DECK AT PITCHED ROOF:

1. Include a proposal amount which shall apply to all work to include adding an update to the Acoustic Deck and Pitched Roof.
2. Refer to Drawings and related sections in the Project Manual.

1.5 PROCEDURES

A. Consider all work that must be accomplished for complete incorporation of pricing for bid lots.

B. Include in lump sum prices for bid lots all costs of labor, materials, equipment, permits, fees, insurance, bonds, overhead, and profit.

C. Coordinate related work and modify surrounding work to integrate work of each bid lot.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 2500 - SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Procedural requirements for proposed substitutions.

1.2 RELATED REQUIREMENTS

A. Section 00 4325 - Substitution Request Form - During Procurement: Required form for substitution requests made prior to award of contract (During procurement).

B. Section 00 6325 - Substitution Request Form - During Construction: Required form for substitution requests made after award of contract (During construction).

C. Section 01 2300 - Alternates, for product alternatives affecting this section.

D. Section 01 3000 - Administrative Requirements: Submittal procedures, coordination.

E. Section 01 6000 - Product Requirements: Fundamental product requirements, product options, delivery, storage, and handling.

1.3 DEFINITIONS

A. Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.

1. Substitutions for Cause: Proposed due to changed Project circumstances beyond Contractor's control.
    a. Unavailability.
    b. Regulatory changes.
2. Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project.
    a. Substitution requests offering advantages solely to the Contractor will not be considered.

1.4 REFERENCE STANDARDS

A. CSI/CSC Form 1.5C - Substitution Request (During the Bidding/Negotiating Stage).

B. CSI/CSC Form 13.1A - Substitution Request (After the Bidding/Negotiating Phase).

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

A. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.
2. Agrees to provide the same warranty for the substitution as for the specified product.
3. Agrees to provide same or equivalent maintenance service and source of replacement parts, as applicable.
4. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.
5. Waives claims for additional costs or time extension that may subsequently become apparent.

B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on proposer.

1. Note explicitly any non-compliant characteristics.

C. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.

1. Forms indicated and included in the Project Manual are adequate for this purpose, and must be used.
2. Contractor's Substitution Request documentation must include the following:
    a. Project Information:
    b. Substitution Request Information:
        1) Discrete and consecutive Substitution Request number, and descriptive subject/title.
        2) Indication of whether the substitution is for cause or convenience.
        3) Issue date.
        4) Reference to particular Contract Document(s) specification section number, title, and article/paragraph(s).
        5) Description of Substitution.
        6) Reason why the specified item cannot be provided.
        7) Differences between proposed substitution and specified item.
        8) Description of how proposed substitution affects other parts of work.

c. Attached Comparative Data: Provide point-by-point, side-by-side comparison addressing essential attributes specified, as appropriate and relevant for the item:
   1) Physical characteristics.
   2) In-service performance.
   3) Expected durability.
   4) Visual effect.
   5) Sustainable design features.
   6) Warranties.
   7) Other salient features and requirements.
   8) Include, as appropriate or requested, the following types of documentation:
      (a) Product Data:
      (b) Samples.
      (c) Certificates, test, reports or similar qualification data.
      (d) Drawings, when required to show impact on adjacent construction elements.
      (e) Local service representative.

d. Impact of Substitution:
   1) Savings to Owner for accepting substitution.
   2) Change to Contract Time due to accepting substitution.

D. Limit each request to a single proposed substitution item.

1. Submit an electronic document, combining the request form with supporting data into single document.

3.2 SUBSTITUTION PROCEDURES DURING PROCUREMENT

A. Submittal Form (before award of contract):

1. Bidding contractor shall submit substitution requests by completing CSI/CSC Form 1.5C - Substitution Request (During the Bidding/Negotiating Stage). See this form for additional information and instructions. Use only this form; other forms of submission are unacceptable.

B. Owner will consider requests for substitutions only if submitted by the deadline provided by New Mexico State University. 7

C. Owner will consider requests for substitution from bidding contractors only. Requests for substitution from manufacturers, suppliers, or subcontractors will not be considered.

3.3 SUBSTITUTION PROCEDURES DURING CONSTRUCTION

A. Submittal Form (after award of contract):

1. Submit substitution requests by completing CSI/CSC Form 13.1A - Substitution Request. See this form for additional information and instructions. Use only this form; other forms of submission are unacceptable.

B. Submit request for Substitution for Cause within 14 days of discovery of need for substitution, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.

C. Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.

1. In addition to meeting general documentation requirements, document how the requested substitution benefits the Owner through cost savings, time savings, greater energy conservation, or in other specific ways.

2. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.

3. Bear the costs engendered by proposed substitution of:

a. Owner's compensation to the Architect for any required redesign, time spent processing and evaluating the request.

b. Other unanticipated project considerations.

D. Substitutions will not be considered under one or more of the following circumstances:

1. When they are indicated or implied on shop drawing or product data submittals, without having received prior approval.

2. Without a separate written request.

3.4 RESOLUTION

A. Architect may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.

B. Architect will notify Contractor in writing of decision to accept or reject request.

1. Architect's decision following review of proposed substitution will be noted on the submitted form.

3.5 ACCEPTANCE

A. Accepted substitutions change the work of the Project. They will be documented and incorporated into work of the project by Change Order, Construction Change Directive, Architectural Supplementary Instructions, or similar instruments provided for in the Conditions of the Contract.

END OF SECTION

SECTION 01 3000 - ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. General administrative requirements.

B. Preconstruction meeting.

C. Site mobilization meeting.

D. Progress meetings.

E. Progress photographs.

F. Coordination drawings.

G. Submittals for review, information, and project closeout.

H. Number of copies of submittals.

I. Requests for Interpretation (RFI) procedures.

J. Submittal procedures.

1.2 RELATED REQUIREMENTS

A. Section 01 7000 - Execution and Closeout Requirements: Additional coordination requirements.

B. Section 01 7800 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

1.3 GENERAL ADMINISTRATIVE REQUIREMENTS

A. Comply with requirements of Section 01 7000 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.

B. Make the following types of submittals to Architect:

1. Requests for Interpretation (RFI).
2. Requests for substitution.
3. Shop drawings, product data, and samples.
4. Test and inspection reports.

5. Design data.
6. Manufacturer's instructions and field reports.
7. Applications for payment and change order requests.
8. Progress schedules.
9. Coordination drawings.
10. Correction Punch List and Final Correction Punch List for Substantial Completion.
11. Closeout submittals.

1.4 PROJECT COORDINATOR

A. Project Coordinator: Construction Manager.

B. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field offices and sheds, for access, traffic, and parking facilities.

C. During construction, coordinate use of site and facilities through the Project Coordinator.

D. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

E. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities. Responsibility for providing temporary utilities and construction facilities is identified in Section 01 1000 - Summary.

F. Coordinate field engineering and layout work under instructions of the Project Coordinator.

G. Make the following types of submittals to Architect through the Project Coordinator:

1. Requests for Interpretation.
2. Requests for substitution.
3. Shop drawings, product data, and samples.
4. Test and inspection reports.
5. Design data.
6. Manufacturer's instructions and field reports.
7. Applications for payment and change order requests.
8. Progress schedules.
9. Coordination drawings.
10. Correction Punch List and Final Correction Punch List for Substantial Completion.
11. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PRECONSTRUCTION MEETING

A. Attendance Required:

1. Owner.
2. Architect.
3. Contractor.

B. Agenda:

1. Execution of Owner-Contractor Agreement.
2. Submission of executed bonds and insurance certificates.
3. Distribution of Contract Documents.
4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
5. Designation of personnel representing the parties to Contract.
6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
7. Scheduling.

C. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.2 SITE MOBILIZATION MEETING

A. Attendance Required:

1. Contractor.
2. Owner.
3. Architect.
4. Contractor's superintendent.
5. Major subcontractors.

B. Agenda:

1. Use of premises by Owner and Contractor.
2. Owner's requirements.

3. Construction facilities and controls provided by Owner.
4. Temporary utilities provided by Owner.
5. Survey and building layout.
6. Security and housekeeping procedures.
7. Schedules.
8. Application for payment procedures.
9. Procedures for testing.
10. Procedures for maintaining record documents.
11. Requirements for start-up of equipment.
12. Inspection and acceptance of equipment put into service during construction period.

C. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.3 PROGRESS MEETINGS

A. Attendance Required:

1. Contractor.
2. Owner.
3. Architect.
4. Contractor's superintendent.
5. Major subcontractors.

B. Agenda:

1. Review minutes of previous meetings.
2. Review of work progress.
3. Field observations, problems, and decisions.
4. Identification of problems that impede, or will impede, planned progress.
5. Review of submittals schedule and status of submittals.
6. Maintenance of progress schedule.
7. Corrective measures to regain projected schedules.
8. Planned progress during succeeding work period.
9. Maintenance of quality and work standards.
10. Effect of proposed changes on progress schedule and coordination.
11. Other business relating to work.

C. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.4 PROGRESS PHOTOGRAPHS

A. Photography Type: Digital; electronic files.

B. Digital Photographs: 24 bit color, minimum resolution of 1024 by 768, in JPG format; provide files unaltered by photo editing software.

1. Delivery Medium: Via email.
2. File Naming: Include project identification, date and time of view, and view identification.
3. PDF File: Assemble all photos into printable pages in PDF format, with 2 to 3 photos per page, each photo labeled with file name; one PDF file per submittal.

3.5 COORDINATION DRAWINGS

A. Provide information required by Project Coordinator for preparation of coordination drawings.

B. Review drawings prior to submission to Architect.

3.6 REQUESTS FOR INTERPRETATION (RFI)

A. Definition: A request seeking one of the following:

1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in Contract Documents.
2. A resolution to an issue which has arisen due to field conditions and affects design intent.

B. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.

1. Prepare a separate RFI for each specific item.
2. Prepare in a format and with content acceptable to Owner.
3. Prepare using an electronic version of the form appended to this section.
4. Combine RFI and its attachments into a single electronic file. PDF format is preferred.

C. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.

1. Include in each request Contractor's signature attesting to good faith effort to determine from Contract Documents information requiring interpretation.

D. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.

1. Official Project name and number, and any additional required identifiers established in Contract Documents.
2. Owner's, Architect's, and Contractor's names.
3. Discrete and consecutive RFI number, and descriptive subject/title.
4. Issue date, and requested reply date.
5. Reference to particular Contract Document(s) requiring additional information/interpretation. Identify pertinent drawing and detail number and/or specification section number, title, and paragraph(s).
6. Annotations: Field dimensions and/or description of conditions which have engendered the request.
7. Contractor's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, for example; routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents. If applicable, state the likely impact of the suggested resolution on Contract Time or the Contract Sum.

E. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.

F. RFI Log: Prepare and maintain a tabular log of RFIs for the duration of the project.

G. Review Time: Architect will respond and return RFIs to Contractor within ten calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 12:00 noon will be considered as having been received on the following regular working day.

H. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.

1. Response may include a request for additional information, in which case the original RFI will be deemed as having been answered, and an amended one is to be issued forthwith. Identify the amended RFI with an R suffix to the original number.
2. Do not extend applicability of a response to specific item to encompass other similar conditions, unless specifically so noted in the response.
3. Upon receipt of a response, promptly review and distribute it to all affected parties, and update the RFI Log.

4. Notify Architect within seven calendar days if an additional or corrected response is required by submitting an amended version of the original RFI, identified as specified above.

3.7 SUBMITTAL SCHEDULE

A. Submit to Architect for review a schedule for submittals in tabular format.

1. Submit at the same time as the preliminary schedule specified in Section - 01 3216 - Construction Progress Schedule.
2. Coordinate with Contractor's construction schedule and schedule of values.
3. Format schedule to allow tracking of status of submittals throughout duration of construction.
4. Arrange information to include scheduled date for initial submittal, specification number and title, submittal category (for review or for information), description of item of work covered, and role and name of subcontractor.
5. Account for time required for preparation, review, manufacturing, fabrication and delivery when establishing submittal delivery and review deadline dates.
    a. For assemblies, equipment, systems comprised of multiple components and/or requiring detailed coordination with other work, allow for additional time to make corrections or revisions to initial submittals, and time for their review.

3.8 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:

1. Product data.
2. Shop drawings.
3. Samples for selection.
4. Samples for verification.

B. Submit to Architect for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.

C. Samples will be reviewed for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - Closeout Submittals.

3.9 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:

1. Design data.
2. Certificates.
3. Test reports.
4. Inspection reports.
5. Manufacturer's instructions.
6. Manufacturer's field reports.
7. Other types indicated.

B. Submit for Architect's knowledge as contract administrator or for Owner. No action will be taken.

3.10 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Substantial Completion.

B. Submit Final Correction Punch List for Substantial Completion.

C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 01 7800 - Closeout Submittals:

1. Project record documents.
2. Operation and maintenance data.
3. Warranties.
4. Bonds.
5. Other types as indicated.

D. Submit for Owner's benefit during and after project completion.

3.11 NUMBER OF COPIES OF SUBMITTALS

A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.

B. Extra Copies at Project Closeout: See Section 01 7800.

C. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.

1. After review, produce duplicates.
2. Retained samples will not be returned to Contractor unless specifically so stated.

3.12 SUBMITTAL PROCEDURES

A. General Requirements:

1. Transmit using approved form.
2. Review each submittal and check for compliance with the Contract Documents prior to submitting to Architect for Review. Submittals received by the Architect that have not been reviewed by the Contractor, in advance, will be returned to the Contractor without review. Note corrections and field dimensions. If significant deviations from the Contract Documents are evident, return to the preparing entity for correction prior to submittal to the Architect for review. Mark with approval stamp before submitting to Architect.
3. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
    a. Submittals from sources other than the Contractor, or without Contractor's stamp will not be acknowledged, reviewed, or returned.
4. Schedule submittals to expedite the Project, and coordinate submission of related items.
    a. For each submittal for review, allow 10 days excluding delivery time to and from the Contractor.
    b. For sequential reviews involving Architect's consultants, Owner, or another affected party, allow an additional 7 days.
5. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
6. Provide space for Contractor and Architect review stamps.
7. When revised for resubmission, identify all changes made since previous submission.
8. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
9. Submittals not requested will not be recognized or processed.

B. Product Data Procedures:

1. Submit only information required by individual specification sections.
2. Collect required information into a single submittal.
3. Do not submit (Material) Safety Data Sheets for materials or products.

C. Shop Drawing Procedures:

1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
2. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.

D. Samples Procedures:

1. Transmit related items together as single package.

2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.

3.13 SUBMITTAL REVIEW

A. Submittals for Review: Architect will review each submittal, and approve, or take other appropriate action.

B. Submittals for Information: Architect will acknowledge receipt, but will take no other action.

C. Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.

1. Notations may be made directly on submitted items and/or listed on appended Submittal Review cover sheet.

D. Architect's and consultants' actions on items submitted for review:

1. Authorizing purchasing, fabrication, delivery, and installation:

a. "Approved", or language with same legal meaning.

b. "Approved as Noted, Resubmission not required", or language with same legal meaning.

1) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.

c. "Approved as Noted, Resubmit for Record", or language with same legal meaning.

2. Not Authorizing fabrication, delivery, and installation:

a. "Revise and Resubmit".

1) Resubmit revised item, with review notations acknowledged and incorporated.

b. "Rejected".

1) Submit item complying with requirements of Contract Documents.

E. Architect's and consultants' actions on items submitted for information:

1. Items for which no action was taken:

a. "Received" - to notify the Contractor that the submittal has been received for record only.

2. Items for which action was taken:

a. "Reviewed" - no further action is required from Contractor.

END OF SECTION

SECTION 01 4000 - QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Submittals.

B. Quality assurance.

C. References and standards.

D. Testing and inspection agencies and services.

E. Control of installation.

F. Mock-ups.

G. Tolerances.

H. Manufacturers' field services.

I. Defect Assessment.

1.2 RELATED REQUIREMENTS

A. Document 00 3132 - Geotechnical Data: Soil investigation data.

B. Section 01 3000 - Administrative Requirements: Submittal procedures.

C. Section 01 4533 - Code-Required Special Inspections and Procedures.

D. Section 01 6000 - Product Requirements: Requirements for material and product quality.

1.3 REFERENCE STANDARDS

A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants.

B. ASTM C1077 - Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation.

C. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry.

D. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.

E. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.

F. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing.

G. IAS AC89 - Accreditation Criteria for Testing Laboratories.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Designer's Qualification Statement: Submit for Architect's knowledge as contract administrator, or for Owner's information.

1. Include information for each individual professional responsible for producing, or supervising production of, design-related professional services provided by Contractor.

a. Full name.

b. Professional licensure information.

c. Statement addressing extent and depth of experience specifically relevant to design of items assigned to Contractor.

C. Test Reports: After each test/inspection, promptly submit two copies of report to Architect and to Contractor.

1. Include:

a. Date issued.

b. Project title and number.

c. Name of inspector.

d. Date and time of sampling or inspection.

e. Identification of product and specifications section.

f. Location in the Project.

g. Type of test/inspection.

h. Date of test/inspection.

i. Results of test/inspection.

j. Compliance with Contract Documents.

k. When requested by Architect, provide interpretation of results.

D. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.

1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.

E. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

F. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.

1. Submit report in duplicate within 30 days of observation to Architect for information.
2. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications:

1. Prior to start of work, submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.
2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
3. Qualification Statement: Provide documentation showing testing laboratory is accredited under IAS AC89.

B. Designer Qualifications: Where professional engineering design services and design data submittals are specifically required of Contractor by Contract Documents, provide services of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

1.6 REFERENCES AND STANDARDS

A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.

C. Obtain copies of standards where required by product specification sections.

D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.

E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from Contract Documents by mention or inference otherwise in any reference document.

1.7 TESTING AND INSPECTION AGENCIES AND SERVICES

A. Owner will employ and pay for services of an independent testing agency to perform specified testing.

B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.2 MOCK-UPS

A. Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.

B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

C. Accepted mock-ups shall be a comparison standard for the remaining Work.

D. Where mock-up has been accepted by Architect and is specified in product specification sections to be removed, protect mock-up throughout construction, remove mock-up and clear area when directed to do so by Architect.

3.3 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

3.4 TESTING AND INSPECTION

A. Testing Agency Duties:

1. Test samples of mixes submitted by Contractor.
2. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
3. Perform specified sampling and testing of products in accordance with specified standards.
4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
5. Promptly notify Architect and Contractor of observed irregularities or non-compliance of Work or products.
6. Perform additional tests and inspections required by Architect.
7. Submit reports of all tests/inspections specified.

B. Limits on Testing/Inspection Agency Authority:

1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Agency may not approve or accept any portion of the Work.
3. Agency may not assume any duties of Contractor.
4. Agency has no authority to stop the Work.

C. Contractor Responsibilities:

1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
3. Provide incidental labor and facilities:
    a. To provide access to Work to be tested/inspected.
    b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
    c. To facilitate tests/inspections.
    d. To provide storage and curing of test samples.
4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

D. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.

E. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.5 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance equipment, and _____ as applicable, and to initiate instructions when necessary.

B. Submit qualifications of observer to Architect 30 days in advance of required observations.
    1. Observer subject to approval of Architect.

C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.6 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not complying with specified requirements.

B. If, in the opinion of Architect, it is not practical to remove and replace the work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 4533 - CODE-REQUIRED SPECIAL INSPECTIONS AND PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Code-required special inspections.

B. Testing services incidental to special inspections.

C. Submittals.

D. Manufacturers' field services.

E. Fabricators' field services.

1.2 RELATED REQUIREMENTS

A. Section 01 4000 - Quality Requirements.

1.3 ABBREVIATIONS AND ACRONYMS

A. AHJ: Authority having jurisdiction.

B. IAS: International Accreditation Service, Inc.

C. NIST: National Institute of Standards and Technology.

1.4 DEFINITIONS

A. Code or Building Code: ICC (IBC)-2015, Edition of the International Building Code and specifically, Chapter 17 - Special Inspections and Tests.

B. Authority Having Jurisdiction (AHJ): Agency or individual officially empowered to enforce the building, fire and life safety code requirements of the permitting jurisdiction in which the Project is located.

C. Special Inspection:

1. Special inspections are inspections and testing of materials, installation, fabrication, erection or placement of components and connections mandated by the AHJ that also require special expertise to ensure compliance with the approved Contract Documents and the referenced standards.

2. Special inspections are separate from and independent of tests and inspections conducted by Owner or Contractor for the purposes of quality assurance and contract administration.

1.5 REFERENCE STANDARDS

A. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.

B. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing.

C. IAS AC89 - Accreditation Criteria for Testing Laboratories.

D. IAS AC291 - Accreditation Criteria for Special Inspection Agencies AC291.

E. ICC (IBC)-2015 - International Building Code.

1.6 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Special Inspection Agency Qualifications: Prior to the start of work, the Special Inspection Agency is required to:

1. Submit agency name, address, and telephone number, names of full time registered Engineer and responsible officer.
2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
3. Submit certification that Special Inspection Agency is acceptable to AHJ.

C. Testing Agency Qualifications: Prior to the start of work, the Testing Agency is required to:

1. Submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.
2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
3. Submit certification that Testing Agency is acceptable to AHJ.

D. Fabricator's Qualification Statement: Fabricator is required to submit documentation of fabrication facilities and methods as well as quality control procedures. Include documentation of AHJ approval.

E. Special Inspection Reports: After each special inspection, Special Inspector is required to promptly submit at least two copies of report; one to Architect and one to the AHJ.

1. Include:
   a. Date issued.
   b. Project title and number.

c. Name of Special Inspector.

d. Date and time of special inspection.

e. Identification of product and specifications section.

f. Location in the Project.

g. Type of special inspection.

h. Date of special inspection.

i. Results of special inspection.

j. Compliance with Contract Documents.

2. Final Special Inspection Report: Document special inspections and correction of discrepancies prior to the start of the work.

F. Fabricator Special Inspection Reports: After each special inspection of fabricated items at the Fabricator's facility, Special Inspector is required to promptly submit at least two copies of report; one to Architect and one to AHJ.

1. Include:

a. Date issued.

b. Project title and number.

c. Name of Special Inspector.

d. Date and time of special inspection.

e. Identification of fabricated item and specification section.

f. Location in the Project.

g. Results of special inspection.

h. Verification of fabrication and quality control procedures.

i. Compliance with Contract Documents.

j. Compliance with referenced standard(s).

G. Test Reports: After each test or inspection, promptly submit at least two copies of report; one to Architect and one to AHJ.

1. Include:

a. Date issued.

b. Project title and number.

c. Name of inspector.

d. Date and time of sampling or inspection.

e. Identification of product and specifications section.

f. Location in the Project.

g. Type of test or inspection.

h. Date of test or inspection.

i. Results of test or inspection.

j. Compliance with Contract Documents.

1.7 SPECIAL INSPECTION AGENCY

A. Owner or Architect will employ services of a Special Inspection Agency to perform inspections and associated testing and sampling in accordance with ASTM E329 and required by the building code.

B. The Special Inspection Agency may employ and pay for services of an independent testing agency to perform testing and sampling associated with special inspections and required by the building code.

C. Employment of agency in no way relieves Contractor of obligation to perform work in accordance with requirements of Contract Documents.

1.8 TESTING AND INSPECTION AGENCIES

1.9 QUALITY ASSURANCE

A. Special Inspection Agency Qualifications:

1. Independent firm specializing in performing testing and inspections of the type specified in this section.
2. Accredited by IAS according to IAS AC291.

B. Testing Agency Qualifications:

1. Independent firm specializing in performing testing and inspections of the type specified in this section.
2. Accredited by IAS according to IAS AC89.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 SCHEDULE OF SPECIAL INSPECTIONS, GENERAL

A. Frequency of Special Inspections: Special Inspections are indicated as continuous or periodic.

1. Continuous Special Inspection: Special Inspection Agency is required to be present in the area where the work is being performed and observe the work at all times the work is in progress.

2. Periodic Special Inspection: Special Inspection Agency is required to be present in the area where work is being performed and observe the work part-time or intermittently and at the completion of the work.

3.2 SPECIAL INSTPECTIONS REQUIRED

A. Refer to Special Inspections requirements as indicated on the Drawings.

3.3 SPECIAL INSPECTION AGENCY DUTIES AND RESPONSIBILITIES

A. Special Inspection Agency shall:

1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
2. Perform specified sampling and testing of products in accordance with specified reference standards.
3. Ascertain compliance of materials and products with requirements of Contract Documents.
4. Promptly notify Architect and Contractor of observed irregularities or non-compliance of work or products.
5. Perform additional tests and inspections required by Architect.
6. Attend preconstruction meetings and progress meetings.
7. Submit reports of all tests or inspections specified.

B. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.

C. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.4 TESTING AGENCY DUTIES AND RESPONSIBILITIES

A. Testing Agency Duties:

1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
2. Perform specified sampling and testing of products in accordance with specified standards.
3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
4. Promptly notify Architect and Contractor of observed irregularities or non-compliance of work or products.
5. Perform additional tests and inspections required by Architect.

6. Submit reports of all tests or inspections specified.

B. Limits on Testing or Inspection Agency Authority:

1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Agency may not approve or accept any portion of the work.
3. Agency may not assume any duties of Contractor.
4. Agency has no authority to stop the work.

C. On instructions by Architect, perform re-testing required because of non-compliance with specified requirements, using the same agency.

D. Contractor will pay for re-testing required because of non-compliance with specified requirements.

3.5 CONTRACTOR DUTIES AND RESPONSIBILITIES

A. Contractor Responsibilities, General:

1. Deliver to agency at designated location, adequate samples of materials for special inspections that require material verification.
2. Cooperate with agency and laboratory personnel; provide access to approved documents at project site, to the work, to manufacturers' facilities, and to fabricators' facilities.
3. Provide incidental labor and facilities:
   a. To provide access to work to be tested or inspected.
   b. To obtain and handle samples at the site or at source of Products to be tested or inspected.
   c. To facilitate tests or inspections.
   d. To provide storage and curing of test samples.
4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing or inspection services.
5. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

END OF SECTION

SECTION 01 5000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Temporary utilities.

B. Temporary telecommunications services.

C. Temporary sanitary facilities.

D. Temporary Controls: Barriers, enclosures, and fencing.

E. Security requirements.

F. Vehicular access and parking.

G. Waste removal facilities and services.

H. Project identification sign.

I. Field offices.

J. Storm Water Pollution Prevention Plan.

1.2 REFERENCE STANDARDS

A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

1.3 TEMPORARY UTILITIES

A. Owner will provide the following:

1. Electrical power and metering, consisting of connection to existing facilities.
2. Water supply, consisting of connection to existing facilities.

B. Provide and pay for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes.

C. Existing facilities may be used.

D. New permanent facilities may be used.

E. Use trigger-operated nozzles for water hoses, to avoid waste of water.

1.4 TELECOMMUNICATIONS SERVICES

A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.

B. Telecommunications services shall include:

1. Windows-based personal computer dedicated to project telecommunications, with necessary software and laser printer.
2. Telephone Land Lines: One line, minimum; one handset per line.
3. Internet Connections: Minimum of one; DSL modem or faster.
4. Email: Account/address reserved for project use.
5. Facsimile Service: Minimum of one dedicated fax machine/printer, with dedicated phone line.
6. Facsimile Service: Fax-to-email software on personal computer.
7. Project web site.

1.5 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

B. Use of existing facilities is permitted.

C. New permanent facilities may be used during construction operations.

D. Maintain daily in clean and sanitary condition.

E. At end of construction, return facilities to same or better condition as originally found.

1.6 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.

C. Provide protection for plants designated to remain. Replace damaged plants.

D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.7 FENCING

A. Provide 6 foot high fence around construction site; equip with vehicular and pedestrian gates with locks.

1.8 EXTERIOR ENCLOSURES

A. Provide temporary insulated weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.9 INTERIOR ENCLOSURES

A. Provide temporary partitions and ceilings as indicated to separate work areas from Owner-occupied areas, to prevent penetration of dust and moisture into Owner-occupied areas, and to prevent damage to existing materials and equipment.

B. Construction: Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces:

1. STC rating of 35 in accordance with ASTM E90.
2. Maximum flame spread rating of 75 in accordance with ASTM E84.

C. Paint surfaces exposed to view from Owner-occupied areas.

1.10 SECURITY

A. Provide security and facilities to protect Work, existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

B. Pan-Tilt-Zoom (PTZ) Cameras:

1. Manufacturers:
    a. Truelook Construction Cameras: www.truelook.com.
    b. Substitutions: See Section 01 2500 - Substitution Procedures.
2. Provide Construction Camera on site with the following critera:
    a. Connectivity: 4G LTE with ability to connect to onsite Wi-Fi.
    b. Megapixels: Not less than 12MP.
    c. Video Quality: 4K.

d. Frames Per Second: 24-30 fps.

e. Zoom: Optical.

f. Power: 110V or Solar.

g. Focal Length Range: 4-20mm.

h. Infrared (IR) Range: 250m.

C. Coordinate with Owner's security program.

1.11 VEHICULAR ACCESS AND PARKING

A. Comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.

B. Coordinate access and haul routes with governing authorities and Owner.

C. Provide and maintain access to fire hydrants, free of obstructions.

D. Provide means of removing mud from vehicle wheels before entering streets.

E. Designated existing on-site roads may be used for construction traffic.

F. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

G. Provide one parking space for Owner use.

H. Provide one parking space for Architect use.

I. Designate one parking space for Owner and Architect use.

1.12 WASTE REMOVAL

A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

B. Provide containers with lids. Remove trash from site periodically.

C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.13 PROJECT IDENTIFICATION

A. Provide project identification sign of design and construction indicated on drawings.

B. Erect on site at location established by Architect.

C. No other signs are allowed without Owner permission except those required by law.

1.14 FIELD OFFICES

A. Office: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture, drawing rack, and drawing display table.

B. Provide space for Project meetings, with table and chairs to accommodate 6 persons.

C. Locate offices a minimum distance of 30 feet from existing and new structures.

1.15 STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

A. General: Contractor is to provide Storm Water Pollution Prevention Plan (SWPPP) per EPA requirements.

1.16 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Date of Substantial Completion inspection.

B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing facilities used during construction to original condition.

E. Restore new permanent facilities used during construction to specified condition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 5639 - TEMPORARY TREE AND PLANT PROTECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Temporary protection of select vegetation as indicated on the Demolition Drawings.

1.2 RELATED REQUIREMENTS

A. Section 02 4100 - Demolition.

B. Section 32 8423 - Irrigation System.

C. Section 32 9300 - Plants.

1.3 REFERENCE STANDARDS

A. ANSI A300 Part 1 - American National Standard for Tree Care Operations -- Tree, Shrub and Other Woody Plant Maintenance -- Standard Practices.

1.4 DEFINITIONS

A. Caliper: Diameter of a trunk measured by the average of the smallest and largest diameters at 6 inches above the ground for trees up to, and including, 4-inch size; and 12 inches above the ground for trees larger than 4-inch size.

B. Plant Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction.

C. Tree Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction. This area shall extend, as a minimum, from the edge of the tree trunk to the “drip-line” (as defined by the area between the trunk and the outer edge of foliage or branching).

D. Protected Plant: Vegetation and specimens identified for protection on the Drawings.

E. Vegetation: Trees, shrubs, and grass.

1.5 PERFORMANCE REQUIREMENTS

A. Preserve and protect vegetation within the plant and tree protection zones from damage caused by demolition and construction operations and equipment including but not limited to excavating, dumping, chemical damage, or other operations.

B. Protect vegetation by the use of protective barriers or other approved methods.

C. Remove trees or shrubs within plant or tree protection zone only with written approval of the Owner.

D. Where temporary restraint of existing plant material is required, protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees in such a manner as to destroy their natural shape. Immediately release plant materials from restraints following required work.

1.6 QUALITY ASSURANCE

A. Preinstallation Meeting: Convene at the site at least one week prior to any site work or demolition.

1. Review methods and procedures related to temporary tree and plant protection including, but not limited to, the following:

a. Retrofit of the existing irrigation system at the beginning of demolition to maintain irrigation to existing plant material to remain.

b. Installation of tree and plant protective fencing.

c. Construction schedule. Verify availability of materials, personnel, and equipment needed to make progress and avoid delays.

d. Enforcement requirements for protection zones.

2. Field mark tree protection fence locations using marking paint.

B. Post Installation Review: Once the tree protection fencing and anti-compaction methods are installed, and prior to any demolition work on the project site, schedule a post installation review with the Architect. Architect to conduct review for all protected specimens, including review of condition, protection measures and irrigation.

C. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed temporary tree and plant protection work similar to that required for this Project, and that will assign an experienced supervisor to oversee tree protection at the project site during execution of the Work.

1.7 SUBMITTALS

A. Qualification Data: For Arborist or experienced supervisor or licensed tree service firm.

B. Protection Plan: Document existing trees and plantings indicated to remain, which establishes preconstruction conditions.

1. Use sufficiently detailed photographs or video recordings.

2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

3. Include retrofit plans for of the existing irrigation system that will maintain irrigation to existing plant material to remain during demolition and construction.
4. Provide a report determining that the trees noted for preservation or relocation are healthy and able to withstand construction efforts and/or relocation. Indicate, in report, any existing or proposed site conditions that may be detrimental to the survival of the trees.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws if applicable.

1.9 PROJECT CONDITIONS

A. The following practices are prohibited within tree and plant protection zones:
1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
8. Portable Toilets.
9. Dumpsters/waste collection facilities.
10. Cleanout of ready-mix concrete trucks or other concrete mixers.

B. Do not direct vehicle or equipment exhaust toward protection zones.

C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

1.10 WARRANTY PERIOD AND REPLACEMENT

A. All protected plants shall be alive and growing properly, with all related work functioning properly, at the end of the warranty period. Maintain and monitor health of all protected plants for a period of (90) ninety days beginning on the Date of Substantial Completion.

B. Regularly inspect all protected plant areas.

C. Regularly inspect retrofit irrigation system in protected plant areas and repair as necessary.

D. Replace dead or unhealthy trees, shrubs, turf and ground covers within the protection zones prior to the end of the warranty period unless interim replacements are requested by the Owner or, in the opinion of the Architect or the Owner's Representative, it is advisable to extend the extended warranty until the next full growing season.

1. Equivalent Caliper Replacement Trees: All trees that are indicated to be protected, but do not survive the construction phase of the project shall be replaced in-kind at a ratio of one 3" caliper tree per 3" caliper of tree lost. That is, an 18"caliper existing tree shall be replaced with six new 3" caliper trees.

2. If an extended warranty period is enacted, an inspection will be conducted prior to the end of the extended warranty period to determine acceptance or rejection of plant material under the warranty requirements.

3. Up to three interim replacement installations may be required, at the Owner's request, at no cost to the Owner. At the direction of the Owner, promptly repair or replace all protected plant areas or materials that prove unhealthy, dead, or defective in material or workmanship. Replace any planting or landscape materials as soon as weather conditions permit, during the warranty period, except for those factors excluded above.

4. Materials used for replacement shall be of same kind as existing and as approved.

5. Only one replacement per plant will be required during the (90) ninety day warranty period, except for losses of original or replacement material due to failure to comply with the specification requirements. Provide documentation of warranty replacements. Coordinate documentation and any interim inspections with the Architect or the Owner's Representative.

E. Grind stump of any removed tree down to 2 feet minimum below finish grade.

F. Notify Architect, if at any time during the warranty period site conditions unfavorable to the health of the protected plant areas are encountered.

G. Repair any settlement of protection zones by re-grading and resetting plant material so that each plant sits at the appropriate relation to finish grade. Make repairs as directed by Owner and Architect or the Owner's Representative.

PART 2 PRODUCTS

2.1 MATERIALS

A. Protection Zone Fencing: Fencing fixed in position and meeting the following requirements.

1. Temporary Chain Link Fence Panels: Freestanding, 10 feet long connected panels, 6 feet high, with top, side and bottom rails.

B. Organic Mulch: Wood chips ranging in size from 1/2 inch to one inch. Wood chips may be obtained from on-site tree removal. Colored, pressure treated, recycled or stained wood will not be acceptable.

C. Existing Mulch: Match with like kind and type.

D. Plywood Sheets: 1 inch minimum thickness. For use over wood chips in anti-compaction areas when there is heavy equipment in the area.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine the site to verify that temporary erosion and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

3.2 PREPARATION

A. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated. Tie a 1-inch blue-vinyl tape around each tree trunk at 54 inches above the ground.

B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting.

C. Tree Protection Zones: Treat interior as noted on plans or herein.

1. Turf and Landscape Areas: Increase irrigation of these areas by 10% to mitigate any root loss and compaction during construction. Do not apply herbicides of any kind in this protection area.
2. Mulched Landscape Areas: Apply 3” thickness of organic mulch (wood chips) to preserve soil moisture. Do not place mulch within three feet of tree trunk. Additional wood mulch is not necessary in areas where plant material is already covered with rock mulch.
3. High Compaction Areas: Apply 6” thickness of organic mulch (wood chips) as an anti-compaction measure. If there is frequent vehicle use in the area, cover anti-compaction mulch with plywood boards to distribute vehicle loads over a broader area.

D. Retrofit existing irrigation system.

3.3 TREE AND PLANT PROTECTION ZONES

A. Protection Zone Fencing: Install protection zone fencing as noted on drawings at locations field painted during the pre-installation meeting prior to beginning construction operations and in a manner that will prevent people from easily entering protected area except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.

B. Maintain protection zones free of weeds and trash. Do not use herbicides for weed removal.

C. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

D. Maintain protection zone fencing in good condition and remove when construction operations are complete and equipment has been removed from the site.

1. Do not remove protection zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.

2. Provide high-compaction protection when temporary access is required. Maintain protection as long as access is permitted.

E. Protect and maintain retrofit irrigation system.

3.4 EXCAVATION

A. Trenching near Trees: Where utility trenches are required within protection zones, hand excavate or excavate with an air spade under or around tree roots. Drilling, auger boring, or pipe jacking are allowable, but hand excavation and use of an air spade are the preferred methods. Do not cut main (3" and larger) lateral tree roots or taproots; cut only smaller roots (3" and smaller) that interfere with installation of utilities. Cut roots as required for root pruning. If there is any question about the extent of root pruning. When large tree roots or an extensive network of tree roots is encountered during trenching outside of protection zones, halt trenching in this area and consult with the Architect for direction.

B. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches back from new construction and as required for root pruning.

C. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3.5 ROOT PRUNING

A. Prune roots that are affected by temporary and permanent construction. Prune roots as follows:

1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.

2. Root pruning paint is not allowed.

3. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.

4. Cover exposed roots with burlap and water regularly.
5. Backfill as soon as possible per Division 31 specifications or as noted on the drawings.

B. Root Pruning within Protection Zone: Clear and excavate by hand to the depth of the required excavation to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.

3.6 CROWN PRUNING

A. Prune branches that are affected by temporary and permanent construction. Prune branches as follows:

1. Prune trees only as needed to accommodate construction. Do not prune trees for form unless directed to do so by the Architect.
2. Prune trees according to ANSI A300 Part 1.
3. Cut branches with sharp pruning instruments; do not break or chop.
4. Do not apply pruning paint to wounds.

3.7 REGRADING

A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

B. Lowering Grade within Protection Zone: This is not recommended. Where it is unavoidable, and new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by Arborist unless otherwise indicated.

1. Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots.

C. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

D. Minor Fill within Protection Zone: This is not recommended. Where it is unavoidable, and existing grade is 2 inches or less below elevation of finish grade, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations.

3.8 REPAIR AND REPLACEMENT

A. Take necessary precautions to avoid injuries to trees and shrubs caused by construction operations. The term "injury" includes, without limitations, bruising, scarring, tearing, and breaking of roots, trunk or branches. Repair or treat injured trees and shrubs without delay, at the contractor's expense. If damage occurs, the Contractor shall determine the method of repair or treatment to be used for the injured trees or shrubs, and make a recommendation to the Architect for approval prior to commencing work, as recommended by a certified Arborist, provided by and at the contractor's expense. Approaches for repair and treatment may be

discussed and determined at the preconstruction meeting so that Contractor can make timely repairs.

B. Remove and replace early in the next planting season any trees or shrubs that, in the opinion of the Architect or Owner, are beyond saving. Replace with the same species, or other approved species, of equal size or the maximum size that is practical to plant and sustain growth in the particular environment. Stake replacement trees and shrubs as necessary. Water, and guarantee for a period of 1 year from the date of replacement, or as otherwise agreed. Remove and replace any replacement tree or shrub that dies during this period.

3.9 PROTECTION AND CLEANING

A. Keep adjacent paving and construction clean and work area free from debris.

B. Prior to the Date of Substantial Completion, remove tags, markings, tie tape, labels, wire, burlap, and other debris from planting areas, and project site.

3.10 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Chipping: Where feasible, chip removed trees on site and use wood mulch for temporary tree protection and/or final landscape mulch.

B. Repair all damage to existing landscaping, turf, and irrigation system caused by transplanting operations. Remove excess materials and debris if necessary. Sweep and wash paved areas and sidewalks as necessary.

3.11 MAINTENANCE

A. Begin maintenance immediately after protection measure is in place.

B. Maintain protected trees, shrubs and other plants and related landscape improvements including irrigation system through substantial completion and the full maintenance period.

C. During construction, irrigate protected landscape areas to 110% of their customary watering schedule.

D. Maintain protected plant areas by watering, fertilizing, mechanical weeding, trimming and other operations such as re-grading and replanting as required to establish acceptable installation. Herbicides shall not be used in plant protection areas.

E. Maintenance Activities: Include measures necessary to maintain protected plants in vigorous and healthy growing condition.

1. Water protected plants as specified and maintain until physical completion of all the contract work.
2. Automated irrigation for plant protection areas shall remain operation during the construction. For days when irrigation may be unavailable due to construction activities,

water shall be applied to all plants by hand until the underground irrigation system is once again operational.

3. Cultivate and weed beds every week during the construction. Herbicides shall not be used for weed control in plant protection areas.
4. Dead or broken branches shall be pruned. Pruning paint shall not be used.
5. Inspections and actions related to disease and insect control shall be taken on a weekly basis.
6. Replace dead or dying plant material.

END OF SECTION

SECTION 01 6000 - PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. General product requirements.

B. Transportation, handling, storage and protection.

C. Product option requirements.

D. Substitution limitations.

E. Maintenance materials, including extra materials, spare parts, tools, and software.

1.2 SUBMITTALS

A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.1 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by Contract Documents.

B. Use of products having any of the following characteristics is not permitted:

1. Made of wood from newly cut old growth timber.
2. Containing lead, cadmium, or asbestos.

C. Where other criteria are met, Contractor shall give preference to products that:

2.2 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.3 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.1 SUBSTITUTION PROCEDURES

A. Architect will consider requests for substitutions only within 15 days after date of Agreement.

B. Substitutions will be considered when a product, through no fault of the Contractor, becomes unavailable or unsuitable due to regulatory change.

1. Submit request for Substitution for Cause immediately upon discovery of need for substitution, but not later than 14 days prior to time required for review and approval by Architect.

C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

D. A request for substitution constitutes a representation that the submitter:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
2. Agrees to provide the same warranty for the substitution as for the specified product.
3. Agrees to coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
4. Waives claims for additional costs or time extension that may subsequently become apparent.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure (after contract award):

1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
3. Architect will notify Contractor in writing of decision to accept or reject request.

3.2 TRANSPORTATION AND HANDLING

A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.

C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

D. Transport and handle products in accordance with manufacturer's instructions.

E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.

H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.3 STORAGE AND PROTECTION

A. Store and protect products in accordance with manufacturers' instructions.

B. Store with seals and labels intact and legible.

C. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.

D. For exterior storage of fabricated products, place on sloped supports above ground.

E. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

F. Comply with manufacturer's warranty conditions, if any.

G. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

H. Prevent contact with material that may cause corrosion, discoloration, or staining.

I. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

J. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

SECTION 01 7000 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Pre-installation meetings.

C. Cutting and patching.

D. Surveying for laying out the work.

E. Cleaning and protection.

F. Starting of systems and equipment.

G. Demonstration and instruction of Owner personnel.

H. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

1.2 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.

1. On request, submit documentation verifying accuracy of survey work.
2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in compliance with Contract Documents.
3. Submit surveys and survey logs for the project record.

C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:

1. Structural integrity of any element of Project.
2. Integrity of weather exposed or moisture resistant element.
3. Efficiency, maintenance, or safety of any operational element.
4. Visual qualities of sight exposed elements.
5. Work of Owner or separate Contractor.

1.3 QUALIFICATIONS

A. For surveying work, employ a land surveyor registered in the State in which the Project is located and acceptable to Architect. Submit evidence of surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate. Employ only individual(s) trained and experienced in collecting and recording accurate data relevant to ongoing construction activities,

1.4 PROJECT CONDITIONS

A. Use of explosives is not permitted.

B. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

C. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

D. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

E. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.

F. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

G. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.5 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Notify affected utility companies and comply with their requirements.

C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and

conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate completion and clean-up of work of separate sections.

G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.1 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work,

assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.2 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.3 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Architect four days in advance of meeting date.

D. Prepare agenda and preside at meeting:

1. Review conditions of examination, preparation and installation procedures.
2. Review coordination with related work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.4 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Architect of any discrepancies discovered.

C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

D. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.

F. Utilize recognized engineering survey practices.

G. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:

1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
2. Grid or axis for structures.
3. Building foundation, column locations, ground floor elevations.

H. Periodically verify layouts by same means.

I. Maintain a complete and accurate log of control and survey work as it progresses.

3.5 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.6 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. Perform whatever cutting and patching is necessary to:

1. Complete the work.
2. Fit products together to integrate with other work.
3. Provide openings for penetration of mechanical, electrical, and other services.
4. Match work that has been cut to adjacent work.
5. Repair areas adjacent to cuts to required condition.
6. Repair new work damaged by subsequent work.
7. Remove samples of installed work for testing when requested.
8. Remove and replace defective and non-complying work.

C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

D. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

E. Cut masonry or concrete materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

F. Restore work with new products in accordance with requirements of Contract Documents.

G. Fit work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

H. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material, to full thickness of the penetrated element.

I. Patching:

1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
2. Match color, texture, and appearance.
3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.7 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.8 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.9 SYSTEM STARTUP

A. Coordinate schedule for start-up of various equipment and systems.

B. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.

C. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

D. Verify that wiring and support components for equipment are complete and tested.

E. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

F. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.10 DEMONSTRATION AND INSTRUCTION

A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.

B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

C. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of Owner's personnel.

3.11 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.12 FINAL CLEANING

A. Use cleaning materials that are nonhazardous.

B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

E. Clean filters of operating equipment.

F. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, and drainage systems.

G. Clean site; sweep paved areas, rake clean landscaped surfaces.

H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.13 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.

B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.

C. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.

D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.

E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.

F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.

G. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.

H. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

END OF SECTION

SECTION 01 7419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.1 WASTE MANAGEMENT REQUIREMENTS

A. Owner requires that this project generate the least amount of trash and waste possible.

B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.

C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.

D. Contractor Reporting Responsibilities: Submit periodic Waste Disposal Reports; report landfill disposal, incineration, recycling, salvage, and reuse regardless of to whom the cost or savings accrues; use the same units of measure on required reports.

E. Methods of trash/waste disposal that are not acceptable are:

1. Burning on the project site.
2. Burying on the project site.
3. Dumping or burying on other property, public or private.
4. Other illegal dumping or burying.

F. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.2 RELATED REQUIREMENTS

A. Section 01 3000 - Administrative Requirements: Additional requirements for project meetings, reports, submittal procedures, and project documentation.

B. Section 01 5000 - Temporary Facilities and Controls: Additional requirements related to trash/waste collection and removal facilities and services.

C. Section 01 6000 - Product Requirements: Waste prevention requirements related to delivery, storage, and handling.

D. Section 01 7000 - Execution and Closeout Requirements: Trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

1.3 DEFINITIONS

A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.

C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.

D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.

E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

I. Return: To give back reusable items or unused products to vendors for credit.

J. Reuse: To reuse a construction waste material in some manner on the project site.

K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

N. Toxic: Poisonous to humans either immediately or after a long period of exposure.

O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.

1. Submit updated Report with each Application for Progress Payment; failure to submit Report will delay payment.
2. Submit Report on a form acceptable to Owner.
3. Landfill Disposal: Include the following information:
    a. Identification of material.
    b. Amount, in tons or cubic yards, of trash/waste material from the project disposed of in landfills.
    c. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.
    d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
4. Incinerator Disposal: Include the following information:
    a. Identification of material.
    b. Amount, in tons or cubic yards, of trash/waste material from the project delivered to incinerators.
    c. State the identity of incinerators, total amount of fees paid to incinerator, and total disposal cost.
    d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
5. Recycled and Salvaged Materials: Include the following information for each:
    a. Identification of material, including those retrieved by installer for use on other projects.
    b. Amount, in tons or cubic yards, date removed from the project site, and receiving party.
    c. Transportation cost, amount paid or received for the material, and the net total cost or savings of salvage or recycling each material.
    d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
    e. Certification by receiving party that materials will not be disposed of in landfills or by incineration.
6. Material Reused on Project: Include the following information for each:
    a. Identification of material and how it was used in the project.
    b. Amount, in tons or cubic yards.
    c. Include weight tickets as evidence of quantity.
7. Other Disposal Methods: Include information similar to that described above, as appropriate to disposal method.

PART 3 EXECUTION

2.1 WASTE MANAGEMENT PROCEDURES

A. See Section 01 3000 for additional requirements for project meetings, reports, submittal procedures, and project documentation.

B. See Section 01 5000 for additional requirements related to trash/waste collection and removal facilities and services.

C. See Section 01 6000 for waste prevention requirements related to delivery, storage, and handling.

D. See Section 01 7000 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

2.2 WASTE MANAGEMENT PLAN IMPLEMENTATION

A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.

B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, Owner, and Architect.

C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

D. Meetings: Discuss trash/waste management goals and issues at project meetings.

1. Prebid meeting.
2. Preconstruction meeting.
3. Regular job-site meetings.

E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.

1. Provide containers as required.
2. Provide adequate space for pick-up and delivery and convenience to subcontractors.
3. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.

F. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.

G. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.

H. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.

I. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

END OF SECTION

SECTION 01 7800 - CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Project record documents.

B. Operation and maintenance data.

C. Warranties and bonds.

1.2 RELATED REQUIREMENTS

A. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

B. Individual Product Sections: Specific requirements for operation and maintenance data.

C. Individual Product Sections: Warranties required for specific products or Work.

1.3 SUBMITTALS

A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.

B. Operation and Maintenance Data:

1. Submit preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
3. Submit completed documents 15 days prior to final inspection. Documents will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
4. Submit revised final documents in final form within 10 days after final inspection.

C. Warranties and Bonds:

1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.

3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:

1. Drawings.
2. Addenda.
3. Change Orders and other modifications to the Contract.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Record Drawings: Legibly mark each item to record actual construction including:

1. Field changes of dimension and detail.
2. Details not on original Contract drawings.

3.2 OPERATION AND MAINTENANCE DATA

A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.3 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

C. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

3.4 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:

1. Description of unit or system, and component parts.
2. Identify function, normal operating characteristics, and limiting conditions.
3. Include performance curves, with engineering data and tests.
4. Complete nomenclature and model number of replaceable parts.

B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

C. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

D. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

E. Provide servicing and lubrication schedule, and list of lubricants required.

F. Include manufacturer's printed operation and maintenance instructions.

G. Include sequence of operation by controls manufacturer.

H. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

I. Additional Requirements: As specified in individual product specification sections.

3.5 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.

B. Where systems involve more than one specification section, provide separate tabbed divider for each system.

C. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect, Consultants, Contractor and subcontractors, with names of responsible parties.

F. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.

G. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.

H. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.

I. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

3.6 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

END OF SECTION

SECTION 02 4100 - DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Selective demolition of built site elements.

B. Selective demolition of building elements for alteration purposes.

C. Abandonment and removal of existing utilities and utility structures.

1.2 RELATED REQUIREMENTS

A. Section 01 1000 - Summary: Limitations on Contractor's use of site and premises.

B. Section 01 5000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.

C. Section 01 6000 - Product Requirements: Handling and storage of items removed for salvage and relocation.

D. Section 01 7000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.

E. Section 01 7419 - Construction Waste Management and Disposal: Limitations on disposal of removed materials; requirements for recycling.

1.3 REFERENCE STANDARDS

A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards.

B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Site Plan: Showing:

1. Vegetation to be protected.
2. Areas for temporary construction and field offices.

C. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.1 SCOPE

A. Remove paving and curbs as required to accomplish new work.

B. Remove all other paving and curbs as indicated on drawings.

C. Remove concrete slabs on grade as indicated on drawings.

D. Remove fences and gates.

E. Remove other items indicated, for relocation, recycling, and salvage as coordinated with owner.

F. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as required so that required rough grade elevations do not subside within one year after completion.

3.2 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with other requirements specified in Section 01 7000.

B. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.

1. Obtain required permits.
2. Comply with applicable requirements of NFPA 241.
3. Use of explosives is not permitted.
4. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
5. Provide, erect, and maintain temporary barriers and security devices.
6. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
7. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
8. Do not close or obstruct roadways or sidewalks without permit.
9. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.

10. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

C. Do not begin removal until receipt of notification to proceed from Owner.

D. Do not begin removal until built elements to be salvaged or relocated have been removed.

E. Protect existing structures and other elements that are not to be removed.

1. Provide bracing and shoring.
2. Prevent movement or settlement of adjacent structures.
3. Stop work immediately if adjacent structures appear to be in danger.

F. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

G. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

H. Perform demolition in a manner that maximizes salvage and recycling of materials.

1. Dismantle existing construction and separate materials.
2. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

I. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

3.3 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.

F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

3.4 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.

1. Verify that construction and utility arrangements are as indicated.
2. Report discrepancies to Architect before disturbing existing installation.
3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

B. Separate areas in which demolition is being conducted from other areas that are still occupied.

1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 5000 in locations indicated on drawings.

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.

D. Remove existing work as indicated and as required to accomplish new work.

1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
2. Remove items indicated on drawings.

E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.

1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
3. Verify that abandoned services serve only abandoned facilities before removal.
4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.

F. Protect existing work to remain.

1. Prevent movement of structure; provide shoring and bracing if necessary.
2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
3. Repair adjacent construction and finishes damaged during removal work.
4. Patch as specified for patching new work.

3.5 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Remove from site all materials not to be reused on site; do not burn or bury.

C. Leave site in clean condition, ready for subsequent work.

D. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 03 0516 - UNDERSLAB VAPOR RETARDER

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Sheet vapor retarder system for placement under structural concrete slabs-on-grade.

1.2 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Preparation of subgrade, granular fill, and placement of concrete.

1.3 REFERENCE STANDARDS

A. ACI 302.2R-06 - Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials.

B. ASTM E1643 - Standard Practice for Selection, Design, Installation and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.

C. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.

1.4 QUALITY ASSURANCE

A. Pre-installation meeting:

1. Convene a preinstallation meeting before start of installation of vapor retarder membrane. Require attendance of parties directly affecting work of this section, including Contractor, concrete Subcontractor, Architect, and installer. Review installation, protection, and coordination with other work.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Submit manufacturers' data on manufactured products.

C. Test Data: Submit report of tests showing compliance with specified requirements.

D. Samples: Submit samples of underslab vapor retarder to be used.

E. Manufacturer's Installation Instructions: Indicate installation procedures and interface required with adjacent construction.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Storage: Store materials in clean, dry area in accordance with manufacturer's instructions.

C. Handling: Protect materials during handling and installation to prevent damage.

PART 2 PRODUCTS

2.1 MATERIALS

A. Underslab Vapor Retarder:

1. Be manufactured from prime virgin resins.
2. Water Vapor Permeance: Not more than 0.030 perms, maximum.
3. Complying with ASTM E1745 Class A.
4. Thickness: 10 mils, minimum.
5. Basis of Design:
    a. Stego Industries LLC; Stego Wrap Vapor Retarder (10-mil): www.stegoindustries.com.

B. Accessory Products: Vapor retarder manufacturer's recommended accessories for sealing seams and penetrations in vapor retarder.

1. Seam tape: Four-inch (4") wide tape with a permeance rating matching that of the vapor retarder and approved by the vapor retarder manufacturer.
2. Mastic: Mastic shall be approved by the vapor retarder manufacturer.
3. Pipe Boots or Collars: Pipe boots or collars shall be fabricated in accordance with requirements of the vapor retarder manufacturer explicitly for use with the membrane being used for this project.

C. Manufacturers:

1. Manufacturers that provide material meeting the above specified include:
    a. Fortifiber Corporation, Moistop Ultra 10.
    b. Insulation Solutions, Viper Vaporcheck II.
    c. Poly-America, HuskyYellow Guard.
    d. Raven Industries, VaporBlock 10.
    e. Reef Industries, Griffolyn 10 mil.
    f. W.R. Meadows, Perminator.

g. Substitution from others will not be accepted.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surface over which vapor retarder is to be installed is complete and ready before proceeding with installation of vapor retarder.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install vapor retarder in accordance with manufacturer's instructions and ASTM E1643.

B. Level and tamp or roll soil bearing surface.

C. Place vapor retarder sheeting with the longest dimension parallel with the direction of concrete pour, completely covering the area where concrete slab will be placed.

D. Install vapor retarder under interior structural slabs on grade; lap sheet over footings, seal to foundation walls, and seal around penetrations and columns in order to create a monolithic membrane between the surface of the slab and moisture sources below the slab and at the slab perimeter. The area of adhesion should be free from dust, dirt and moisture to allow maximum adhesion.

E. Lap joints minimum 6 inches, or as recommended by the manufacturer.

F. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions.

3.3 PROTECTION

A. Take precautions to protect vapor retarder from damage during installation of reinforcing steel and utilities and during placement of concrete.

B. Use only concrete brick type reinforcing bar supports, or provide 6 by 6 in. protective pads of asphaltic hardboard or other material recommended by the vapor retarder manufacturer to protect the vapor retarder from puncture.

C. Avoid use of stakes driven through vapor retarder. If stakes must be used, do so only in strict conformance with manufacturer’s recommendations for stake and pin penetration sealing.

3.4 REPAIR

A. IMPORTANT: All penetrations must be sealed. All pipes, ducting, rebar and wire penetrations shall be sealed using boots, tape, mastic, and/or membrane as directed by the membrane manufacturer's instructions.

B. Repair damaged vapor retarder before covering with other materials.

C. Lap beyond damaged areas a minimum of 6 inches; clean all adhesion areas of dust, dirt and moisture; and seal as prescribed for sheet joints.

END OF SECTION

SECTION 03 3000 - CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Concrete formwork.

B. Structural floors and slabs on grade.

C. Concrete foundation walls.

D. Concrete footings, tie beams, grade beams, and pile caps.

E. Concrete reinforcement.

F. Joint devices associated with concrete work.

G. Miscellaneous concrete elements, including equipment pads, light pole bases, and flagpole bases.

H. Architectural site concrete, other than sidewalks, curbs, and gutters.

I. Concrete curing.

J. Repairs to defective concrete.

1.2 RELATED REQUIREMENTS

A. Division 01 Section - Special Requirements for Protection of Concrete Slabs.

B. Section 03 0516 - Underslab Vapor Retarder.

C. Section 03 3511 - Concrete Floor Finishes: Densifiers, hardeners, applied coatings, and polishing.

D. Section 07 9200 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

E. Section 31 2323 - Fill: For fill under foundations and slabs-on-grade.

F. Section 31 6316 - Auger Cast Grout Piles.

G. Section 32 1313 - Concrete Paving: Sidewalks, curbs, and gutters.

H. Section 32 1316 - Decorative Concrete Paving.

I. Additional requirements for concrete mix designs are shown on the project drawings.

1.3 REFERENCE STANDARDS

A. ACI 117 - Specification for Tolerances for Concrete Construction and Materials; 2010 (Reapproved 2015).

B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).

C. ACI CODE-318 - Building Code Requirements for Structural Concrete and Commentary.

D. ACI PRC-211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide.

E. ACI PRC-302.1 - Guide to Concrete Floor and Slab Construction.

F. ACI PRC-304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete.

G. ACI PRC-305 - Guide to Hot Weather Concreting.

H. ACI PRC-306 - Guide to Cold Weather Concreting.

I. ACI PRC-308 - Guide to External Curing of Concrete.

J. ACI PRC-347 - Guide to Formwork for Concrete.

K. ACI SPEC-117 - Specification for Tolerances for Concrete Construction and Materials.

L. ACI SPEC-301 - Specifications for Concrete Construction.

M. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.

N. ASTM A706/A706M - Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement.

O. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.

P. ASTM C1077 - Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation.

Q. ASTM C172/C172M - Standard Practice for Sampling Freshly Mixed Concrete.

R. ASTM C33/C33M - Standard Specification for Concrete Aggregates.

S. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.

T. ASTM C595/C595M - Standard Specification for Blended Hydraulic Cements.

U. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete.

V. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens).

W. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete.

X. ASTM C150/C150M - Standard Specification for Portland Cement.

Y. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete.

Z. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.

AA. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete.

AB. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

AC. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete.

AD. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.

AE. ASTM C845/C845M - Standard Specification for Expansive Hydraulic Cement.

AF. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete.

AG. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete.

AH. ASTM C1157/1157M - Standard Performance Specification for Hydraulic Cement.

AI. ASTM C1260 - Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method).

AJ. ASTM C1293 - Standard Test Method for Determination of Length Change of Concrete Due to Alkali-Silica Reaction; 2020a.

AK. ASTM C1315 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.

AL. ASTM C1567/C1567M - Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)

AM. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete.

AN. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

AO. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

AP. ASTM D1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction.

AQ. ASTM D2103 - Standard Specification for Polyethylene Film and Sheeting.

AR. ASTM E1155 - Standard Test Method for Determining F(F) Floor Flatness and F(L) Floor Levelness Numbers.

AS. ASTM E1155M - Standard Test Method for Determining F(F) Floor Flatness and F(L) Floor Levelness Numbers (Metric).

AT. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Qualification Data: For Installer, Manufacturer, and Testing Agency.

C. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.

1. For curing compounds, provide data on method of removal in the event of incompatibility with floor covering adhesives.

D. Material test reports for aggregates.

1. Include aggregate weathering property test reports.
2. Include one or more of the following:
    a. Signed statement that aggregate does not lead to alkali aggregate reactivity.
    b. Include for each type of aggregate the results of mortar bar expansion testing per ASTM C1260.
    c. Include for each type of aggregate the results of length change testing per ASTM C1293.
    d. For aggregates combined with pozzolans exhibiting an alkali content less than 4.0% sodium oxide equivalent, include for each type of aggregate the results of mortar bar

expansion testing per ASTM C1567. In addition, include for each type of aggregate the results of mortar bar expansion testing (with cement only) per ASTM C1260.

3. Include aggregate seive analysis plotted on .45 Power Curve.

E. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Form materials and form-release agents.
4. Steel reinforcement and accessories.
5. Curing compounds
6. Floor and slab treatments.
7. Bonding agents.
8. Adhesives.
9. Semirigid joint filler.
10. Joint-filler strips.
11. Repair materials.
12. Concrete curing covers.

F. Mix Designs: Submit proposed concrete mix designs. Indicate intended use on each mix design cover sheet.

1. Indicate proposed mix design complies with requirements of ACI SPEC-301, Section 4 - Concrete Mixtures.
   a. Include a minimum of 30 test results from within the past 24 months and calculate the Sample Standard Deviation.
   b. Provide mix design based on the 3-point curve method by varying W/C ratio only. Submit appropriate mix with F'cr = F'c + 1,200 psi for concrete specified with F'c less than or equal to 5,000 psi.
2. Indicate proposed mix design complies with requirements of ACI CODE-318, Chapter 19 - Concrete: Design and Durability Requirements.

G. Steel Reinforcement Shop Drawings:

1. Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

H. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

1. Location of construction joints is subject to approval of the Architect.

I. Samples: Submit one, 12 inch long sample of construction joint devices and concrete curing covers.

J. Test Reports: Submit report for each test or series of tests specified.

K. Manufacturer's Installation Instructions: For concrete accessories, indicate installation procedures and interface required with adjacent construction.

L. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.

M. Field quality-control reports.

N. Minutes of pre-installation conference.

O. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

1.5 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI SPEC-301 and ACI CODE-318.

1. Maintain one copy of each document on site.

B. Follow recommendations of ACI PRC-305 when concreting during hot weather.

C. Follow recommendations of ACI PRC-306 when concreting during cold weather.

D. Conduct pre-installation conference at the project jobsite.

1. Provide 7 days minimum notice to the Structural Engineer's Representative of the scheduled conference.

2. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:

a. Contractor's superintendent.

b. Independent testing agency responsible for concrete design mixtures.

c. Ready-mix concrete manufacturer.

d. Concrete subcontractor.

e. Special concrete finish subcontractor.

3. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction of contraction and isolation joints, and joint filler strips, semirigid joint fillers, forms and form removal limitations, vapor retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation,

floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

E. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

F. Qualifications:

1. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is ACI-certified Concrete Flatwork Technician.

2. Manufacturer Qualifications: A firm experience in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.

3. Manufacturer Certification: Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities".

4. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C1077 and ASTM E329 for testing indicated.

a. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

b. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.

G. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

PART 2 PRODUCTS

2.1 FORMWORK

A. Formwork Design and Construction: Comply with guidelines of ACI PRC-347 to provide formwork that will produce concrete complying with tolerances of ACI SPEC-117.

B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.

1. Form Facing for Non-Exposed Concrete: Contractor's choice of plywood, lumber, metal, or other approved material.

2. Form Facing for Exposed Finish Concrete: Contractor's choice of material that will provide continuous, true, smooth, and stain-free final appearance. Furnish in largest practicable sizes to minimize number of joints.

3. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt

irregularities not exceeding formwork surface class A and which will not leave exposed "spiral" patterns on the finished surfaces. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.

4. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
    a. Formulate form-release agent with rust inhibitor for use in locations with steel form-facing materials.
5. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic, Cone snap type. Furnish ties that will leave no metal within 1-1/2 inches of concrete surface, and that will leave holes no larger than 1 inches in diameter.
    a. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.
6. Form Ties at Exposed to View Concrete: Factory-fabricated, glass-fiber-reinforced plastic, cut flush.
    a. Submit samples to Architect for approval.
7. Re-use of forms: At exposed conditions, re-use forms no more than two times.

2.2 REINFORCEMENT MATERIALS

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
    1. Type: Deformed billet-steel bars.
    2. Finish: Unfinished, unless otherwise indicated.

B. Reinforcing Steel: ASTM A706/A706M, Low-Alloy-Steel, Grade 60 (60,000 psi).
    1. Type: Deformed billet-steel bars.
    2. Finish: Unfinished, unless otherwise indicated.

C. Steel Welded Wire Reinforcement (WWR): Deformed type, ASTM A1064/A1064M.
    1. Form: Flat Sheets.
    2. WWR Style: As indicated on drawings.

D. Joint Dowel Bars: ASTM A615/A615M, Grade 60 (60,000 psi), plain-steel bars, cut true to length with ends square and free of burrs.

E. Reinforcement Accessories:
    1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch.
    2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
    3. Provide stainless steel, galvanized, plastic, or plastic coated steel components for placement within 1-1/2 inches of weathering surfaces.

F. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.3 CONCRETE MATERIALS

A. Cement: ASTM C150/C150M, Type I/II, grey, Portland type, low alkali as needed for ASR mitigation. Use only with approved pozzolan per ASTM C618.

B. Cement: ASTM C595/C595M, Type IL.

C. Cement: ASTM C1157/C1157M, including the optional requirements for low reactivity with alkali-silica-reactive aggregates

D. Acquire cement for the entire project from same source.

E. Normal Weight Aggregates: ASTM C33, Class 3S coarse aggregate or better, well-graded.

1. Acquire aggregates for entire project from same source.
2. Provide aggregates, either alone or in combination with cementitious materials, that do not exceed the maximum expansion limitations of applicable ASTM requirements.

F. Fly Ash: ASTM C618, Class F.

G. Calcined Pozzolan: ASTM C618, Class N.

1. Approved Products:
   a. MetaForce as manufactured by GCC.
   b. MetaMax as manufactured by BASF.

H. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.4 ADMIXTURES

A. Do not use chemicals that will result in soluble chloride ions in excess of 0.10 percent by weight of cement. Do not use calcium chloride or admixtures containing calcium chloride.

B. Air Entrainment Admixture: ASTM C260/C260M.

C. High Range Water Reducing and Retarding Admixture: ASTM C494/C494M Type G.

D. High Range Water Reducing Admixture: ASTM C494/C494M Type F.

E. Water Reducing and Accelerating Admixture: ASTM C494/C494M Type E.

F. Water Reducing and Retarding Admixture: ASTM C494/C494M Type D.

G. Accelerating Admixture: ASTM C494/C494M Type C.

H. Retarding Admixture: ASTM C494/C494M Type B.

I. Water Reducing Admixture: ASTM C494/C494M Type A.

J. Plasticizing and Retarding Admixture: ASTM C1017/C1017M, Type II.

K. Integral Hardening Admixture: Dry powder added to concrete during batching.

1. Products:

a. Kryton International, Inc; HARD-CEM: www.kryton.com/#sle.

2.5 ACCESSORY MATERIALS

A. Underslab Vapor Retarder: Refer to related Section 03 0516.

B. Chamfer Strips: Wood, Metal, PVC, or Rubber strips, 3/4 by 3/4-inch, minimum.

C. Rustication Strips: Wood, Metal, PVC, or Rubber, kerfed for ease of form removal.

2.6 BONDING AND JOINTING PRODUCTS

A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.

B. Epoxy Bonding System:

1. Complying with ASTM C881/C881M, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:

a. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

C. Reglets: Formed steel sheet, galvanized, with temporary filler to prevent intrusion of concrete or debris during placement.

1. Size: As indicated on drawings.

D. Dovetail Anchor Slots: Formed steel sheet, hot-dip galvanized, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

E. Slab Isolation Joint Filler: 1/2-inch thick, height equal to slab thickness, with removable top section forming 1/2-inch deep sealant pocket after removal.

1. Material: ASTM D1751, cellulose fiber.

2. Material: ASTM D1752 self-expanding cork (Type III).

F. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, aromatic polyurea with a Type A shore durometer hardness range of 90 to 95 per ASTM D2240.

G. Dowel Sleeves: Plastic sleeve for smooth, round, steel load-transfer dowels.

H. Plate Dowel System: Steel plate dowel and plastic dowel sleeve; with integral fasteners for attachment to formwork.

1. Manufacturers:

a. PNA Technologies, Inc..

b. Substitutions: See Section 01 6000 - Product Requirements.

I. Building Paper for use as bond-breaker strips: ASTM D226/D226M, Type I asphalt felt.

2.7 CURING MATERIALS

A. Evaporation Reducer: Waterborne, Liquid thin-film-forming compound that reduces rapid moisture loss caused by high temperature, low humidity, and high winds; intended for application immediately after concrete placement.

B. Curing Compound, Naturally Dissipating: Clear, water-based, liquid membrane-forming compound; complying with ASTM C309, Type 1, Class B.

1. Not permitted for use at interior slabs-on-grade.

C. Curing and Sealing Compound, Moisture Emission-Reducing, Penetrating: Clear, water-based, non-film-forming curing agent; capable of providing adequate bond for flooring adhesives, initially and over the long term; with sufficient moisture vapor impermeability to prevent deterioration of flooring adhesives due to moisture emission, moisture vapor emission, and alkalinity.

1. Not permitted for use at interior slabs-on-grade.

2. Compressive Strength of Treated Concrete: Equal to or greater than strength after 28-day water cure when tested according to ASTM C39/C39M.

3. Chloride Ion Resistance of Treated Concrete: Equal to or greater than strength after 28-day water cure when tested according to ASTM C1202.

4. Comply with ASTM C309 and ASTM C1315 Type I Class A.

D. Curing Compound, Non-dissipating: Liquid, membrane-forming, clear, non-yellowing acrylic; complying with ASTM C309, Type 1, Class B.

1. Not permitted for use at interior slabs-on-grade.

2. Vehicle: Water-based.

3. VOC Content: Less than 200 g/L.

E. Moisture-Retaining Sheet: ASTM C171.

1. Other fabric-coated polyethylene sheet material specifically complying with ASTM C171.

a. Acceptable products:
1) PNA Construction Technologies Hydracure blankets.

2) Approved Equal.

2. Required for use at all interior slabs-on-grade.

3. Shall be non-staining, non-marking or ghosting type.

F. Water: Potable, not detrimental to concrete.

2.8 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8-inch and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C150/C150M, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C219.

2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.

3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4-inch or coarse sand as recommended by underlayment manufacturer.

4. Compressive Strength: Not less than 4,100 psi at 28 days when tested according to ASTM C109/C109M.

B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4-inch and that can be filled in over a scarified surface to match adjacent floor elevations.

1. Cement Binder: ASTM C150/C150M, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C219.

2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.

3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4-inch or coarse sand as recommended by topping manufacturer.

4. Compressive Strength: Not less than 5,000 psi at 28 days when tested according to ASTM C109/C109M.

2.9 CONCRETE MIX DESIGN

A. Refer to drawings for required properties of all mix designs including 28-day strength, maximum water/cement ratio, maximum aggregate size, slump range, and air entrainment requirements for each type of concrete to be used. . Slump range indicated shall be prior to addition of plasticizing or water reducing admixtures.

B. Proportioning Normal Weight Concrete: Comply with ACI PRC-211.1 recommendations.

1. Cementitious Materials: Use fly ash and pozzolan in combination as needed to reduce the total amount of portland cement, which would otherwise be used. Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

a. Class F Fly Ash: 25 percent maximum.

b. Class N Pozzolan: 15 percent maximum.

C. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI SPEC-301.

1. For trial mixtures method, employ independent testing agency acceptable to Architect and Engineer of Record for preparing and reporting proposed mix designs.

D. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.

1. Use water-reducing, high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.

2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

4. Use Viscosity Modifying Admixture, where required, to prevent segregation of aggregates.

5. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

6. Use compatible admixtures from one manufacturer.

2.10 MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C94/C94M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

2. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity of water to be held out of mix for addition at jobsite per approved mix design, and quantity. Record approximate location of final deposit in structure.

B. Transit Mixers: Comply with ASTM C94/C94M.

PART 3 EXECUTION

3.1 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

3.2 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.3 FORMWORK AND PREPARATION

A. Formwork: Comply with requirements of ACI SPEC-301. Design and fabricate forms to support all applied loads until concrete is cured and for easy removal without damage to concrete.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI SPEC-117.

C. Limit concrete surface irregularities, designated by ACI PRC-347 as abrupt or gradual, as follows:

1. Class A, 1/8-inch for smooth-formed finished surfaces.
2. Class B, 1/4-inch for rough-formed finished surfaces.

D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Verify that forms are clean and free of rust before applying release agent.

E. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

F. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

G. Chamfer exterior corners and edges of permanently exposed concrete.

H. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

I. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

J. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

K. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

L. At exposed wall conditions, use 4 foot by 8 foot minimum nominal panel sizes, with no panel dimension less than 2 feet used. Unless shown otherwise on drawings, space ties 16-inches on center each way, 8-inches from form panel edges unless formwork design pressures require more frequent spacing. Coordinate closer spacing of ties, if required, with architect.

M. Joints: Construct joints true to line with faces perpendicular to surface plane of concrete.

1. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

a. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.

b. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.

c. Locate joints for beams, slabs, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.

d. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of floor slabs.

e. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.

2. Doweled Joints: Install dowel bars and support assemblies at joints at as indicated on drawings.

a. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint, where indicated on drawings.

N. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in accordance with bonding agent manufacturer's instructions.

1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.

2. Use latex bonding agent only for non-load-bearing applications.

O. Where new concrete with integral waterproofing is to be bonded to previously placed concrete, prepare surfaces to be treated in accordance with waterproofing manufacturer's instructions. Saturate cold joint surface with clean water, and remove excess water before application of coat of waterproofing admixture slurry. Apply slurry coat uniformly with semi-stiff bristle brush at rate recommended by waterproofing manufacturer.

P. Vapor Retarder Installation: Under all slabs-on-grade; refer to related Section 03 0516.

3.4 REMOVING AND REUSING FORMS

A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.

1. Leave formwork for slabs and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

D. Do not re-use forms more than two times (total of 3 uses) at exposed conditions.

3.5 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

A. Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

B. Comply with requirements of ACI SPEC-301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

1. Do not tack weld crossing reinforcing bars.

C. Install welded wire reinforcement in maximum possible lengths. Lap edges of adjoining sheets at least one mesh spacing, and offset laps in both directions. Splice laps with tie wire.

D. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

2. Install dovetail anchor slots in concrete structures as indicated.

3.6 PLACING CONCRETE

A. Place concrete in accordance with ACI PRC-304.

1. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or

planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

2. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.

3. Consolidate placed concrete with mechanical vibrating equipment according to ACI SPEC-301.

4. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

B. Place concrete for floor slabs in accordance with ACI PRC-302.1.

1. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

2. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.

3. Maintain reinforcement in position on chairs during concrete placement.

4. Screed slab surfaces with a straightedge and strike off to correct elevations.

5. Slope surfaces uniformly to drains where required.

6. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

C. Notify Architect not less than 24 hours prior to commencement of placement operations.

D. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

E. Ensure reinforcement, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.

F. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect

G. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.

H. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

I. Hot-Weather Placement: Comply with ACI 305 and as follows:

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

J. Cold-Weather Placement: Comply with ACI 306 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

3.7 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. An independent testing agency, as specified in Section 01 4000, will inspect finished slabs for compliance with specified tolerances.

B. Minimum F(F) Floor Flatness and F(L) Floor Levelness Values:

1. Exposed to View and Foot Traffic: F(F) of 20; F(L) of 15.
2. Under Thick-Bed Tile: F(F) of 20; F(L) of 15.
3. Under Carpeting: F(F) of 25; F(L) of 20.
4. Under Thin Resilient Flooring and Thinset Tile: F(F) of 35; F(L) of 25.

C. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.8 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.

B. Unexposed Form Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Rub down or chip off fins or other raised areas 1/4 inch or more in height.

C. Exposed Form Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Rub down or chip off and smooth fins or other raised areas 1/8 inch or more in height.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

E. Concrete Slabs: Finish to requirements of ACI PRC-302.1 and as follows:

1. Scratch Finish: all surfaces to receive concrete floor toppings and to receive mortar setting beds for bonded cementitious floor finishes

   a. While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction.

2. "Wood float" finish as described in ACI 302.1R; all surfaces to receive thick floor coverings including quarry tile, ceramic tile, and terrazzo with full bed setting system.

   a. Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

3. "Steel trowel" finish as described in ACI 302.1R; all surfaces to receive thin floor coverings including carpeting, resilient flooring, seamless flooring, thin set quarry tile, thin set ceramic tile, and thin set ceramic tile.

   a. After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

   b. The trowel finish shall be hard-steel trowel (3 passes), no burn marks. Finish to ACI PRC-302.1 Class 5 Floor.

4. Architectural Concrete Finish: Match Architect's design reference sample, identified and described as indicated, to satisfaction of Architect.

5. Broom Finish: Exterior concrete platforms, steps, ramps, and elsewhere as indicated.

   a. Float finish and immediately after, apply broom finish. Slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

6. Other Surfaces to Be Left Exposed: Trowel as described in ACI PRC-302.1, minimizing burnish marks and other appearance defects.

3.9 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

3.10 CURING

A. Comply with requirements of ACI PRC-308. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

1. Normal concrete: Not less than seven days.

C. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

D. Formed Surfaces:

1. Cure by moist curing, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.

E. Unformed Surfaces:

1. Moisture Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than seven days by water ponding, water-fog spray, or saturated burlap.

   a. Ponding: Maintain 100 percent coverage of water over floor slab areas, continuously for 7 days.

   b. Spraying: Spray water over floor slab areas and maintain wet.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

   a. Moisture-Retaining Sheet: Lap strips not less than 3 inches and seal with waterproof tape or adhesive; secure at edges.

   b. Use moisture-retaining covers to cure concrete surfaces that have been poured directly over vapor retarder membranes.

c. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.

3. Curing Compound. Apply in two coats at right angles, in a continuous operation, using application rate recommended by manufacturer. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

   a. Curing compounds are not permitted for use at interior slabs-on-grade. See above permitted options.

   b. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.

3.11 JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least one month. Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening

3.12 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a special inspector and qualified testing and inspecting agency to perform field quality control tests and inspections, and prepare test reports as specified in Section 01 4000 - Quality Requirements.

1. Specific Special Inspection requirements are listed on the drawings.

2. Perform Special Inspections and Testing in accordance with the requirements of IBC Chapter 17 and ACI 318.

3. Test Results: The testing agency shall report test results in writing to the Architect, Concrete Manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

B. Provide free access to concrete operations at project site and cooperate with appointed firm.

C. Provide power and space for testing agency's curing boxes.

D. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.

E. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C172/C172M shall be performed according to the following requirements:

1. Tests of concrete and concrete materials may be performed at any time to ensure compliance with specified requirements.

2. Compressive Strength Tests: ASTM C39/C39M. For each test, mold and laboratory-cure three sets of two concrete test cylinders each. Test one set of specimens at 7 days, and test one set of specimens at 28 days. Reserve the third set for later testing if required. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated. Obtain test samples for every 50 cubic yards or less of each class of concrete placed each day.

   a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

   b. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.

   c. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

3. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.

4. Air Content: ASTM C231/C231M, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.

5. Concrete Temperature: ASTM C1064/C1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.

6. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.

7. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Architect.

8. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.13 DEFECTIVE CONCRETE

A. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.

B. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

3.14 CONCRETE SURFACE REPAIRS

A. Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2-inch in any dimension to solid concrete. Limit cut depth to 3/4-inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01-inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
2. After concrete has cured at least 14 days, correct high areas by grinding.

3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.

4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.

5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4-inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.

6. Repair defective areas, except random cracks and single holes 1-inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

7. Repair random cracks and single holes 1-inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.15 PROTECTION

A. Protect cured slabs from re-wetting, chemical contamination, and saturation

B. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

SECTION 03 3511 - CONCRETE FLOOR FINISHES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Surface treatments for concrete floors and slabs.

B. Polished concrete.

1.2 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Finishing of concrete surface to tolerance; floating, troweling, and similar operations; curing.

B. Section 03 3000 - Cast-in-Place Concrete: Curing compounds that also function as sealers.

1.3 REFERENCE STANDARDS

A. ASTM D523 - Standard Test Method for Specular Gloss.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with concrete floor placement and concrete floor curing.

B. Preinstallation Meetings: Conduct a preinstallation meeting to verify project requirements, manufacturer’s installation instructions and manufacturer’s warranty requirements.

1. Environmental requirements.
2. Scheduling and phasing of work.
3. Coordinating with other work and personnel.
4. Protection of adjacent surfaces.
5. Surface preparation.
6. Repair of defects and defective work prior to installation.
7. Cleaning.
8. Installation of polished floor finishes.
9. Application of liquid hardener, densifier.
10. Protection of finished surfaces after installation.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate information on shop drawings as follows:

1. Typical layout including dimensions and floor grinding schedule.
2. Plan view of floor and joint pattern layout.
3. Indicate hardener, sealer, densifier in notes.

C. Product Data: Manufacturer's published data on each finishing product, including information on compatibility of different products and limitations.

1. Preparation and concrete grinding procedures.

D. Product Data: Manufacturer's published data and installation instructions for concrete polishing system and finishing products, including manufacturer's installation instructions, information on compatibility of different products, and limitations.

E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. See Section 01 7000 - Execution and Closeout Requirements, for additional provisions.

F. Maintenance Data:

1. Operation and maintenance data for installed products in accordance with Section 01 7800 - Closeout Submittals.
2. Provide data on maintenance and renewal of applied finishes.
3. Protocols and product specifications for joint filing, crack repair and/or surface repair.

G. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties as cited in Performance Requirements.

H. Certificates:

1. Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
2. Current contractor’s certificate signed by manufacturer declaring contractor as an approved installer of sodium silicate polishing system.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than ten years of documented experience.

B. Installer Qualifications: Company specializing in resililient flooring installation, with minimum of five years of documented experience.

1.7 MOCK-UP

A. For coatings, construct mock-up area under conditions similar to those that will exist during application, with coatings applied.

B. Mock-Up Size: 10 feet square (100 square feet), minimum, for each scheduled color and sheen for new construction and for each type of substrate to be polished.

C. Locate where directed.

D. Perform ASTM D523 Standard Test Method and provide printed results to architect prior to commencement of work.

E. Allow 24 hours for inspection of mock-up before proceeding with work.

F. Accepted mock-up may not remain as part of the work and must remain visible until all work is complete.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's sealed packaging, including application instructions.

B. Storage and Protection:

1. Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
2. Protect concrete slab.
3. Protect from petroleum stains during construction.
4. Diaper hydraulic power equipment.
5. Restrict vehicular parking.
6. Restrict use of pipe cutting machinery.
7. Restrict placement of reinforcing steel on slab.
8. Restrict use of acids or acidic detergents on slab.

1.9 FIELD CONDITIONS

A. Comply with manufacturer’s written recommendations.

B. Maintain light level equivalent to a minimum 200 W light source at 8 feet above the floor surface over each 20 foot square area of floor being finished.

C. Do not finish floors until interior heating system is operational.

D. Maintain ambient temperature of 50 degrees F minimum.

1.10 WARRANTY

A. Project Warranty: Refer to Contract Conditions for project warranty provisions.

B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and does not limit, other rights Owner may have under Contract Documents.

C. Warranty: Commencing on date of substantial completion.

PART 2 PRODUCTS

2.1 CONCRETE FLOOR FINISH APPLICATIONS

A. Liquid Densifier/Hardener:

1. Use at following locations: Where scheduled.

2.2 PRODUCTS / SYSTEMS

A. Hardener, Sealer, Densifier: Water based, odorless liquid, VOC compliant, environmentally safe chemical hardening solution leaving no surface film. Sodium silicate designed specifically to be used in conjunction with concrete polishing. No siliconate hardener will be accepted.

B. Joint Filler: Semi-rigid, 2-component, self-leveling, 100% solids, rapid curing, control joint and crack filler with Shore A 80 or higher hardness.

C. Oil Repellent Sealer: Penetrating concrete sealer with no topical characteristics.

D. Cleaning Solution: Mild, highly concentrated liquid concrete cleaner and conditioner; biodegradable, and environmentally safe. Cleaner must be ph neutral.

2.3 DENSIFIERS AND HARDENERS

A. Liquid Densifier/Hardener: Penetrating chemical compound that reacts with concrete, filling the pores and dustproofing; for application to concrete after set.

1. Composition: Sodium silicate.

a. Products:
1) See Finish Legend.
2) Substitutions: See Section 01 6000 - Product Requirements.

2.4 POLISHED CONCRETE SYSTEM

A. Polished Concrete System: Materials, equipment, and procedures designed and furnished by a single manufacturer to produce dense polished concrete of the specified sheen.

1. Acceptable Systems:

a. Euclid Chemical Company; DOUBLE DIAMOND POLISHED CONCRETE FLOOR SYSTEMS: www.euclidchemical.com/#sle.

b. PROSOCO, Inc; Consolideck Polished Concrete System: www.prosoco.com/consolideck/#sle.

c. W. R. Meadows, Inc; Induroshine: www.wrmeadows.com/sle.

d. Substitutions: See Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that floor surfaces are acceptable to receive the work of this section.

B. Verify that flaws in concrete have been patched and joints filled with methods and materials suitable for further finishes.

1. Verify concrete is cured to full strength at 28 days.

2. Verify concrete surfaces received a hard steel-trowel finish (3 passes) during placement.

3.2 GENERAL

A. Apply materials in accordance with manufacturer's instructions.

3.3 PREPARATION

A. Ensure surfaces are clean and free of dirt and other foreign matter harmful to performance of concrete finishing materials.

B. Examine surface to determine soundness of concrete for polishing.

C. Remove surface contamination.

3.4 INSTALLATION

A. Sequence of Polishing:

1. Apply densifier prior to polishing.

2. Perform metal bond grinding steps after partition studs are erected, but before gypsum board is installed.
3. Perform resin bond polishing steps after partition studs are erected, but before gypsum board is installed.

B. Floor Surface Polishing and Treatment:

1. Provide polished concrete floor treatment in entirety of slab indicated by drawings. Provide consistent finish in all contiguous areas.
2. Apply floor finish prior to installation of fixtures and accessories.
3. Diamond polish concrete floor surfaces with planetary grinding machine with a minimum head pressure of 600 lbs (3-4 headed machine). Sequence with coarse to fine grit.
    a. Comply with manufacturer's recommended polishing grits for each sequence to achieve desired finish level. Level of sheen shall match that of approved mock-up.
    b. Expose aggregate in concrete surface as determined by approved mock-up.
    c. All concrete surfaces shall be as uniform in appearance as possible with no visible scratches anywhere in surface.
4. Grind and polish edges to a maximum of 1/8 inch of walls to match field area of floor.
5. Edge into corners with a maximum size of 5 inch diameter grinding and polishing discs.
6. Apply silicate densifier/hardener per manufacturer's specifications
7. Remove defects and re-polish defective areas.
8. Finish edges of floor finish adjoining other materials in a clean and sharp manner

C. Concrete Sealer:

1. No topical sealer allowed.
2. The appearance of any streaking or swirling from the use of topical sealing products will not be accepted. Identification of such issues will require the surface be ground off and re-polished.

3.5 COATING APPLICATION

A. Verify that surface is free of previous coatings, sealers, curing compounds, water repellents, laitance, efflorescence, fats, oils, grease, wax, soluble salts, residues from cleaning agents, and other impediments to adhesion.

B. Verify that water vapor emission from concrete and relative humidity in concrete are within limits established by coating manufacturer.

C. Protect adjacent non-coated areas from drips, overflow, and overspray; immediately remove excess material.

D. Apply coatings in accordance with manufacturer's instructions.

3.6 CONCRETE POLISHING

A. Execute using materials, equipment, and procedures specified by manufacturer, using manufacturer approved installer.

1. Final Polished Sheen: Satin finish; other sheens are included as comparison to illustrate required sheen; final sheen is before addition of any sealer or coating, regardless of whether that is also specified or not.
2. Satin Finish: Reflecting images from side lighting.

B. Protect finished surface as required and as recommended by manufacturer of polishing system.

3.7 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Test installed floor finish in accordance with ASTM D523 test method. Provide printed results to Architect, General Contractor, and Owner within 24 hours of completion. A minimum of 10 samples must be taken from each section of project to obtain an accurate average. Minimum will be no less than 85% of specified finish for any single test. Semi-gloss, 45 GU @ 60º.

3.8 CLEANING

A. Cleanup in accordance with Section 01 7000 - Execution and Closeout Requirements.

B. Clean in accordance with manufacturer's written instructions.

3.9 PROTECTION

A. Provide adequate protection to prevent any damage to the finished floor.

B. Do not store materials on the floor surfaces to receive the work of this section for extended periods of time.

C. Avoid exposure of finished floor to Food, Beverages, Oil, Glass, Metal, Paint, Caulk, or Primers.

D. Immediately following polishing, cover floor with vapor barrier and impact protection to protect against any spills, flooding, impact, metal, or any other potentially damaging occurrence. Keep floor dry once polishing is complete.

END OF SECTION

SECTION 04 2000 - UNIT MASONRY

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Concrete masonry units at site walls.

B. Mortar and grout.

C. Reinforcement and anchorage.

D. Accessories.

1.2 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Installation of reinforcing dowels in footings.

B. Section 05 5000 - Metal Fabrications: Embedded steel items.

C. Section 07 1900 - Water Repellents: For water repellents applied to concrete unit masonry.

D. Section 07 9200 - Joint Sealants: Sealing control and expansion joints.

1.3 REFERENCE STANDARDS

A. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold Finished.

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

C. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.

D. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.

E. ASTM A951/A951M - Standard Specification for Steel Wire for Masonry Joint Reinforcement.

F. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.

G. ASTM C1019 - Standard Test Method for Sampling and Testing Grout.

H. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens).

I. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry.

J. ASTM C1148 - Standard Test Method for Measuring the Drying Shrinkage of Masonry Mortar.

K. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete.

L. ASTM C1506 - Standard Test Method for Water Retention of Hydraulic Cement-Based Mortars and Plasters.

M. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete.

N. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units.

O. ASTM C91/C91M - Standard Specification for Masonry Cement.

P. ASTM C140/C140M - Standard Test Methods of Sampling and Testing Concrete Masonry Units and Related Units.

Q. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar.

R. ASTM C150/C150M - Standard Specification for Portland Cement.

S. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes.

T. ASTM C270 - Standard Specification for Mortar for Unit Masonry.

U. ASTM C404 - Standard Specification for Aggregates for Masonry Grout.

V. ASTM C476 - Standard Specification for Grout for Masonry.

W. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.

X. ASTM C1072 - Standard Test Method for Measurement of Masonry Flexural Bond Strength.

Y. ASTM C1314 - Standard Test Method for Compressive Strength of Masonry Prisms.

Z. ASTM C1714/C1714M - Standard Specification for Preblended Dry Mortar Mix for Unit Masonry.

AA. ASTM D1056 - Standard Specification for Flexible Cellular Materials--Sponge or Expanded Rubber.

AB. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

AC. ASTM D2287 - Standard Classification System and Basis for Specification for Nonrigid Vinyl Chloride Polymer and Copolymer Molding and Extrusion Compounds.

AD. ASTM E514/E514M - Standard Test Method for Water Penetration and Leakage Through Masonry.

AE. BIA Technical Notes No. 7 - Water Penetration Resistance – Design and Detailing.

AF. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures.

1.4 PERFORMANCE REQUIREMENTS

A. Provide structural unit masonry that develops indicated net-area compressive strengths at 28 days.

1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to Tables 1 and 2 in TMS 602.

1.5 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all relevant installers.

1.6 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, masonry accessories, and grout.

C. Samples for selection and verification:

1. Weep holes/vents.
2. Accessories embedded in masonry.

D. Shop Drawings: For the following:

1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
2. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement." Show elevations of reinforced walls.

E. Qualification Data: For testing agency.

F. Material Certificates: For each type and size of the following:

1. Masonry units.
    a. Include material test reports substantiating compliance with requirements.

b. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.

2. Cementitious materials. Include brand, type, and name of manufacturer.

3. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.

4. Grout mixes. Include description of type and proportions of ingredients.

5. Reinforcing bars.

6. Joint reinforcement.

7. Anchors, ties, and metal accessories.

G. Manufacturer's Certificate: Certify that masonry units meet or exceed specified requirements.

1. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to Tables 1 and 2 in TMS602.

2. Certify that water repellent admixture manufacturer has certified masonry unit manufacturer as an approved user of water repellent admixture in the manufacture of concrete block.

H. Test Reports: Concrete masonry manufacturer's test reports for units with integral water repellent admixture.

I. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C109/C109M for compressive strength, ASTM C1506 for water retention, and ASTM C91/C91M for air content.

2. Include test reports, according to ASTM C1019, for grout mixes required to comply with compressive strength requirement.

J. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

1.7 QUALITY ASSURANCE

A. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.

B. Testing Agency Qualifications: Qualified according to ASTM C1093 for testing indicated.

C. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section with minimum five years of documented experience.

D. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of documented experience.

E. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

F. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

G. Masonry Standard: Comply with TMS 602 unless modified by requirements in the Contract Documents.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

B. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

C. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

D. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

E. Deliver preblended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in covered weatherproof dispensing silos.

F. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

PART 2 PRODUCTS

2.1 MASONRY UNITS, GENERAL

A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.

2.2 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:

1. Size: Standard units with nominal face dimensions of 16 by 8 inches and nominal depths as indicated on drawings for specific locations.
2. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
    a. Provide special shapes for corners, jambs, sashes, movement joints, bonding, and other special conditions.
    b. Provide square-edge units for outside corners unless otherwise indicated.
3. Load-Bearing Units: ASTM C90, medium weight, unless noted otherwise.
    a. Unit Compressive Strength: Provide units with minimum average net-area compressive strength as indicated on drawings.
    b. Both hollow and solid block, as indicated.
4. Units with Integral Water Repellent: All concrete masonry units as specified in this section shall be manufactured with polymeric liquid admixture added to the units at time of manufacture.
    a. Performance of Units with Integral Water Repellent:
        1) Water Permeance: When tested per ASTM E514/E514M and for a minimum of 72 hours.
            (a) No water visible on back of wall above flashing at the end of 24 hours.
            (b) No flow of water from flashing equal to or greater than 0.032 gallons per hour at the end of 24 hours.
        2) Flexural Bond Strength: ASTM C1072; minimum 10 percent increase.
        3) Compressive Strength: ASTM C1314; maximum 5 percent decrease.
        4) Drying Shrinkage: ASTM C1148; maximum 5 percent increase in shrinkage.
    b. Use only in combination with mortar that also has integral water repellent admixture.
    c. Use water repellent admixtures for masonry units and mortar by a single manufacturer.

2.3 MORTAR AND GROUT MATERIALS

A. Masonry Cement: ASTM C91/C91M, Type S.

B. Portland Cement: ASTM C150/C150M, Type I or II.

C. Hydrated Lime: ASTM C207, Type S.

D. Mortar Aggregate: ASTM C144.

E. Grout Aggregate: ASTM C404.

F. Water: Clean and potable.

G. Accelerating Admixture: Nonchloride, noncorrosive type, for use in cold weather, complying with ASTM C494/C494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

H. Integral Water Repellent Admixture for Mortar: Polymeric liquid admixture added to mortar at the time of manufacture.

1. Use only in combination with masonry units manufactured with integral water repellent admixture.
2. Use only water repellent admixture for mortar from the same manufacturer as water repellent admixture in masonry units.
3. Meet or exceed performance specified for water repellent admixture used in masonry units.

I. Packaged Dry Material for Mortar for Unit Masonry: Premixed Portland cement, hydrated lime, and sand; complying with ASTM C1714/C1714M and capable of producing mortar of the specified strength in accordance with ASTM C270 with the addition of water only.

1. Type: Type S.
2. Color: Standard gray.
3. Water-repellent mortar for use with water repellent masonry units.

2.4 REINFORCEMENT AND ANCHORAGE

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi), deformed billet bars; galvanized.

B. Single Wythe Joint Reinforcement: ASTM A951/A951M.

1. Type: Ladder.
2. Material: ASTM A1064/A1064M steel wire, hot dip galvanized after fabrication to ASTM A153/A153M, Class B.
3. Size: 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not less than 5/8 inch of mortar coverage on each exposure.
    a. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
    b. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.

C. Anchor Bolts: Headed steel bolts complying with ASTM A307, Grade A; with ASTM A563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A153/A153M, Class C; of dimensions indicated.

D. Headed Anchor Shear Stud Connectors: Made from ASTM A108 Grade 1015 bars, headed-stud type, cold-finished carbon steel; AWS D1.1/D1.1M, Type B.

E. Post-Installed Anchors: As indicated on drawings.

2.5 ACCESSORIES

A. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D2000, Designation M2AA-805 or PVC, complying with ASTM D2287, Type PVC-65406, and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

B. Compressible Filler: Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.

C. Cavity Mortar Control: Semi-rigid polyethylene or polyester mesh panels, sized to thickness of wall cavity, and designed to prevent mortar droppings from clogging weeps and cavity vents and allow proper cavity drainage.

D. Building Paper: ASTM D226/D226M, Type I ("No.15") asphalt felt, for use as bond-breaker strips.

E. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and hold reinforcing bars in center of cells. Units are formed from 0.1483 inch steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.

F. Weephole Vents:

1. Type: One piece polypropylene, honeycomb design to restrict ingress of insects and debris. Unless otherwise indicated provide 3/8” wide x height of masonry unit x 3 3/8” deep vents.

G. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

2.6 MORTAR AND GROUT MIXING

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.

B. Mortar for Unit Masonry: ASTM C270, using the Property Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.

1. Use Type S mortar unless otherwise indicated.
2. Include integral water-repellent admixture.

C. Grout for Unit Masonry: Comply with ASTM C476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 7 in TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.
2. Proportion grout in accordance with ASTM C476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi.
3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C143/C143M.

D. Admixtures: Add to mixture at manufacturer's recommended rate and in accordance with manufacturer's instructions; mix uniformly.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. Verify that field conditions are acceptable and are ready to receive masonry.
2. Verify that related items provided under other sections are properly sized and located.
3. Verify that foundations are within tolerances specified.
4. Verify that reinforcing dowels are properly placed.
5. Verify that built-in items and piping systems are in proper location, and ready for roughing into masonry work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.3 COLD AND HOT WEATHER REQUIREMENTS

A. Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.

3.4 INSTALLATION, GENERAL

A. Build chases and recesses to accommodate items specified in this and other Sections.

B. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.

C. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

3.5 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation do not vary by more than plus 1/2-inch or minus 1/4-inch.
2. For location of elements in plan do not vary from that indicated by more than plus or minus 1/2-inch.
3. For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4-inch in a story height or 1/2-inch total.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls do not vary from level by more than 1/4-inch in 10 feet, or 1/2-inch maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8-inch in 10 feet, 1/4-inch in 20 feet, or 1/2-inch maximum.
3. For vertical lines and surfaces do not vary from plumb by more than 1/4-inch in 10 feet, 3/8-inch in 20 feet, or 1/2-inch maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8-inch in 10 feet, 1/4-inch in 20 feet, or 1/2-inch maximum.
5. For lines and surfaces do not vary from straight by more than 1/4-inch in 10 feet, 3/8-inch in 20 feet, or 1/2-inch maximum.
6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4-inch in 10 feet, or 1/2-inch maximum.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8-inch, with a maximum thickness limited to 1/2-inch.
2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8-inch.
3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8-inch or minus 1/4-inch.

4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8-inch.

3.6 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Concrete Masonry Units:

1. Bond Pattern: Running.
2. Coursing: One unit and one mortar joint to equal 8 inches. Do not use units with less than nominal 4 inches horizontal face dimensions at corners or jambs.

C. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar before laying fresh masonry.

D. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

E. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.

F. Fill cores in hollow CMUs with grout 24 inches under bearing plates, posts, and similar items unless otherwise indicated.

3.7 PLACING AND BONDING

A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

B. Lay hollow masonry units as follows:

1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
2. With webs fully bedded in mortar in all courses of pilasters.
3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.

C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.

D. Remove excess mortar and mortar smears as work progresses.

E. Remove excess mortar with water repellent admixture promptly. Do not use acids, sandblasting or high pressure cleaning methods.

F. Do not permit mortar to drop or accumulate into cavity air space or to plug weep/cavity vents.

G. Interlock intersections and external corners.

H. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

I. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

J. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

3.8 REINFORCEMENT AND ANCHORAGE - GENERAL

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8-inch on exterior side of walls, 1/2-inch elsewhere.

B. Unless otherwise indicated on drawings or specified under specific wall type, install horizontal joint reinforcement 16 inches on center.

C. Place joint reinforcement in first horizontal joints above and below openings. Extend minimum 16 inches beyond each side of opening.

D. Place continuous joint reinforcement in first and second joint below top of walls.

E. Lap joint reinforcement ends minimum 6 inches.

F. Interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.

G. Provide continuity at wall intersections and corners by using prefabricated T-shaped and L-shaped units.

H. Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

I. Provide reinforcement bar positioners for vertical reinforcing as required to maintain proper location and alignment.

3.9 CONTROL AND EXPANSION JOINTS

A. General: Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.

1. Do not continue horizontal joint reinforcement through control or expansion joints.
2. Lap bond beam reinforcing at control joints as shown on Drawings.

B. Install preformed control joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.

C. Size control joints as indicated on drawings; if not indicated, 3/8 inch wide and deep.

3.10 REINFORCED UNIT MASONRY INSTALLATION

A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other loads that may be placed on them during construction.

B. Placing Reinforcement: Comply with requirements in TMS 602.

C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

1. Comply with requirements in TMS 602/ACI 530.1/ASCE 6 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
2. Limit height of vertical grout pours to not more than 48 inches.

3.11 FIELD QUALITY CONTROL

A. Testing and Inspecting: An independent testing and special inspection agency will perform field quality control tests and inspections, as specified in Section 01 4000 - Quality Requirements. Retesting or re-inspection of materials that fail to meet specified requirements shall be done at Contractor's expense.

B. Special inspections according to requirements of the "International Building Code" and as indicated on the drawings.

1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
3. Place grout only after inspectors have verified proportions of site-prepared grout.

C. Testing Prior to Construction: One set of tests.

D. Testing Frequency: One set of tests for each 1000 square feet of wall area or portion thereof.

E. Concrete Masonry Unit Tests: Test each variety of concrete unit masonry in accordance with ASTM C140/C140M for compliance with requirements of this specification.

F. Mortar Tests: Test each type of mortar in accordance with ASTM C780, testing with same frequency as masonry samples. Test mortar for mortar air content and compressive strength.

G. Grout Test: Test each mix provided for compressive strength, according to ASTM C1019.

3.12 REPAIRING, POINTING, AND CLEANING

A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

C. Remove excess mortar and mortar droppings.

D. Replace defective mortar. Match adjacent work.

E. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

F. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
3. Clean soiled surfaces with cleaning solution.
4. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
5. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

3.13 PROTECTION

A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

3.14 MASONRY WASTE DISPOSAL

A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

B. Excess Masonry Waste: Remove excess clean masonry waste and legally dispose of off Owner's property.

END OF SECTION

SECTION 05 1200 - STRUCTURAL STEEL FRAMING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Structural steel framing members.

B. Base plates.

C. Grouting under base plates.

1.2 RELATED REQUIREMENTS

A. Section 01 4000 - Quality Requirements: For independent testing agency procedures and administrative requirements.

B. Section 05 2100 - Steel Joist Framing.

C. Section 05 3100 - Steel Decking: Support framing for small openings in deck.

D. Section 05 5000 - Metal Fabrications: Steel fabrications affecting structural steel work.

E. Section 05 5100 - Metal Stairs

F. Section 09 9113 - Exterior Painting: for surface preparation and priming requirements.

G. Section 09 9123 - Interior Painting: for surface preparation and priming requirements.

H. Section 09 9600 - High-Performance Coatings: for surface preparation and priming requirements.

1.3 REFERENCE STANDARDS

A. AISC (MAN) - Steel Construction Manual.

B. AISC 303 - Code of Standard Practice for Steel Buildings and Bridges.

C. AISC 360 - Specification for Structural Steel Buildings.

D. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.

E. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

F. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold Finished.

G. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

H. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

I. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.

J. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

K. ASTM A563/A563M - Standard Specification for Carbon and Alloy Steel Nuts (Inch and Metric).

L. ASTM A572/A572M - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.

M. ASTM A6/A6M - Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling.

N. ASTM A780/A780M - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

O. ASTM A992/A992M - Standard Specification for Structural Steel Shapes.

P. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).

Q. ASTM E94/E94M - Standard Guide for Radiographic Examination Using Industrial Radiographic Film.

R. ASTM E164 - Standard Practice for Contact Ultrasonic Testing of Weldments.

S. ASTM E165/E165M - Standard Test Method for Liquid Penetrant Examination for General Industry.

T. ASTM E709 - Standard Guide for Magnetic Particle Testing.

U. ASTM F436/F436M - Standard Specification for Hardened Steel Washers Inch and Metric Dimensions.

V. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.

W. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength.

X. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination.

Y. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification.

Z. AWS D1.1/D1.1M - Structural Welding Code - Steel.

AA. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel AC172.

AB. RCSC (HSBOLT) - Specification for Structural Joints Using High-Strength Bolts; Research Council on Structural Connections.

AC. SSPC-PA 1 - Shop, Field, and Maintenance Painting of Steel.

AD. SSPC-SP 2 - Hand Tool Cleaning.

AE. SSPC-SP 3 - Power Tool Cleaning.

1.4 DEFINITIONS

A. Structural Steel: Elements of structural-steel frame, as classified by AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

B. Seismic-Force-Resisting System (SFRS): The portion of the structural steel frame that has been considered in the design to provide required resistance to the prescribed seismic forces.

1. See the drawings for members indicated as part of the SFRS.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: For each type of product indicated.

C. Shop Drawings:

1. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, fasteners, and holes, splices, and other pertinent data

2. Indicate member shapes by AISC designation in addition to piece-marks on erection drawings.

3. Connections. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical high-strength bolted connections.

4. Include embedment drawings.

5. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths, distinguishing between shop and field welds, and show size, length, and type of each

weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.

D. Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs): Provide according to AWS D1.1/D1.1M, "Structural Welding Code - Steel," for each welded joint whether prequalified or qualified by testing, including the following:

1. Power source (constant current or constant voltage).

E. Manufacturer's Mill Certificate: Certify that products meet or exceed specified requirements.

F. Welders' Certificates: Submit welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.

G. Fabricator's Qualification Statement: Provide documentation showing steel fabricator and installer is qualified as required.

H. Product Test Reports:

1. Shop Primers (Including VOC/Sustainability).
2. Non-shrink grout.

1.6 QUALITY ASSURANCE

A. Comply with applicable provisions of the following specifications and documents:

1. AISC 360: Fabricate structural steel members in accordance with the "Specification for Structural Steel Buildings", and AISC (MAN) "Steel Construction Manual."
2. AISC S303: "Code of Standard Practice for Steel Buildings and Bridges".
3. RCSC (HSBOLT): "Specification for Structural Joints Using High-Strength Bolts."
4. Maintain one copy of each document on site.

B. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M and no more than 12 months before start of scheduled welding work.

C. Fabricator Qualifications: A qualified steel fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category "Building Fabricator". Submit documentation of AISC Certification at time of Bid.

D. Erector: Company specializing in performing the work of this section with minimum 10 years of documented experience.

E. Preinstallation Conference: Conduct conference at Project site.

1.7 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' recommendations to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

PART 2 PRODUCTS

2.1 MATERIALS

A. Steel Angles, Plates, Channels, and Bars: ASTM A36/A36M.

B. Steel W Shapes and Tees: ASTM A992/A992M.

C. Cold-Formed Structural Tubing: ASTM A500/A500M, Grade B.

D. Pipe: ASTM A53/A53M, Grade B, Type E or S, Finish black or galvanized, as indicated.

E. Shear Stud Connectors: Made from ASTM A108 Grade 1015 bars, headed-stud type, cold-finished carbon steel; AWS D1.1/D1.1M, Type B.

F. Structural Bolts and Nuts: Carbon steel, ASTM A307, Grade A.

G. High-Strength Structural Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, with matching compatible ASTM A563/A563M nuts and ASTM F436/F436M washers.

1. Grades: A325, A490, F1852, and F2280, where indicated on drawings.

H. Tension-Control High-Strength Bolt-Nut-Washer Assemblies: Twist-off type; ASTM F1852 or ASTM F2280, Type 1, round head assemblies consisting of steel structural bolts with splined ends, heavy-hex carbon-steel nuts, and hardened carbon-steel washers, plain finish.

I. Unheaded Anchor Rods: ASTM F1554, Grade as indicated on plans, plain and weldable, straight or hooked as indicated, with matching ASTM A563 or ASTM A563M, heavy-hex carbon-steel nuts, and ASTM F436, Type 1, hardened carbon-steel washers; all with plain finish.

1. Plate Washers: ASTM A36/A36M, carbon-steel; to be provided where indicated on plans.

J. Threaded Rods: ASTM A36/A36M, with matching ASTM A563 or ASTM A563M, heavy-hex carbon-steel nuts, and ASTM F436, Type 1, hardened carbon-steel washers.

1. Finish: Plain.

K. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

L. Grout: ASTM C1107/C1107M; Non-shrink; premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.

1. Minimum Compressive Strength at 48 Hours: 2,000 pounds per square inch.

2. Minimum Compressive Strength at 28 Days: 6,000 pounds per square inch.

M. Shop and Touch-Up Primer: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction and as indicated.

1. Low-Emitting Materials: Paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

N. Touch-Up Primer for Galvanized Surfaces: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction.

2.2 FABRICATION

A. Shop fabricate to greatest extent possible.

1. Identify high-strength structural steel according to ASTM A6/A6M and maintain markings until structural steel has been erected.

2. Mark and match-mark materials for field assembly.

3. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.

B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.

1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.

C. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel framing members.

1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.

2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.

3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.

E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 2, "Hand Tool Cleaning."

F. Continuously seal joined members by continuous welds. Grind exposed welds smooth.

G. Fabricate connections for bolt, nut, and washer connectors.

H. Fabricate beams with rolling camber up.

I. Additional Fabrication Requirements for steel which is exposed in final condition:

1. Grind sheared, punched and flame-cut edges to remove burrs and provide smooth surfaces and edges.
2. Fabricate with piece marks fully hidden in the completed structure or made with media that permits full removal after erection.
3. Seal-weld open ends of hollow structural sections with 1/4 inch closure plates minimum, unless noted otherwise.
4. Cut, drill or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
5. Locate erection aides in unexposed locations or completely remove, fill and grind smooth after erection has been completed.

2.3 SHOP CONNECTIONS

A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using High-Strength Bolts" for type of bolt and type of joint specified.

1. Joint Type: Pre-tensioned or Slip Critical, as indicated on drawings.

B. Weld Connections: Comply with AWS D1.1 for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances in AISC 303 for mill material.

C. Additional Shop Connection Requirements for steel which is exposed in final condition:

1. Provide continuous, sealed welds at gusset-plate connections and similar locations where steel is exposed to weather.
2. Provide continuous welds of uniform size and profile where exposed steel is welded.

2.4 FINISH AND SHOP PRIMING

A. Prepare structural component surfaces in accordance with SSPC-SP 2. Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits.

B. Shop prime structural steel members. Do not prime surfaces that will be spray-fireproofed, field welded, in contact with concrete, high strength bolted, slip-critical connections, or galvanized surfaces.

C. Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

D. Painting: Prepare steel and apply a one-coat, nonasphaltic primer complying with MPI #79.

E. Hot-Dip Galvanize structural steel members to comply with ASTM A123/A123M, where indicated on drawings. Provide minimum 1.7 oz/sq ft galvanized coating.

1. Fill vent and drain holes that will be exposed in the finished work unless they will function as weep holes, by plugging with zinc solder and filing off smooth.

2. Galvanize all exterior stair framing.

F. Additional Priming requirements for steel which is exposed in final condition:

1. Stripe paint corners, crevices, bolts, welds and sharp edges.

2. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection.

PART 3 EXECUTION

3.1 DELIVERY, STORAGE, AND HANDLING

A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.

1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.

B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.

1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.

2. Clean and relubricate bolts and nuts that become dry or rusty before use.

3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F3125/F3125M, grade F1852 and F2280 fasteners, and for retesting fasteners after lubrication.

3.2 EXAMINATION

A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed.

B. Verify, with steel Erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 ERECTION

A. Erect structural steel in compliance with AISC S303 "Code of Standard Practice for Steel Buildings and Bridges," and AISC 360 "Specification for Structural Steel Buildings."

B. Allow for erection loads and provide sufficient temporary bracing to maintain structure in safe condition, plumb, and in true alignment until completion of erection and installation of permanent bracing.

1. Additional requirements for steel which is exposed in final condition: If possible, locate welded tabs for attaching temporary bracing and safety cabling where they will be concealed from view in the completed Work.

C. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.
2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.

D. Base Bearing and Leveling Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.
2. Weld plate washers to top of baseplate where indicated.
3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
4. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

E. Field weld components indicated on drawings.

F. Use carbon steel bolts only for temporary bracing during construction, unless otherwise specifically permitted on drawings. Install high-strength bolts in accordance with RCSC (HSBOLT) "Specification for Structural Joints Using High-Strength Bolts".

G. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

H. Do not field cut or alter structural members without approval of Architect.

I. Do not use thermal cutting during erection.

J. Splice members only where indicated.

K. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.

L. After erection of galvanized steel, touchup ungalvanized portions of the work, weld locations, and damaged areas with galvanizing paint.

M. Grout solidly between column plates and bearing surfaces, complying with manufacturer's instructions for nonshrink grout. Trowel grouted surfaces smooth, splaying neatly to 45 degrees.

3.4 FIELD CONNECTIONS

A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using High-Strength Bolts" for type of bolt and type of joint specified.

1. Joint Type: Pre-tensioned or Slip Critical, as indicated on drawings.
2. Exposed steel connections shall orient bolt heads in same direction for each connection, and to maximum extent possible, orient bolt heads in the same direction for all similar connections in any given area of work. The bolt head shall be on the exposed side unless noted otherwise.

B. Weld Connections: Comply with AWS D1.1 for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
2. Remove backing bars or runoff tabs where indicated, back gouge, and grind steel smooth.
3. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances in AISC's "Code of Standard Practice for Steel Buildings and Bridges" for mill material.
4. Additional field welding requirements for steel which is exposed in final condition:
    a. Provide continuous, sealed welds at gusset-plate connections, open ends of tubes, and all other similar perpedicular field welded locations where steel is exposed to weather.
    b. Provide continuous welds of uniform size and profile, where exposed steel is field welded. Grind exposed welds smooth.
    c. Remove erection bolts in exposed steel, fill holes, and grind smooth.

d. Fill weld access holes in exposed steel and grind smooth.

3.5 FIELD QUALITY CONTROL

A. Testing and Inspection Agency: Owner will engage a qualified independent testing and inspection agency to inspect field welds and high-strength bolted connections, as specified in Section 01 4000 - Quality Requirements.

1. Specific Special Inspection and Testing requirements are listed on the drawings.
2. Perform Special Inspections and Testing in accordance with the requirements of IBC Chapter 17, as well as AISC 360.
3. Test Results: The testing agency shall report test results in writing to the Architect and Contractor within 48 hours of testing.

B. High-Strength Bolts: Provide testing and verification of shop and field-bolted connections in accordance with RCSC "Specification for Structural Joints Using High-Strength Bolts", testing at least 10 percent of bolts at each connection.

C. Welded Connections: Visually inspect all field-welded connections and test at least 10 percent of welds using one of the following:

1. Radiographic testing performed in accordance with ASTM E94/E94M.
2. Ultrasonic testing performed in accordance with ASTM E164.
3. Liquid penetrant inspection performed in accordance with ASTM E165/E165M.
4. Magnetic particle inspection performed in accordance with ASTM E709.

D. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

3.6 REPAIRS AND PROTECTION

A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair galvanizing to comply with ASTM A780/A780M.

B. Touchup Painting: Immediately after erection, clean exposed areas where primer is damaged or missing and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Clean and prepare surfaces by SSPC-SP 2 hand tool cleaning or SSPC-SP 3 power-tool cleaning.

C. Touchup Painting: Cleaning and touchup painting are specified in Section 09 9113 - Exterior Painting, and Section 09 9123 - Interior Painting.

D. Additional Requirements for steel which is exposed in final condition:

1. Remove welded tabs that were used for attaching temporary bracing and safety cabling and that are exposed to view in the completed work. Grind steel smooth.
2. Cleaning and touch-up painting shall be adhered to as specified in Section 09 9113 - Exterior Painting, and Section 09 9123 - Interior Painting.

END OF SECTION

SECTION 05 2100 - STEEL JOIST FRAMING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Open web steel joists, with bridging, attached seats and anchors.

B. Loose bearing members, such as plates or angles, and anchor bolts for site placement.

1.2 RELATED REQUIREMENTS

A. Section 05 1200 - Structural Steel Framing: Grouting base plates and bearing plates. Superstructure framing and support framing for openings greater than 12 inches in decking.

B. Section 05 3100 - Steel Decking: Support framing for openings less than 12 inches in decking.

C. Section 05 5000 - Metal Fabrications: Non-framing steel fabrications attached to joists.

1.3 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.

B. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold Finished.

C. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.

D. ASTM A563/A563M - Standard Specification for Carbon and Alloy Steel Nuts (Inch and Metric).

E. ASTM E94/E94M - Standard Guide for Radiographic Examination Using Industrial Radiographic Film.

F. ASTM E164 - Standard Practice for Contact Ultrasonic Testing of Weldments.

G. ASTM E165/E165M - Standard Test Method for Liquid Penetrant Examination for General Industry.

H. ASTM E709 - Standard Guide for Magnetic Particle Testing.

I. ASTM F436/F436M - Standard Specification for Hardened Steel Washers Inch and Metric Dimensions.

J. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi

Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength.

K. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification.

L. AWS D1.1/D1.1M - Structural Welding Code - Steel.

M. RCSC (HSBOLT) - Specification for Structural Joints Using High-Strength Bolts; Research Council on Structural Connections.

N. SJI 100 - Standard Specifications for K-Series, LH-Series, and DLH-Series Open Web Steel Joists, and for Joist Girders.

O. SJI Technical Digest No. 9 - Handling and Erection of Steel Joists and Joist Girders.

P. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer.

Q. SSPC-SP 2 - Hand Tool Cleaning.

R. SSPC-SP 3 - Power Tool Cleaning.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate standard designations, joist coding, configurations, sizes, spacings, cambers, locations of joists, joist leg extensions, bridging, connections, attachments, and all special loading as indicated on the Contract Documents.

C. Welders' Certificates: Submit welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.

D. Letter of conformance indicating that all joists have been designed for all special loading as indicted on the Contract Documents, stamped and sealed by the design engineer.

E. Designer's Qualification Statement.

F. Manufacturer Certificates: Signed by manufacturers certifying that joists comply with requirements.

G. Comprehensive engineering analysis of special joists signed and sealed by the qualified professional engineer responsible for its preparation.

1.5 QUALITY ASSURANCE

A. Designer Qualifications: Perform design by or under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State in which the Project is located.

1. Design connections not detailed on drawings under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State in which the Project is located.

B. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M and dated no more than 12 months before start of scheduled welding work.

C. Manufacturer Qualifications: A manufacturer certified by SJI to manufacture joists complying with applicable standard specifications and load tables in SJI's "Specifications."

1. Manufacturer's responsibilities include providing professional engineering services for designing special joists to comply with performance requirements.

D. Welding Qualifications: Qualify field-welding procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Transport, handle, store, and protect products to SJI requirements.

B. Protect joists from corrosion, deformation, and other damage during delivery, storage, and handling.

PART 2 PRODUCTS

2.1 MATERIALS

A. Manufacture steel joists of type indicated according to "Standard Specification for K-Series, LH-Series, and DLH-Series Open Web Steel Joists and for Joist Girders" in SJI's "Specifications," with steel-angle top- and bottom-chord members, underslung ends, and parallel top chord.

B. Open Web Joists: SJI Type K Joists and KCS Joists:

1. Camber joists according to SJI's "Specifications," unless noted otherwise on drawings.
2. Provide top chord extensions as indicated.
    a. Top-Chord Extensions: Extend top chords of joists with SJI's Type S top-chord extensions where indicated, complying with SJI's "Specifications."
    b. Extended Ends: Extend bearing ends of joists with SJI's Type R extended ends where indicated, complying with SJI's "Specifications."
3. Provide holes in chord members where indicated for connecting and securing other construction to joists.
4. Equip bearing ends of joists with manufacturer's standard beveled ends or sloped shoes if joist slope exceeds 1/4 inch per 12 inches.

5. Minimum End Bearing on Steel Supports: Comply with referenced SJI standard and as indicated.
6. Finish: Shop primed.

C. Open Web Joists: SJI 100 Type LH Joists:

1. Camber joists according to SJI's "Specifications," unless noted otherwise on drawings.
2. Provide top chord extensions as indicated.
3. Provide holes in chord members where indicated for connecting and securing other construction to joists.
4. Equip bearing ends of joists with manufacturer's standard beveled ends or sloped shoes
5. Minimum End Bearing on Steel Supports: Comply with referenced SJI standards.
6. Finish: Shop primed.

D. Anchor Bolts, Nuts and Washers: ASTM A307, plain.

E. High-Strength Structural Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, with matching compatible ASTM A563/A563M nuts and ASTM F436/F436M washers.

1. Finish: Plain.

F. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded. Comply with AWS requirements and procedures for shop welding, appearance, quality of welds, and methods used in correcting welding work.

G. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

H. Joist Accessories:

1. Bridging: Schematically indicated. Detail and fabricate according to SJI's "Specifications." Furnish additional erection bridging if required for stability.
2. Steel bearing plates with integral anchorages are specified in Section 05 1200 - Structural Steel Framing.
3. Furnish miscellaneous accessories including splice plates and bolts required by joist manufacturer to complete joist assembly.

2.2 FINISH

A. Shop prime joists as specified.

1. Do not prime surfaces that will be fireproofed or field welded.
2. Apply one coat of shop primer to joists and joist accessories to be primed to provide a continuous, dry paint film not less than 1 mil thick.

B. Prepare surfaces to be finished in accordance with SSPC-SP 2.

1. Clean and remove loose scale, heavy rust, and other foreign materials from fabricated joists and accessories.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine supporting substrates, embedded bearing plates, and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 ERECTION

A. Before installation, splice joists delivered to Project site in more than one piece.

B. Erect joists with correct bearing on supports.

C. Space, adjust, and align joists accurately in location before permanently fastening.

D. Allow for erection loads. Provide sufficient temporary bracing to maintain framing safe, plumb, and in true alignment.

E. Coordinate the placement of anchors for securing loose bearing members furnished as part of the work of this section.

F. After joist alignment and installation of framing, field weld joist seats to steel bearing surfaces. Coordinate welding sequence and procedure with placement of joists. Comply with AWS requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.

G. Bolt joists to supporting steel framework where indicated using high-strength structural bolts. Comply with RCSC's "Specification for Structural Joints High-Strength Bolts" for high-strength structural bolt installation and tightening requirements.

H. Install and connect bridging concurrently with joist erection, before construction loads are applied. Anchor ends of bridging lines at top and bottom chords if terminating at walls or beams.

1. Do not permit erection of decking until joists are braced, bridged, and secured or until completion of erection and installation of permanent bridging and bracing.

I. Do not field cut or alter structural members without approval of joist manufacturer.

J. After erection, prime welds, damaged shop primer, and surfaces not shop primed.

1. Clean and prepare surfaces by hand-tool cleaning according to SSPC-SP 2 or power-tool cleaning according to SSPC-SP 3.
2. Apply a compatible primer of same type as primer used on adjacent surfaces.

3.3 PROTECTION

A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that joists and accessories are without damage or deterioration at time of Substantial Completion.

3.4 FIELD QUALITY CONTROL

A. Testing and Inspection Agency: Owner will engage a qualified independent testing and special inspection agency to perform field quality control tests and special inspections, as specified in Section 01 4000 - Quality Requirements.

1. Specific Special Inspection and Testing requirements are listed on the drawings.
2. Perform Special Inspections and Testing in accordance with the requirements of IBC Chapter 17 and SJI.

B. Welded Connections: Visually inspect all field-welded connections and test at least 1 percent of welds using one of the following:

1. Radiographic testing performed in accordance with ASTM E94/E94M.
2. Ultrasonic testing performed in accordance with ASTM E164.
3. Liquid penetrant inspection performed in accordance with ASTM E165/E165M.
4. Magnetic particle inspection performed in accordance with ASTM E709.

END OF SECTION

NMSU NMDA Office
Las Cruces, NM

SECTION 05 3100 - STEEL DECKING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Acoustical roof deck.

B. Roof deck.

C. Acoustical Dove-Tail profile roof deck.

D. Supplementary framing for openings up to and including 12 inches.

E. Acoustical insulation in roof deck flutes.

1.2 RELATED REQUIREMENTS

A. Section 05 1200 - Structural Steel Framing: Support framing for openings larger than 12 inches.

B. Section 09 9123 - Interior Painting: Repair painting of primed deck and finish painting of exposed deck.

1.3 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.

B. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold Finished.

C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

D. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.

E. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

F. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.

G. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification.

H. AWS D1.1/D1.1M - Structural Welding Code - Steel.

I. AWS D1.3/D1.3M - Structural Welding Code - Sheet Steel.

J. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel AC172.

K. ICC-ES AC43 - Acceptance Criteria for Steel Deck Roof and Floor Systems; ICC Evaluation Service, Inc.

L. SDI (DM) - Publication No.30, Design Manual for Composite Decks, Form Decks, and Roof Decks.

M. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer.

N. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic).

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittals procedures.

B. Product Data: Provide deck profile characteristics, dimensions, structural properties, and finishes.

C. Shop Drawings: Indicate deck plan, support locations, projections, openings, reinforcement, pertinent details, and accessories.

D. Product Data: Provide deck profile characteristics, dimensions, structural properties, and finishes.

E. Certificates: Certify that products furnished meet or exceed specified requirements.

F. Submit manufacturer's installation instructions.

G. Welders' Certificates Statement: Submit welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.

H. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that each of the following complies with requirements:

1. Acoustical roof deck.

1.5 QUALITY ASSURANCE

A. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M and AWS D1.3/D1.3M and dated no more than 12 months before start of scheduled welding work.

B. Fabricator Qualifications: A qualified steel fabricator that is accredited by the International Accreditation Service (IAS) Fabricator Inspection Program for Structural Steel in accordance with IAS AC172.

C. Testing Agency Qualifications: Qualified according to ASTM E329 for testing indicated.

D. Installer Qualifications: Company specializing in performing the work of this Section with minimum five years of experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.

B. Cut plastic wrap to encourage ventilation.

C. Separate sheets and store deck on dry wood sleepers; slope for positive drainage. Protect with a waterproof covering and ventilate to avoid condensation.

1. Protect and ventilate acoustical cellular roof deck with factory-installed insulation to maintain insulation free of moisture.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Steel Deck:

1. Canam Steel Corporation: www.canam-steeljoists.ws.
2. CMC Joist & Deck: www.cmc.com.
3. Cordeck, Inc.: www.cordeck.com.
4. CSi Metal Dek Group: www.metaldek.com.
5. Epic Metals Corporation: www.epicmetals.com.
6. New Millennium Building Systems, LLC: www.newmill.com.
7. Nucor-Vulcraft Group: www.vulcraft.com.
8. Verco Manufacturing Co.: www.vercodeck.com.
9. Substitutions: See Section 01 6000 - Product Requirements.

2.2 PERFORMANCE REQUIREMENTS

A. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

2.3 STEEL DECK

A. Type NLA Acoustical Roof Deck: Non-composite type, fluted steel sheet, without top-flange stiffening grooves, and perforated:

1. Basis of Design Product: Nucor-Vulcraft Group 3-inch Type NLA Acoustical Roof Deck
2. Accoustical Perforations: Deck units with manufacturer's standard perforated vertical webs.
3. Ungalvanized Steel Sheet: ASTM A1008/A1008M, Designation SS, Grade 50, Type 1.
4. Primer: Shop coat of manufacturer's standard primer paint over cleaned and phosphatized substrate.
    a. Color: White
5. Span Condition: Triple spans minimum, everywhere framing allows.
6. Minimum Base Metal Thickness: As Indicated.
7. Nominal Depth: As Indicated.
8. Profile: Fluted; SDI NLA, or as indicated..
9. Formed Sheet Width: 32 inch.
10. Side Laps: As Indicated.
11. End Joints: Lapped, welded, as indicated.

B. Type B Roof Deck: Non-composite type, fluted steel sheet, without top-flange stiffening grooves:

1. Basis of Design Product: Nucor-Vulcraft Group 1 1/2-inch Type B Roof Deck
2. Ungalvanized Steel Sheet: ASTM A1008/A1008M, Designation SS, Grade 50, Type 1.
3. Primer: Shop coat of manufacturer's standard primer paint over cleaned and phosphatized substrate.
    a. Color: Manufacturer's Standard.
4. Span Condition: Triple spans minimum, everywhere framing allows.
5. Minimum Base Metal Thickness: As Indicated.
6. Nominal Depth: As Indicated.
7. Profile: Fluted; SDI WR, or as indicated.
8. Formed Sheet Width: 36 inch.
9. Side Laps: As Indicated.
10. End Joints: Lapped, welded as indicated.

C. **BID LOT 8**-Type DA Roof Deck: Non-composite type, Dovetail profile, perforated steel sheet:

1. Basis of Design Product: Nucor-Vulcraft Group Type 3.5DA Acoustical Dovetail Roof Deck
2. Accoustical Perforations: Deck units with manufacturer's standard perforated bottom surface.
3. Ungalvanized Steel Sheet: ASTM A1008/A1008M, Designation SS, Grade 40, Type 1.
4. Primer: Shop coat of manufacturer's standard primer paint over cleaned and phosphatized substrate.
   a. Color: White.
5. Span Condition: Triple spans minimum, everywhere framing allows.
6. Minimum Base Metal Thickness: As Indicated.
7. Nominal Depth: As Indicated.
8. Profile: Fluted; Dovetail.
9. Formed Sheet Width: 24 inch.
10. Side Laps: As Indicated.
11. End Joints: Butted, welded, as indicated.

2.4 ACCESSORY MATERIALS

A. General: Provide manufacturer's standard accesory materials for deck that comply with requirements indicated.

B. Bearing Plates and Angles: ASTM A36/A36M steel.

C. Welding Materials: AWS D1.1/D1.1M.

D. Sidelap Fasteners: Steel; corrosion-resistant, hexagonal washer head, self-drilling, self-tapping screws, minimum diameter as indicated.

E. Weld Washers: Mild steel, uncoated, 3/4 inch outside diameter minimum or as required based on weld diameter, 1/8 inch thick.

F. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

G. Acoustical Insulation: Glass fiber type, density as required for performance; profiled to suit deck.
   1. Factory install sound-absorbing insulation into cells of acoustical deck.
   2. Acoustical Performance: To meet architectural intent.

2.5 FABRICATED DECK ACCESSORIES

A. Sheet Metal Deck Accessories: Metal closure strips, cover plates, and girder fillers, 20 gage, 0.0359 inch thick minimum sheet steel with minimum yield strength of 33,000 psi; of profile and size as indicated; finished same as deck.

B. Roof Sump Pans: Formed sheet steel, 14 gauge, 0.0747 inch minimum thickness, flat bottom, sloped sides, recessed 1-1/2 inches below roof deck surface, bearing flange 3 inches wide, sealed watertight.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions prior to beginning work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Erect metal deck in accordance with SDI Design Manual and manufacturer's instructions.

B. Locate deck bundles to prevent overloading of supporting members.

C. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened.

1. Place deck panels flat and square and fasten to supporting frame without warp or deflection. Do not stretch or contract side-lap interlocks.
2. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.
3. On steel supports provide minimum 2-inch bearing.
4. Typical Roof Deck End Joints: Lapped.
5. Dovetail Roof Deck End Joints: Butted.

D. Drive mechanical sidelap connectors completely through adjacent lapped sheets; positively engage adjacent sheets with minimum three-thread penetration.

1. Sidelap Spacing: As indicated.

E. Weld deck in accordance with AWS D1.3/D1.3M. Fasten deck panels to steel supporting members by arc spot (puddle) welds as follows:

1. Weld Diameter: As indicated.
2. Weld Spacing: Space and locate welds as indicated.

F. At deck openings, provide reinforcing plates, steel reinforcing angles, or opening framing as indicated on drawings.

G. Where deck changes direction, install 6 inch minimum wide sheet steel cover plates, of same thickness as deck. Fusion weld 12 inches on center maximum, or as indicated on drawings.

1. At roof deck transitions, install ridge and valley plates, finish strips, end closures, and reinforcing channels.

H. At openings between deck and walls, columns, and openings, provide sheet steel closures and angle flashings to close openings.

I. Close openings above walls and partitions perpendicular to deck flutes with single row of foam cell closures.

J. Position roof drain pans with flange bearing on top surface of deck. Fusion weld at each deck flute.

K. Sound-Absorbing Insulation: Install into topside ribs of roof deck according to manufacturer's written instructions.

3.3 PROTECTION

A. Immediately after welding deck and other metal components in position, coat welds, burned areas, and damaged surface coating, with touch-up primer.

B. Repair Painting: Wire brush and clean rust spots, welds, and abraded areas on top surface of prime-painted deck immediately after installation, and apply repair paint.

1. Apply repair paint, of same color as adjacent shop-primed deck, to bottom surfaces of deck exposed to view.

C. Provide final protection and maintain conditions to ensure that steel deck is without damage or deterioration at time of Substantial Completion.

3.4 FIELD QUALITY CONTROL

A. Testing and Special Inspection Agency: Owner will engage a qualified testing and special inspection agency to perform tests and inspections.

1. Specific Special Inspection and Testing requirements are listed on the drawings.

2. Perform Special Inspections and Testing in accordance with the requirements of IBC Chapter 17 and SDI.

B. Field welds will be subject to inspection.

C. Testing and Special Inspection agency will report inspection results promptly and in writing to Contractor and Architect.

D. Remove and replace work that does not comply with specified requirements.

E. Additional inspecting, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.

END OF SECTION

SECTION 05 4000 - COLD-FORMED METAL FRAMING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Formed steel stud exterior wall and soffit framing.

1.2 RELATED REQUIREMENTS

A. Section 05 1200 - Structural Steel Framing.

B. Section 05 3100 - Steel Decking.

C. Section 07 2100 - Thermal Insulation: Insulation within framing members.

D. Section 07 2500 - Weather Barriers: Water-resistive barrier over sheathing.

E. Section 07 6200 - Sheet Metal Flashing and Trim: Head and sill flashings.

F. Section 07 9200 - Joint Sealants.

G. Section 09 2116 - Gypsum Board Assemblies: Cold-formed steel nonstructural framing.

1.3 REFERENCE STANDARDS

A. AISI S100 - North American Specification for the Design of Cold-Formed Steel Structural Members.

B. AISI S201 - North American Standard for Cold-Formed Steel Framing - Product Data.

C. AISI S240 - North American Standard for Cold-Formed Steel Structural Framing.

D. AISI S200 - North American Standard for Cold-Formed Steel Framing - General Provisions.

E. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

F. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

G. ASTM A780/A780M - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

H. ASTM A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.

I. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.

J. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2020.

K. ASTM A780/A780M - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

L. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2023.

M. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2013.

N. ASTM C955 - Standard Specification for Cold-Formed Steel Structural Framing Members; 2018.

O. ASTM C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories.

P. ASTM C1396/C1396M - Standard Specification for Gypsum Board.

Q. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.

R. ASTM E488/E488M - Standard Test Methods for Strength of Anchors in Concrete Elements.

S. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification.

T. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020.

U. AWS D1.3/D1.3M - Structural Welding Code - Sheet Steel.

V. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic).

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on standard framing members; describe materials and finish, product criteria, limitations.

C. Product Data: Provide manufacturer's data on factory-made connectors, showing compliance with requirements.

D. Qualification Data: For testing and inspection agency.

E. Welding certificates.

F. Product Test Reports: From a qualifying testing agency, unless otherwise stated, indicating that each of the following complies with requirements, based on evaluation of comprehensive tests for current products.

1. Steel sheet.
2. Screw anchors.
3. Mechanical Fasteners.
4. Vertical deflection clips.
5. Rigid clips.
6. Miscellaneous structural clips and accessories.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Member of Steel Stud Manufacturers Association (SSMA): www.ssma.com/#sle.

B. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M and AWS D1.3/D1.3M and dated no more than 12 months before start of scheduled welding work.

C. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM E329 to conduct the testing indicated.

D. AISI S200 Specifications and Standards: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" and its "Standard for Cold-Formed Steel Framing - General Provisions."

E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling.

B. Store cold-formed metal framing, protect with a waterproof covering, and ventilate to avoid condensation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Structural Framing:

1. CEMCO: www.cemcosteel.com.
2. ClarkDietrich Building Systems: www.clarkdietrich.com.
3. The Steel Network, Inc: www.SteelNetwork.com.
4. Substitutions: See Section 01 6000 - Product Requirements.

B. Connectors:

1. ClarkDietrich Building Systems: www.clarkdietrich.com.
2. Simpson Strong-Tie: www.strongtie.com/#sle.
3. The Steel Network, Inc: www.SteelNetwork.com.
4. Substitutions: See Section 01 6000 - Product Requirements.

2.2 MATERIALS

A. Steel Sheet: ASTM A1003/A1003M, subject to the ductility limitations indicated in AISI S240.

2.3 FRAMING MATERIALS

A. Studs and Track: ASTM C955; studs formed to channel, "C" shape of web depths, flange width and thickness indicated, with punched web and stiffened flanges; U-shaped track in matching nominal width of stud, unpunched, with straight flanges of widths indicated.

1. Thickness and Depth: As indicated on drawings.
   a. All 12, 14, and 16 gauge steel studs and track shall be formed from Grade 50 steel.
   b. All 18 and 20 gauge steel studs and track shall be formed from Grade 33 steel.
2. Galvanized in accordance with ASTM A653/A653M, G60/Z180 coating.
3. Provide components fabricated from ASTM A1011/A1011M, Designation SS (structural steel).

B. Framing Connectors

1. Material: ASTM A653/A653M SS Grade 50 (minimum), with G90/Z275 hot dipped galvanized coating for base metal thickness less than 14 gauge, 0.068 inch, and factory punched holes and slots.

2. Vertical Deflection Clips: Provide mechanical anchorage devices to stud web that accommodate upward and downward vertical displacement of primary structure using slotted holes, shouldered screws or screws and anti-friction or stepped bushings, while maintaining structural performance of framing. Provide movement connections where indicated on drawings.
    a. Vertical deflection clips and their connections must be able to resist the minimum loads indicated on the drawings.
    b. Clips shall be selected and installed so that all required fastener holes are used.
3. Rigid Clips: Provide non-movement connections capable of accommodating combined vertical shear and out-of-plane tension loading through rigid mechanical attachment to stud web, where indicated on drawings.
    a. Rigid clips and their connections must be able to resist the minimum loads indicated on the drawings.
4. Drift Clips: Manufacturer's standard head clips, capable of isolating wall stud from upward and downward vertical displacement of primary structure.
    a. Drift clips and their connections must be able to resist the minimum loads indicated on the drawings.
    b. Where top of stud wall terminates below structural floor or roof, connect studs to structure in manner allowing vertical movement of deck without affecting studs; allow for minimum movement of 1 inch.
5. Wall Stud Bridging Connections: Provide mechanical load-transferring devices that accommodate wind load torsion and weak axis buckling induced by axial compression loads. Provide bridging connections as indicated on drawings.

2.4 FASTENERS

A. Self-Drilling, Self-Tapping Screws, Bolts, Nuts and Washers: Hot-dip galvanized per ASTM A153/A153M.
    1. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.

B. Post-Installed Anchors: As Indicated on drawings.
    1. Fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times design load, as determined by testing per ASTM E488/E488M conducted by a qualified independent testing agency.
    2. Screw anchors must be used in stem walls. Expansion anchors are not permitted to be installed in stem walls.

C. Welding: Comply with AWS D1.1/D1.1M and AWS D1.3/D1.3M.

2.5 ACCESSORIES

A. Bracing and Bridging: Formed sheet steel, thickness determined for conditions encountered; finish to match framing components.

B. Furring Channel / Hat Channel: Manufacturer's standard 7/8" high hat-shaped framing, capable of resisting imposed loading of metal wall panels.

C. Supplementary framing: Stud kickers, knee braces, and girts.

D. Web stiffeners and blocking.

1. Coordinate requirements for additional blocking with requirements of exterior architectural finish systems.

E. Anchor clips, foundation clips, and end clips.

F. Hole reinforcing plates.

G. Backer plates.

H. Galvanizing Repair: Touch up bare steel with zinc-rich paint in compliance with ASTM A780/A780M.

I. Steel Shapes and Clips: ASTM A36/A36M, zinc coated by hot-dip process according to ASTM A123/A123M.

J. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

K. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to match width of bottom track or rim track members.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

B. Verify field measurements and adjust installation as required.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Install cold-formed metal framing according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions" and to manufacturer's written instructions unless more stringent requirements are indicated.

B. Install components in accordance with manufacturers' instructions and ASTM C1007 requirements.

C. Cut framing members by sawing or shearing; do not torch cut.

D. Ends of studs shall have square cut ends unless shown otherwise and shall be seated tight against the tracks with a maximum gap tolerance of 1/8" between the end of the studs and the track.

E. Edge of nearest web penetration shall be 12 inches minimum from end of stud.

F. Construct corners using minimum of three studs.

G. Install studs full length in one piece. Splicing of studs is not permitted, unless noted otherwise.

H. Coordinate placement of insulation in built-up exterior framing members, such as headers, sills, and multiple studs at openings, that are inaccessible after erection.

I. Install intermediate studs above and below openings to align with wall stud spacing.

J. Erection Tolerances: Install cold-formed metal framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:

1. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

K. Fasten cold-formed metal framing members by welding or screw fastening. Wire tying, clinch fastening, and riveting of framing members is not permitted.

1. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
2. Locate mechanical fasteners and install according to Shop Drawings, and complying with requirements for spacing, edge distances, and screw penetration.

L. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.

M. Do not bridge building expansion and/or control joints with cold-formed metal framing. Independently frame both sides of joints.

N. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's standard punched openings.

O. Install blocking studs at all locations as required by manufacturer for metal panel installation.

P. Install supplementary framing, blocking, and bracing in stud framing indicated to support fixtures, equipment, services, casework, heavy trim, furnishings, and similar work requiring attachment to framing.

1. If type of supplementary support is not indicated, comply with stud manufacturer's written recommendations and industry standards in each case, considering weight or load resulting from item supported.

Q. Install framing between studs for attachment of mechanical and electrical items, and to prevent stud rotation.

R. Do not deviate from details shown on Drawings unless modifications have been submitted to and accepted by Architect.

3.3 EXTERIOR NON-LOAD BEARING WALL INSTALLATION

A. Install continuous top and bottom tracks sized to match studs. Align tracks accurately and securely anchor at corners and ends, and at spacings as indicated.

B. Fasten both flanges of studs to top and bottom track, unless otherwise indicated. Space studs as indicated on drawings.

C. Set studs plumb, except as needed for diagonal bracing or required for non-plumb walls or warped surfaces and similar requirements.

D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.

1. Connect vertical deflection clips to bypassing studs and anchor to building structure.
2. Connect drift clips to cold formed metal framing and anchor to building structure.

E. Install horizontal bridging in wall studs, spaced in rows indicated on Drawings but not more than 48 inches apart. Fasten at each stud intersection.

1. Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.

F. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, fasteners, and stud girts, to provide a complete and stable wall-framing system.

3.4 FIELD QUALITY CONTROL

A. Testing: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Field and shop welds will be subject to testing and inspecting.

C. Testing agency will report test results promptly and in writing to Contractor and Architect.

D. Remove and replace work where test results indicate that it does not comply with specified requirements.

E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.5 REPAIRS AND PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed metal framing with galvanized repair paint according to ASTM A780/A780M and manufacturer's written instructions.

B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed metal framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 05 5000 - METAL FABRICATIONS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Shop fabricated steel and aluminum items.

B. Prefabricated ladders and ship ladders.

C. Cast iron trench castings.

D. Prefabricated stair treads and nosings.

E. Laser-fused pre-fabricated decorative steel lintels.

1.2 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Placement of metal fabrications in concrete.

B. Section 04 2616 - Adhered Masonry Veneer: Placement of metal fabrications in masonry.

C. Section 05 2100 - Steel Joist Framing: Structural joist bearing plates, including anchorage.

D. Section 05 3100 - Steel Decking: Bearing plates for metal deck bearing, including anchorage.

E. Section 05 5213 - Pipe and Tube Railings.

F. Section 09 9113 - Exterior Painting: Paint finish.

1.3 REFERENCE STANDARDS

A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.

B. ANSI A14.3 - American National Standard for Ladders -- Fixed -- Safety Requirements.

C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.

D. ASTM A48/A48M - Standard Specification for Gray Iron Castings.

E. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

F. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

G. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates.

H. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.

I. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

J. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

K. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric).

L. ASTM B211 - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire.

M. ASTM B211M - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold-Finished Bar, Rod, and Wire (Metric).

N. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

O. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric).

P. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength.

Q. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination.

R. AWS D1.1/D1.1M - Structural Welding Code - Steel.

S. AWS D1.2/D1.2M - Structural Welding Code - Aluminum.

T. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel AC172.

U. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer.

V. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic).

W. SSPC-SP 2 - Hand Tool Cleaning.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.

1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.

C. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.

D. Fabricator's Qualification Statement: Provide documentation showing steel fabricator is accredited under IAS AC172.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: A qualified steel fabricator that is accredited by IAS AC172.

PART 2 PRODUCTS

2.1 MATERIALS - STEEL

A. Steel Sections: ASTM A36/A36M.

B. Steel Tubing: ASTM A501/A501M hot-formed structural tubing.

C. Plates: ASTM A283/A283M.

D. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.

E. Slotted Channel Framing: ASTM A653/A653M, Grade 33.

F. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, plain.

G. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

H. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

I. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.2 MATERIALS - ALUMINUM

A. Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper.

B. Sheet Aluminum: ASTM B209 (ASTM B209M), 5052 alloy, H32 or H22 temper.

C. Aluminum-Alloy Bars: ASTM B211 (ASTM B211M), 6061 alloy, T6 temper.

D. Bolts, Nuts, and Washers: Stainless steel.

E. Welding Materials: AWS D1.2/D1.2M; type required for materials being welded.

2.3 FABRICATION

A. Fit and shop assemble items in largest practical sections, for delivery to site.

B. Fabricate items with joints tightly fitted and secured.

C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

D. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.4 FABRICATED ITEMS

A. Bollards: Steel pipe, concrete filled, precast crowned concrete cap, as detailed; prime paint finish.

B. Ledge Angles, Shelf Angles, Channels, and Plates Not Attached to Structural Framing: For support of metal decking; prime paint finish.

C. Lintels: As detailed; prime paint finish.

D. Laser-fused pre-fabricated decorative steel lintels. Provide as manufactured by Stainless Structurals of Conroe, TX.

1. Conform with ASTM A1069.
2. Prime and paint finish. Color to be selected by Architect.

E. Slotted Channel Framing: Fabricate channels and fittings from structural steel complying with the referenced standards; factory-applied, rust-inhibiting thermoset acrylic enamel finish.

F. Top of wall trim at stone veneer CMU walls: As detailed; prime and paint finish. Color to be selected by Architect.

G. Custom steel plate cut-out logos to fit over light fixtures: As detailed; prime and paint finish. Color to be selected by Architect.

H. Door and Wall Bent Plate Trim: As detailed; prime and paint finish.

I. Wall Bracket: As detailed; prime and paint finish.

2.5 PREFABRICATED LADDERS

A. Prefabricated Ladder: Welded metal unit complying with ANSI A14.3; factory fabricated to greatest degree practical and in the largest components possible.

1. Components: Manufacturer's standard rails, rungs, treads, handrails. returns, platforms and safety devices complying with the requirements of the MATERIALS article of this section.
2. Materials: Aluminum; 2 (1), 6063 alloy, T52 temper.
3. Finish: Manufacturer's standard clear anodized coating, comply with AAMA 611, Class 1.
4. Basis of Design Manufacturers:
    a. O'Keeffe's Inc; Roof Parapet Ladder: Model 503: www.okeeffes.com/#sle.

B. Prefabricated Ship Ladder: Welded metal unit complying with ANSI A14.3; factory fabricated to greatest degree practical and in the largest components possible.

1. Components: Manufacturer's standard rails, rungs, treads, handrails. returns, platforms and safety devices complying with the requirements of the MATERIALS article of this section.
2. Materials: Aluminum; ASTM B221 (ASTM B221M), 6063 alloy, T52 temper.
3. Incline: 68 degrees.
4. Finish: Manufacturer's standard clear anodized coating, comply with AAMA 611, Class 1.
5. Basis of Design Manufacturers:
    a. O'Keeffe's Inc; Model 520: www.okeeffes.com/#sle.

2.6 CAST IRON TRENCH CASTINGS

A. Cast Iron Trench Castings:

1. Material: Cast iron; ASTM A48/A48M, Class 35 B (heavy duty).
2. Grate Type: Manufacturer's standard Type A.

2.7 FACTORY FABRICATED STAIR TREAD AND NOSING

A. Materials: Cast Aluminum.

2.8 FINISHES - STEEL

A. Prime paint steel items.

B. Prepare surfaces to be primed in accordance with SSPC-SP2.

C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

D. Prime Painting: One coat.

E. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A123/A123M requirements.

2.9 FINISHES - ALUMINUM

A. Interior Aluminum Surfaces: Class I natural anodized.

B. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.2 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

3.3 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Perform field welding in accordance with AWS D1.1/D1.1M.

D. Obtain approval prior to site cutting or making adjustments not scheduled.

END OF SECTION

SECTION 05 5213 - PIPE AND TUBE RAILINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Wall mounted handrails.

B. Stair railings and guardrails.

C. Free-standing railings.

1.2 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Placement of anchors in concrete.

B. Section 09 9113 - Exterior Painting: Paint finish.

1.3 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design.

B. ASTM E935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings.

1.4 SUBMITTALS

A. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

B. Fabricator's Qualification Statement.

1.5 QUALITY ASSURANCE

A. Structural Designer Qualifications: Professional Structural Engineer experienced in design of this work and licensed in the State in which the Project is located, or personnel under direct supervision of such an engineer.

B. Fabricator Qualifications:

1. A company specializing in manufacturing products specified in this section, with not less than five years of documented experience.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Safety Railing Basis of Design:

1. Safety Rail Company: https://www.safetyrailcompany.com/permanent-guardrail/.

2.2 RAILINGS - GENERAL REQUIREMENTS

A. Design, fabricate, and test railing assemblies in accordance with the most stringent requirements of applicable local code.

B. Distributed Loads: Design railing assembly, wall rails, and attachments to resist distributed force of 75 pounds per linear foot applied to the top of the assembly and in any direction, without damage or permanent set. Test in accordance with ASTM E935.

C. Concentrated Loads: Design railing assembly, wall rails, and attachments to resist a concentrated force of 200 pounds applied at any point on the top of the assembly and in any direction, without damage or permanent set. Test in accordance with ASTM E935.

D. Allow for expansion and contraction of members and building movement without damage to connections or members.

E. Dimensions: See drawings for dimensions, configurations, and heights.

1. Infill: Square welded wire mesh with 2" openings..

a. Basis of Design: McNichols Quality 1 1/2 inches square opening wire mesh, item #3815250048, with U-Frame. Wires to align from panel to panel.

b. Finish: Plain steel to be painted. Color TBD by Architect.

F. Provide anchors and other components as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.

2.3 STEEL RAILING SYSTEM

A. Welding Fittings: Factory- or shop-welded from matching pipe or tube; seams continuously welded; joints and seams ground smooth.

B. Exposed Fasteners: Flush countersunk screws or bolts; consistent with design of railing.

C. Finish: to be painted. Color TBD by Architect.

2.4 FABRICATION

A. Accurately form components to suit specific project conditions and for proper connection to building structure.

B. Fit and shop assemble components in largest practical sizes for delivery to site.

C. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.

D. Welded Joints:

1. Exterior Components: Continuously seal joined pieces by intermittent welds and plastic filler. Drill condensate drainage holes at bottom of members at locations that will not encourage water intrusion.
2. Interior Components: Continuously seal joined pieces by intermittent welds and plastic filler.
3. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.2 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Supply items required to be cast into concrete or embedded in masonry with setting templates, for installation as work of other sections.

C. Apply one coat of bituminous paint to concealed aluminum surfaces that will be in contact with cementitious or dissimilar materials.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install components plumb and level, with uniform slope where required, accurately fitted, free from distortion or defects, with tight joints.

C. Install railings in compliance with ADA Standards for accessible design at applicable locations.

D. Anchor railings securely to structure.

E. Field weld anchors as indicated on drawings. Touch-up welds with primer. Grind welds smooth.

3.4 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch per floor level, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch.

C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

SECTION 06 1000 - ROUGH CARPENTRY

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fire retardant treated wood materials.

B. Miscellaneous framing and sheathing.

C. Communications and electrical room mounting boards.

D. Concealed wood blocking, nailers, and supports.

1.2 RELATED REQUIREMENTS

A. Section 05 1200 - Structural Steel Framing: Prefabricated beams and columns for support of wood framing.

B. Section 07 2500 - Weather Barriers: Water-resistive barrier over sheathing.

C. Section 07 6200 - Sheet Metal Flashing and Trim: Sill flashings.

D. Section 07 7200 - Roof Accessories: Prefabricated roof curbs.

1.3 REFERENCE STANDARDS

A. ASTM D3498

B. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings.

C. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

E. ASTM D2898 - Standard Test Methods for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing.

F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

G. AWPA U1 - Use Category System: User Specification for Treated Wood.

H. ICC (IBC) - International Building Code.

I. ICC (IECC) - International Energy Conservation Code.

J. PS 1 - Structural Plywood.

K. PS 2 - Performance Standard for Wood-Based Structural-Use Panels.

L. PS 20 - American Softwood Lumber Standard.

M. RIS (GR) - Standard Specifications for Grades of California Redwood Lumber.

N. SPIB (GR) - Grading Rules.

O. WCLIB (GR) - Standard Grading Rules for West Coast Lumber No. 17.

P. WWPA G-5 - Western Lumber Grading Rules.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide technical data on insulated sheathing, wood preservative materials, and application instructions.

C. Structural Composite Lumber: Submit manufacturer's published structural data including span tables, marked to indicate which sizes and grades are being used; if structural composite lumber is being substituted for dimension lumber or timbers, submit grading agency structural tables marked for comparison.

D. Samples: For rough carpentry members that will be exposed to view, submit two samples, 4 by 4 inch in size illustrating wood grain, color, and general appearance.

E. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

F. Shop Drawings: Submit shop drawings showing size, length, and location of all engineered lumber to be installed.

G. Shop Drawings: Submit shop drawings showing model number and location of all lumber connectors to be installed. Connectors include but are not limited to beam and joist hangers, hold-downs, column caps and bases, light gage straps, and miscellaneous clip angles.

1.5 DELIVERY, STORAGE, AND HANDLING

A. General: Cover and store wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, or installation.

C. If rough carpentry materials become wet, do not install until moisture content meets specified requirements.

D. If inorganic boron-treated wood becomes wet, apply spray-on, EPA-registered borate treatment.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.

1. Species: Douglas Fir, Douglas Fir (south), Spruce-Pine-Fir (south), Western Cedars, Western Woods, Sitka Spruce, Southern Pine, or as indicated on drawings., unless otherwise indicated.
2. If no species is specified, provide #2 Douglas Fir.
3. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

B. Lumber fabricated from old growth timber is not permitted.

2.2 DIMENSION LUMBER

A. Grading Agency: Southern Pine Inspection Bureau, Inc; SPIB (GR).

B. Grading Agency: Redwood Inspection Service; RIS (GR).

C. Grading Agency: West Coast Lumber Inspection Bureau; WCLIB (GR).

D. Grading Agency: Western Wood Products Association; WWPA G-5.

E. Sizes: Nominal sizes as indicated on drawings, S4S.

F. Moisture Content: S-dry or MC19.

G. Structural Framing (2" to 4" nominal thickness):

1. Species and grade: As indicated on drawings.

H. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16):

I. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:

1. Lumber: S4S, No. 2 or Standard Grade.
2. Boards: Standard or No. 3.

2.3 EXPOSED DIMENSION LUMBER

A. Sizes: Nominal sizes as indicated on drawings.

B. Surfacing: S4S.

C. Moisture Content: S-dry or MC19.

2.4 EXPOSED TIMBERS

A. Submit manufacturer's certificate that products meet or exceed specified requirements, in lieu of grade stamping.

B. Moisture Content: Kiln-dry (20 percent maximum).

C. Surfacing: S4S.

D. Species: Redwood.

E. Grade: Clear Heart Structural.

2.5 STRUCTURAL COMPOSITE LUMBER

A. At Contractor's option, structural composite lumber may be substituted for concealed dimension lumber and timbers.

B. Structural Composite Lumber: Factory fabricated beams, headers, and columns, of sizes and types indicated on drawings; structural capacity as published by manufacturer.

1. Columns: Use laminated veneer lumber, laminated strand lumber, or parallel strand lumber with manufacturer's published E (modulus of elasticity): 1,800,000 psi, minimum.
2. Beams: Use laminated veneer lumber, laminated strand lumber, or parallel strand lumber with manufacturer's published E (modulus of elasticity): 1,800,000 psi, minimum.
3. Manufacturers:
    a. Boise Cascade Company: www.bc.com/#sle.
    b. Weyerhaeuser Company: www.weyerhaeuser.com/#sle.
    c. Substitutions: See Section 01 6000 - Product Requirements.

2.6 CONSTRUCTION PANELS

A. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood, or medium density fiberboard; 3/4 inch thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

2.7 ACCESSORIES

A. Fasteners:

1. General fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacturer.
    a. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
2. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
3. Post-Installed Anchors: As indicated on the Drawings.

B. Metal Framing Connectors and Anchors:

1. Basis of Design: Simpson Strong-Tie.
2. Allowable design loads and deflection limits, as published by manufacturer, shall meet or exceed those of basis-of-design products. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehesive testing performed by a qualified independent testing agency. Framing anchors shall be punched for fasteners adequate to withstand same loads as framing anchors called out on Drawings.
3. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 (Z180) coating designation.
    a. Use for interior locations, unless otherwise indicated.
4. Hot-Dip, Heavy-Galvanized Steel Sheet: ASTM A 653/A 653M; Structural steel (SS), high-strength low-alloy steel type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G185 (Z550) coating designation; and not less than 0.036 inch thick.
    a. Use at all exterior locations, with wood-preservative-treated lumber, and where indicated.

C. Sill Gasket on Top of Foundation Wall: 1/4 inch thick, plate width, closed cell plastic foam from continuous rolls.

D. Sill Flashing: As specified in Section 07 6200.

E. Subfloor Adhesives for Field Gluing Floor Panels to Wood Framing: Waterproof, air cure type, cartridge dispensed, per ASTM D3498.

F. Water-Resistive Barrier: As specified in Section 07 2500.

G. Building Paper: Water resistant Kraft paper.

2.8 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.

1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.

B. Fire Retardant Treatment:

1. Interior Type A: AWPA U1, Use Category UCFA, Commodity Specification H, low temperature (low hygroscopic) type, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes.

a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.

b. Treat rough carpentry items as indicated .

c. Do not use treated wood in applications exposed to weather or where the wood may become wet.

PART 3 EXECUTION

3.1 PREPARATION

A. Install sill gasket under sill plate of framed walls bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.

3.2 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.3 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AWC (WFCM) Wood Frame Construction Manual.

E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.

F. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.

G. Provide bridging at joists in excess of 8 feet span as detailed. Fit solid blocking at ends of members.

H. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.4 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.

C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

D. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

3.5 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

B. Provide wood curb at all roof openings except where specifically indicated otherwise. Form corners by alternating lapping side members.

3.6 INSTALLATION OF CONSTRUCTION PANELS

A. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on all edges and into studs in field of board.

1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
3. Install adjacent boards without gaps.
4. Install boards with the better appearance face exposed to view.

END OF SECTION

SECTION 06 4100 - ARCHITECTURAL WOOD CASEWORK

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Specially fabricated cabinet units.

B. Hardware.

C. Plastic laminate paneling.

D. Upholstered cushions.

E. Custom display cases.

1.2 RELATED REQUIREMENTS

A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

B. Section 08 8000 - Glazing: Glass for casework.

C. Section 12 3600 - Countertops.

1.3 REFERENCE STANDARDS

A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards.

C. AWI (QCP) - Quality Certification Program.

D. BHMA A156.9 - American National Standard for Cabinet Hardware.

E. NEMA LD 3 - High-Pressure Decorative Laminates.

F. NFPA 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting not less than one week before starting work of this section; require attendance by all affected installers.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.

1. Scale of Drawings: 1-1/2 inch to 1 foot, minimum.

C. Product Data: Provide data for hardware accessories.

D. Samples: Submit actual samples of architectural cabinet construction, minimum 12 inches square, illustrating proposed cabinet, countertop, and shelf unit substrate and finish.

E. Samples: Submit samples for verification of plastic laminates, wood veneers, and PVC edge material.

F. Certificate: Submit labels and certificates required by quality assurance and quality control programs.

1.6 QUALITY ASSURANCE

A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

1. Company with at least one project in the past 5 years with value of woodwork within 20 percent of cost of woodwork for this Project.

2. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.

B. Installer Qualifications: Certified participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.

C. Quality Certification:

1. Comply with AWI (QCP) woodwork association quality certification service/program in accordance with requirements for work specified in this section: www.awiqcp.org/#sle.

2. Provide labels or certificates indicating that the installed work complies with AWI/AWMAC/WI (AWS) requirements for grade or grades specified.

3. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.

4. Replace, repair, or rework all work for which certification is refused.

5. Gaps in excess of the AWS due to the radius of edgebanding is to be excluded from absolute compliance as a reasonable assessment when the edgebanding Overlap is zero.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect units from moisture damage.

B. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1.8 FIELD CONDITIONS

A. Field Measurements: Where casework is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings.

B. Do not deliver or install casework until building is enclosed, wet work is complete, and HVAC system is operating. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.

C. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that casework can be supported and installed as indicated.

1.9 WARRANTY

A. Provide a written warranty that all casework materials and workmanship will be free from defects for a period of one year from the date of Substantial Completion of the project. Any defective work is to be repaired or replaced at no cost to the Owner.

PART 2 PRODUCTS

2.1 CABINETS

A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS), unless noted otherwise.

1. All casework is custom grade except casework with wood grain (or any directional) laminate or wood veneer faces. In these cases, grain matching of the casework faces, including fillers, will be Premium Grade, and all other details will remain Custom Grade.

B. Plastic Laminate Faced Cabinets: Custom grade.

C. Breakroom Cabinets: Plastic laminate faced, Custom grade.

D. Cabinets:

1. Finish - Exposed Exterior Surfaces: Decorative laminate.
2. Finish - Exposed Interior Surfaces: Solid phenolic.
3. Finish - Semi-Exposed Surfaces: Decorative laminate
4. Finish - Concealed Surfaces: Manufacturer's option.
5. Door and Drawer Front Edge Profiles: Square edge with thick applied band.
6. Casework Construction Type: Type A - Frameless.
7. Interface Style for Cabinet and Door: Style 1 - Overlay; reveal overlay.
8. Grained Face Layout for Cabinet and Door Fronts: Flush panel.
    a. Premium Grade:
        1) Provide well-matched doors, drawer fronts and false fronts across multiple cabinet faces in one elevation.
9. Casework Integrity: _____.
10. Cabinet Style: Reveal overlay.
11. Cabinet Doors and Drawer Fronts: Flush style.
12. Drawer Side Construction: Manufacturer brackets and screws for metal box system.

2.2 WOOD-BASED COMPONENTS

A. Wood fabricated from old growth timber is not permitted.

2.3 LAMINATE MATERIALS

A. High Pressure Decorative Laminate (HPDL): NEMA LD 3, types as recommended for specific applications.

2.4 COUNTERTOPS

A. Countertops are specified in Section 12 3600.

2.5 ACCESSORIES

A. Adhesive: Type recommended by fabricator to suit application.

B. Plastic Edge Banding: Extruded PVC, flat shaped; smooth finish; of width to match component thickness.
    1. Color: to match plastic laminate.
    2. Use at all exposed edges.
    3. Thickness: 3 mm, unless othewise indicated.

C. Fasteners: Size and type to suit application.

D. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless steel or chrome-plated finish in exposed locations.

E. Concealed Joint Fasteners: Threaded steel.

2.6 HARDWARE

A. Hardware: BHMA A156.9, types as recommended by fabricator for quality grade specified.

B. Adjustable Shelf Supports: Standard side-mounted system using multiple holes for pin supports and locking dual pin supports, polished chrome or clear plastic finish, for nominal 1 inch spacing adjustments.

C. Countertop Support Brackets: Fixed, L-shaped, face-of-stud mounting.

D. Drawer and Door Pulls: Extruded aluminum pull, full width of drawer, satin finish. 12 inch centers for all tall cabinets and wardrobe cabinets.

E. Door Stop/ Restraint: Provide chain stop in all locations where cabinet doors hit adjacent gypsum board or casework.

F. Wiring Management: 3" plastic grommets and caps with slot for wire passage in metallic silver finish.

G. Counter Supports: Provide as required every 36" minimum.

1. Hidden Support: Concealed steel L-angle in Casework or stud wall, sized per over hang requirements.

H. Metal Drawer Systems: Integrated drawer slide and side.

1. Side Type: Single Wall.
2. Drawer Side Height: Maximum available for height of drawer indicated. Provide optional side extensions or rails for deep or file drawers.
3. Extension Type: Full extension with overtravel.
4. Static Load Capacity: Heavy Duty grade.
5. Mounting: Side mounted epoxy coated steel box system.
6. Stops: Integral type.
7. Features: Provide file drawer hangers, metal box side extension/rails, steel ball bearings, self closing/stay closed and white epoxy finish type.
8. Manufacturers:
    a. Grass America Inc; Integra: www.grassusa.com/#sle.

b. Grass America Inc; Zargen: www.grassusa.com/#sle.

c. Blum Inc; MetaBox; Drawer System 330 Series: www.blum.com

I. Hinges: European style concealed type, steel with satin finish.

J. Custom Display Case:

1. Basis of Design Manufacturer:

a. America Display Group: Model: Freestanding DC-01, product cuthseet following this Section. Phone: Toll Free (877) 923-3848, www.americadisplaygroup.com.

b. Substitutions: See Section 01 6000 - Product Requirements.

2. Production Materials:

a. Aluminum Extrusion: 1" x 1", Dark Bronze.

b. Aluminum Extrusion: 2" x 1", Dark Bronze.

c. Panel Laminate:

d. Panel Laminate:

e. Glass: Tempered Glass 0.25".

f. Lock: 1.

g. Sliding Glass Doors: 2.

h. LED Light Bars: 4.

i. Levelers: 4.

K. **UPHOLSTERED CUSHIONS**

1. Upholstery Fabric: Material shall comply with ASTM E84, NFPA 701, and UL 723.

a. Color and Pattern: As shown on drawings.

2. Padding/Cushion: High-density polyurethane foam cushion with IFD (Indentation Force Deflection) 28 to 32 (1.8-2.1) Density range poly foam cushions.

a. Use High Resilient (HR) foam that is Fire retardant (FR)

b. Cushion shall meet California Tech Bulletin 117 flammability requirements.

c. Dacron® or approved equal shall be laminated using Pro-tack foam adhesive or approved equal to the foam cushion for friction-free movement of fabric.

3. Attachment: Attach cushion to bench with industrial strength Velcro Sticky Back tape with vinyl-compatible adhesive, minimum 1 ½” in width.

4. Fabrication and Inspection:

a. Fabric-covered cushions with molded padding beneath fabric and with fabric covering free of creases, stretch lines, and wrinkles. For each upholstered component, install pile and pattern run in a consistent direction.

b. Use straight stitch at seams using a single needle stitch.

c. The entire frame upholstery shall be inspected during the manufacturing process and again after the final assembly.

d. Tailoring shall be neat, trim and applied in a professional manner.

2.7 FABRICATION

A. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.

B. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.

C. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.

D. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs.

E. Matching Wood Grain: Comply with requirements of quality standard for specified Grade and as follows:

1. Provide center matched panels at each elevation.
2. Provide sequence matching across each elevation.

F. Provide cutouts for plumbing fixtures and outlet boxes. Verify locations of cutouts from on-site dimensions. Prime paint cut edges.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify adequacy of backing and support framing.

B. Verify location and sizes of utility rough-in associated with work of this section.

3.2 INSTALLATION

A. Install work in accordance with AWI/AWMAC/WI (AWS) requirements for grade indicated.

B. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.

C. Caulk between casework and finished wall to be White of the paintable type, caulk between sink and casework and applied splashes to be clear silicone.

D. Use concealed joint fasteners to align and secure adjoining cabinet units.

E. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose.

F. Secure cabinets to floor using appropriate angles and anchorages.

G. Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.

3.3 ADJUSTING

A. Test installed work for rigidity and ability to support loads.

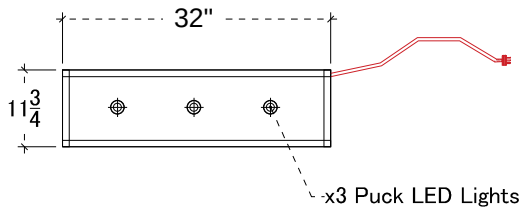
B. Adjust moving or operating parts to function smoothly and correctly.

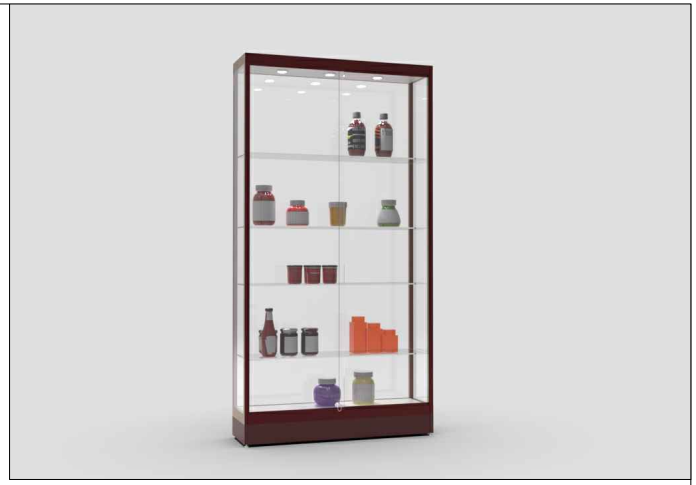
3.4 CLEANING

A. Clean casework, counters, shelves, hardware, fittings, and fixtures.

END OF SECTION

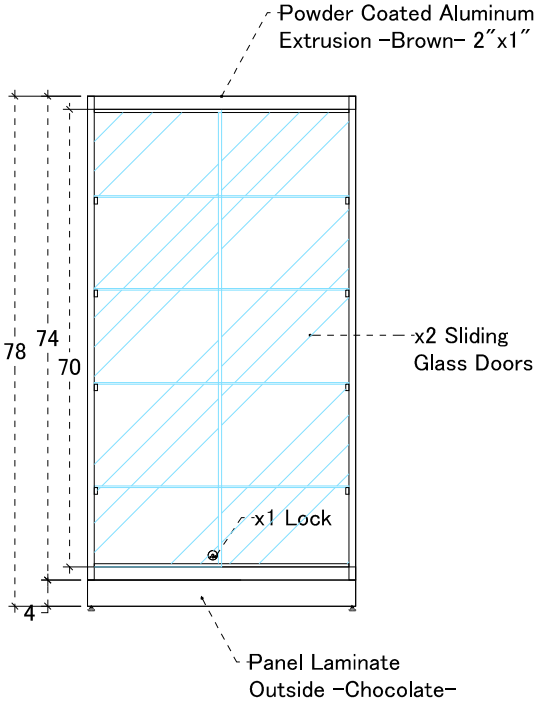
LINE DRAWING



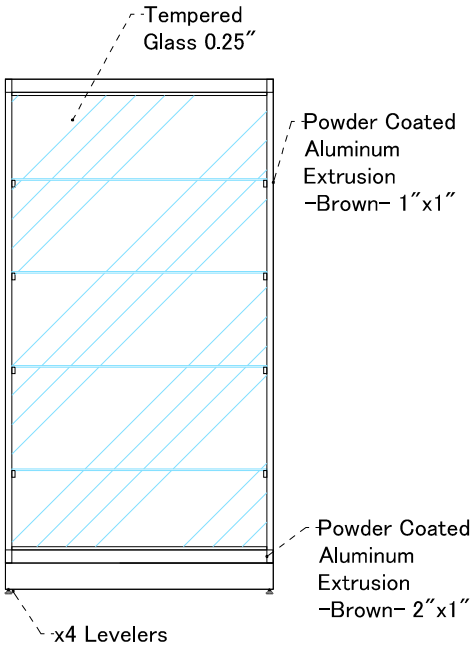


TOP VIEW

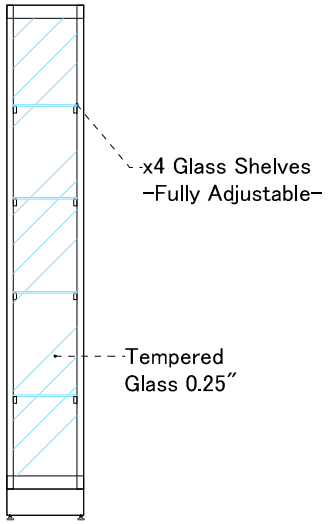
Daisy Chained



FRONT VIEW



BACK VIEW



SIDE VIEW

AMERICA DISPLAY GROUP

DESIGN DIRECTOR:
ARMIN HORTON
Armin@AmericaDisplayGroup.com

TOLL FREE (877) 923 3848

PROJECT:
DPS DESIGN

PRODUCTION MATERIALS:

- Aluminum Extrusion -Dark Bronze - 1"x1"
- Aluminum Extrusion -Dark Bronze - 2"x1"
- Panel Laminate -White-
- Panel Laminate -Chocolate-
- Tempered Glass 0.25"
- x1 Lock
- x2 Sliding Glass Doors
- x4 LED Light Bars
- x4 Levelers

PRODUCTION TIME:

LINE DRAWING

MODEL: FREESTANDING DC –01

UNITS: INCHES

FINISHING: ALUMINUM/GLASS

LINE #: 08052024-V1

DESIGNER: ARMIN HORTON

MAY/08/24

NAME & SIGNATURE:

PIECES:

PAGE: 01/01

SECTION 06 8316 - FIBERGLASS REINFORCED PANELING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fiberglass reinforced plastic panels.

B. Trim.

1.2 REFERENCE STANDARDS

A. 9 CFR 416.2 - Regulatory Requirements Under the Federal Meat Inspection Act and the Poultry Products Inspection Act, Part 416-Sanitation.

B. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

C. ASTM D5319 - Standard Specification for Glass-Fiber Reinforced Polyester Wall and Ceiling Panels.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

B. Samples: Submit two samples 6 by 6 inch in size illustrating material and surface design of panels.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Store panels flat, indoors, on a clean, dry surface. Remove packaging and allow panels to acclimate to room temperature for 48 hours prior to installation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Fiberglass Reinforced Plastic Panels:

1. See Finish Legend for acceptable manufacturer.
2. Substitutions: See Section 01 6000 - Product Requirements.

2.2 PANEL SYSTEMS

A. Wall Panels:

1. Panel Size: 4 by 8 feet.
2. Panel Thickness: 0.10 inch.
3. Surface Design: Embossed.
4. Color: See Finish Legend.
5. Attachment Method: Adhesive only, with trim and sealant in joints.

2.3 MATERIALS

A. Panels: Fiberglass reinforced plastic (FRP), complying with ASTM D5319.

1. Surface Burning Characteristics: Maximum flame spread index of 25 and smoke developed index of 450; when system tested in accordance with ASTM E84.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
3. Sanitation and Cleanability: Comply with 9 CFR 416.2.

B. Trim: Vinyl; color coordinating with panel.

C. Sealant: Type recommended by panel manufacturer; white.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions and substrate flatness before starting work.

B. Verify that substrate conditions are ready to receive the work of this section.

3.2 INSTALLATION - WALLS

A. Install panels in accordance with manufacturer's instructions.

B. Cut and drill panels with carbide tipped saw blades, drill bits, or snips.

C. Apply adhesive to the back side of the panel using trowel as recommended by adhesive manufacturer.

D. Apply panels to wall with seams plumb and pattern aligned with adjoining panels.

E. Install panels with manufacturer's recommended gap for panel field and corner joints.

F. Place trim on panel before fastening edges, as required.

G. Fill channels in trim with sealant before attaching to panel.

H. Install trim with adhesive and screws or nails, as required.

I. Seal gaps at floor, ceiling, and between panels with applicable sealant to prevent moisture intrusion.

J. Remove excess sealant after paneling is installed and prior to curing.

END OF SECTION

SECTION 07 2100 - THERMAL INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Board insulation at exterior wall behind metal panel wall finish.

B. Batt insulation in exterior wall and soffit construction.

1.2 RELATED REQUIREMENTS

A. Section 09 2116 - Gypsum Board Assemblies: Acoustic insulation inside walls and partitions.

B. Section 09 2400 - Cement Plastering: Board insulation on exterior side of walls, finished with weatherproof coating.

1.3 REFERENCE STANDARDS

A. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.

B. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

C. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

E. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.5 FIELD CONDITIONS

A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.1 APPLICATIONS

A. Insulation Over Metal Stud Framed Walls, Continuous: Extruded polystyrene (XPS) board.

B. Insulation in Metal Framed Walls: Batt insulation with no vapor retarder.

2.2 FOAM BOARD INSULATION MATERIALS

A. Extruded Polystyrene **(XPS)** Board Insulation: Complies with ASTM C578 with either natural skin or cut cell surfaces.

1. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
2. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
3. Type and Thermal Resistance, R-value: Type IV, 5.0 (0.88) per 1 inch thickness at 75 degrees F mean temperature.
4. Board Edges: Square.
5. Manufacturers:
    a. Dow Chemical Company; STYROFOAM HIGHLOAD 40: www.dowbuildingsolutions.com/#sle.
    b. Kingspan Insulation LLC; GreenGuard XPS Type IV, 25 psi: www.kingspan.com/#sle.
    c. Owens Corning Corporation; FOAMULAR Extruded Polystyrene (XPS) Insulation: www.ocbuildingspec.com/#sle.

B. Polyisocyanurate **(ISO)** Board Insulation with Facers Both Sides: Rigid cellular foam, complying with ASTM C1289.

1. Classifications:
    a. Type II:
        1) Class 1 - Faced with glass fiber reinforced cellulosic felt facers on both major surfaces of core foam.
        2) Compressive Strength: Classes 1-2-3, Grade 3 - 25 psi (172 kPa), minimum.
        3) Thermal Resistance, R-value: At 1-1/2 inch thick; Class 1, Grades 1-2-3 - 8.4 (1.48) at 75 degrees F.
2. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
3. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
4. Board Size: 48 inch by 96 inch.
5. Board Thickness: As indicated.
6. Thermal Resistance: R-value of 6.3 per inch, minimum.

7. Board Edges: Square.
8. Manufacturers:
    a. Atlas Roofing Corporation; EnergyShield Pro Continuous Wall Insulation: www.atlasroofing.com/#sle.
    b. Hunter Panels; Xci Foil (Class A): www.hunterpanels.com/#sle.

2.3 BATT INSULATION MATERIALS

A. Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.
    1. Flame Spread Index: 25 or less, when tested in accordance with ASTM E84.
    2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
    3. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
    4. Formaldehyde Content: Zero.
    5. Thermal Resistance: R-value of 19.
    6. Thickness: 6 inch.
    7. Facing: Aluminum foil, flame spread 25 rated; one side.
    8. Manufacturers:
        a. CertainTeed Corporation: www.certainteed.com.
        b. Johns Manville: www.jm.com.
        c. Knauf Insulation: www.knaufinsulation.com/#sle.
        d. Owens Corning Corporation: www.ocbuildingspec.com/#sle.

B. Mineral Fiber Batt Insulation: Flexible or semi-rigid preformed batt or blanket, complying with ASTM C665; friction fit; unfaced.
    1. Flame Spread Index: 0 (zero), when tested in accordance with ASTM E84.
    2. Smoke Developed Index: 0 (zero), when tested in accordance with ASTM E84.
    3. Thermal Resistance: R-value of 22.
    4. Thickness: 6 inch.
    5. Manufacturers:
        a. Johns Manville: www.jm.com/#sle.
        b. Knauf Insulation: www.knaufinsulation.com/#sle.
        c. ROCKWOOL (ROXUL, Inc): www.rockwool.com/#sle.
        d. Thermafiber, Inc: www.thermafiber.com/#sle.

2.4 ACCESSORIES

A. Tape: Bright aluminum self-adhering type, mesh reinforced, 2 inch wide.

1. Products:

B. Tape joints of rigid insulation in accordance with roofing and insulation manufacturers' instructions.

C. Insulation Fasteners: Lengths of unfinished, 13 gage, 0.072 inch high carbon spring steel with chisel or mitered tips, held in place by tension, length to suit insulation thickness and substrate, capable of securely supporting insulation in place.

D. Adhesive: Type recommended by insulation manufacturer for application.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.

B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.2 BOARD INSTALLATION AT EXTERIOR WALLS

A. Adhere a 6 inch wide strip of polyethylene sheet over expansion joints with double beads of adhesive each side of joint.

B. Install boards horizontally on walls.

1. Place boards to maximize adhesive contact.
2. Install in running bond pattern.
3. Butt edges and ends tightly to adjacent boards and to protrusions.

C. Extend boards over expansion joints, unbonded to wall on one side of joint.

D. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

E. Place 6 inch wide polyethylene sheet at perimeter of wall openings, from adhesive vapor retarder bed to window and door frames, and tape seal in place to ensure continuity of vapor retarder and air seal.

F. Tape insulation board joints.

3.3 BOARD INSTALLATION USING COMPOSITE FRAMING SUPPORT (CFS) SYSTEM

A. Install CFS system in accordance with manufacturer's installation instructions.

B. Install CFS system in compliance with system orientation, sizes, and locations as indicated on drawings.

C. Install CFS system to fill-in exterior wall spaces without gaps or voids, and do not compress insulation boards.

D. Trim insulation neatly to fit spaces, and insulate miscellaneous gaps and voids with approved expandable foam sealant.

3.4 BATT INSTALLATION

A. Install insulation in accordance with manufacturer's instructions.

B. Install in exterior wall spaces without gaps or voids. Do not compress insulation.

C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

E. Retain insulation batts in place with spindle fasteners at 12 inches on center.

3.5 PROTECTION

A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

SECTION 07 2119 - FOAMED-IN-PLACE INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Window and Door Filler Foam: At shim spaces and crevices at perimeter of frame openings and where indicated.

1.2 REFERENCE STANDARDS

A. AAMA 812 - Voluntary Practice for Assessment of Single Component Aerosol Expanding Polyurethane Foams for Sealing Rough Openings of Fenestration Installations.

B. ASTM C1620 - Standard Specification for Aerosol Polyurethane and Aerosol Latex Foam Sealants.

C. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. Product Data: Provide product description, insulation properties, overcoat properties, and preparation requirements.

B. Certificates: Certify that products of this section meet or exceed specified requirements.

C. Manufacturer's Installation Instructions: Indicate special procedures, and perimeter conditions requiring special attention.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with not less than five years of documented experience.

B. Applicator Qualifications: Company specializing in performing work of the type specified, and approved by manufacturer.

1.5 FIELD CONDITIONS

A. Do not apply foam when temperature is below that specified by the manufacturer for ambient air and substrate.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Window and Door Filler Foam (In shim spaces and perimeter crevices):

1. Commercial Thermal Solutions, Inc.; Tiger Foam Insulation: tigerfoam.com.
2. DOW; Window and Door Foam Sealant: greatstuff.dow.com.
3. Hilti USA; Window and Door Pro Foam: www.hilti.com.

2.2 MATERIALS

A. Window and Door Filler Foam: Polyurethane type.

1. Water Resistance: No leakage.
2. Air Leakage: 0.01 cfm/sq ft, maximum, at 1.57 psf + 6.24 pcf.
3. Surface Burning Characteristics (UL 723): Flame sperad (UL Class 1) / Smoke developed index of 0 / 5.
4. Meets ASTM C1620, Tested to AAMA 812.
5. Mold and mildew performance: No growth.

2.3 ACCESSORIES

A. Primer: As required by insulation manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify work within construction spaces or crevices is complete prior to insulation application.

B. Verify that surfaces are clean, dry, and free of matter that may inhibit insulation adhesion.

3.2 PREPARATION

A. Mask and protect adjacent surfaces from over spray or dusting.

B. Apply primer in accordance with manufacturer's instructions.

3.3 APPLICATION

A. Apply insulation in accordance with manufacturer's instructions.

B. Apply insulation by spray method, to a uniform monolithic density without voids.

C. Patch damaged areas.

D. Where applied to voids and gaps assure space for expansion to avoid pressure on adjacent materials that may bind operable parts.

E. Trim excess away for applied trim or remove as required for continuous sealant bead.

3.4 PROTECTION

A. Do not permit subsequent construction work to disturb applied insulation.

END OF SECTION

SECTION 07 2129 - SPRAYED INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Cellulosic insulation applied to underside of structure and where indicated.

1.2 REFERENCE STANDARDS

A. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.

B. ASTM C739 - Standard Specification for Cellulosic Fiber Loose-Fill Thermal Insulation.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

D. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C.

1.3 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on materials, describing insulation properties.

C. Certificates: Certify that products of this section meet or exceed specified requirements.

D. Manufacturer's Qualification Statement.

E. Installer's Qualification Statement.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of documented experience.

PART 2 PRODUCTS

2.1 BASIS OF DESIGN MANUFACTURER

A. Exposed Cellulosic Fiber Sprayed Insulation:

1. _____.
2. International Cellulose Corporation: Sonaspray "fc"; www.spray-on.com.
3. Substitutions: See Section 01 6000 - Product Requirements.

2.2 MATERIALS

A. Cellulosic Fiber Insulation: ASTM C739; treated cellulosic fiber.

1. Thermal Resistance (R-value): 3.7, at 1 inch thick when tested in accordance with ASTM C177 at 75 degrees F temperature
2. Noise Reduction Coefficient (NRC): 0.75 for 1-inch thickness.
3. Flame Spread / Smoke Developed Index: 0-25 / 0-450, Class A, when tested in accordance with ASTM E84.
4. Combustibility: Passing ASTM E136.
5. Color: As selected by Architect from Manufacturer's standard range.

2.3 ACCESSORIES

A. Primer: As required by insulation manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are clean, dry, and free of matter that may inhibit adhesion.

B. Verify other work on and within spaces to be insulated is complete prior to application.

3.2 PREPARATION

A. Mask and protect adjacent surfaces from overspray or damage.

B. Apply primer in accordance with manufacturer's instructions.

3.3 INSTALLATION

A. Install sprayed insulation in accordance with manufacturer's instructions.

B. Install sprayed insulation to a uniform monolithic density without voids.

3.4 PROTECTION

A. Do not permit subsequent construction work to disturb applied sprayed insulation.

END OF SECTION

SECTION 07 2400 - EXTERIOR INSULATION AND FINISH SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Composite wall cladding of rigid insulation and reinforced finish coating ("Class PB").

B. Drainage and water-resistive barriers behind insulation board.

C. Incidental uses of same finish coating applied directly to substrate indicated.

1.2 RELATED REQUIREMENTS

A. Section 05 4000 - Cold-Formed Metal Framing: Sheathing on metal studs.

B. Section 07 2500 - Weather Barriers.

C. Section 07 9200 - Joint Sealants: Sealing joints between EIFS and adjacent construction and penetrations through EIFS.

1.3 REFERENCE STANDARDS

A. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus.

B. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.

C. ASTM C297/C297M - Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions.

D. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.

E. ASTM C1397 - Standard Practice for Application of Class PB Exterior Insulation and Finish Systems (EIFS) and EIFS with Drainage.

F. ASTM D968 - Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive.

G. ASTM D2247 - Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.

H. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

I. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.

J. ASTM E2273 - Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies.

K. ASTM E2486/E2486M - Standard Test Method for Impact Resistance of Class PB and PI Exterior Insulation and Finish Systems (EIFS).

L. ASTM G153 - Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials.

M. ASTM G155 - Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials.

N. ICC-ES AC219 - Acceptance Criteria for Exterior Insulation and Finish Systems.

O. ICC-ES AC235 - Acceptance Criteria for EIFS Clad Drainage Wall Assemblies.

P. NFPA 259 - Standard Test Method for Potential Heat of Building Materials.

Q. NFPA 268 - Standard Test Method for Determining Ignitibility of Exterior Wall Assemblies Using a Radiant Heat Energy Source.

R. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on system materials, product characteristics, performance criteria, and system limitations.

C. Shop Drawings: Indicate wall joint patterns, joint details, and molding profiles.

D. Selection Samples: Submit manufacturer's standard range of samples illustrating available coating colors and textures.

E. Verification Samples: Submit actual samples of selected coating on specified substrate, minimum 12 inches square, illustrating project colors and textures.

F. Manufacturer's Installation Instructions: Indicate preparation required, installation techniques, and jointing requirements.

1.5 QUALITY ASSURANCE

A. Maintain copy of specified installation standard and manufacturer's installation instructions at project site during installation.

B. EIFS Manufacturer Qualifications: Provide EIFS products from the same manufacturer with qualifications as follows:

1. Member in good standing of EIMA (EIFS Industry Members Association).
2. Manufacturer of EIFS products for not less than 5 years.

C. Insulation Manufacturer Qualifications: Approved by manufacturer of EIFS and approved and labeled under third party quality program as required by applicable building code.

D. Installer Qualifications: Company specializing in the type of work specified and with at least five years of documented experience.

1.6 MOCK-UP

A. Construct mock-up of typical EIFS application on specified substrate, size 4 foot wide by 8 foot high, and including flashings, joints, and edge conditions.

B. Locate mock-up at approved location convenient for comparison to finished work.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to project site in manufacturer's original, unopened containers with labels intact. Inspect materials and notify manufacturer of any discrepancies.

B. Storage: Store materials as directed by manufacturer's written instructions.

1.8 FIELD CONDITIONS

A. Do not prepare materials or apply EIFS under conditions other than those described in the manufacturer's written instructions.

B. Do not prepare materials or apply EIFS during inclement weather unless areas of installation are protected. Protect installed EIFS areas from inclement weather until dry.

C. Do not install coatings or sealants when ambient temperature is below 40 degrees F.

D. Do not leave installed insulation board exposed to sunlight for extended periods of time.

1.9 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Provide manufacturer's standard material warranty, covering a period of not less than 5 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design:

1. Dryvit Systems, Inc; Dryvit Outsulation EIFS, Class PB: www.dryvit.com/#sle.

B. Other Acceptable Manufacturers:

1. BASF Wall Systems: www.wallsystems.basf.com/#sle.
2. Parex USA, Inc: www.parex.com/sle.
3. Sto Corp: www.stocorp.com/#sle.

2.2 EXTERIOR INSULATION AND FINISH SYSTEM

A. Exterior Insulation and Finish System: DRAINAGE type; reinforced finish coating on insulation board with drainage grooves adhesive-applied to water-resistive coating over substrate; provide a complete system that has been tested to show compliance with the following characteristics; include all components of specified system and substrate(s) in tested samples.

B. Fire Characteristics:

1. Flammability: Pass, when tested in accordance with NFPA 285.
2. Ignitibility: No sustained flaming when tested in accordance with NFPA 268.
3. Potential Heat of Foam Plastic Insulation Tested Independently of Assembly: No portion of the assembly having potential heat that exceeds that of the insulation sample tested for flammability (above), when tested in accordance with NFPA 259 with results expressed in Btu per square foot.

C. Adhesion of Water-Resistive Coating to Substrate: For each combination of coating and substrate, minimum flatwise tensile bond strength of 15 psi, when tested in accordance with ASTM C297/C297M.

D. Adhesion to Water-Resistive Coating: For each combination of insulation board and substrate, when tested in accordance with ASTM C297/C297M, maximum adhesive failure of 25 percent unless flatwise tensile bond strength exceeds 15 psi in all samples.

E. Water Penetration Resistance: No water penetration beyond the plane of the base coat/insulation board interface after 15 minutes, when tested in accordance with ASTM E331 at 6.24 psf differential pressure with tracer dye in the water spray; include in tested sample at least two vertical joints and one horizontal joint of same type to be used in construction; disassemble sample if necessary to determine extent of water penetration.

F. Drainage Efficiency: Average minimum efficiency of 90 percent, when tested in accordance with ASTM E2273 for 75 minutes.

G. Salt Spray Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating after 300 hours exposure in accordance with ASTM B117, using at least three samples matching intended assembly, at least 4 by 6 inches in size.

H. Freeze-Thaw Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating when viewed under 5x magnification after 10 cycles, when tested in accordance with ICC-ES AC219 or ICC-ES AC235.

I. Weathering Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating when viewed under 5x magnification after 2000 hours of accelerated weathering conducted in accordance with ASTM G153 Cycle 1 or ASTM G155 Cycles 1, 5, or 9.

J. Water Degradation Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating after 14 days exposure, when tested in accordance with ASTM D2247.

K. Mildew Resistance: No growth supported on finish coating during 28 day exposure period, when tested in accordance with ASTM D3273.

L. Abrasion Resistance Of Finish: No cracking, checking or loss of film integrity when tested in accordance with ASTM D968 with 113.5 gallons of sand.

M. Impact Resistance: Construct system to provide the following impact resistance without exposure of broken reinforcing mesh, when tested in accordance with ASTM E2486/E2486M:

1. High: 90 to 150 in-lb, for areas lower than 8 feet, unless otherwise indicated.

2.3 MATERIALS

A. Finish Coating Top Coat: Water-based, air curing, acrylic or polymer-based finish with integral color and texture.

1. Texture: Medium.
2. Color: As indicated on drawings.

B. Base Coat: Fiber-reinforced, acrylic or polymer-based product compatible with insulation board and reinforcing mesh.

C. Reinforcing Mesh: Balanced, open weave glass fiber fabric, treated for compatibility and improved bond with coating, weight, strength, and number of layers as required to meet required system impact rating.

D. Expanded Polystyrene (EPS) Board Insulation: Complies with ASTM C578.

1. Board Size Tolerance: Plus/minus 1/16 inch from square and dimension.
2. Board Thickness: As indicated on drawings.
3. Type and Thermal Resistance, R-value (RSI-value): Type I, 3.6 (0.63) per 1 inch thickness at 75 degrees F mean temperature using ASTM C177 test method.

E. Water-Resistive Barrier Coating: Fluid-applied air and water barrier membrane; applied to sheathing; See Section 07 2726 - Weather Barrier Fluid Applied.

2.4 ACCESSORY MATERIALS

A. Insulation Adhesive: Type required by EIFS manufacturer for project substrate.

B. Trim: EIFS manufacturer's standard PVC or galvanized steel trim accessories, as required for a complete project and including starter track and drainage accessories.

C. Sealant Materials: Compatible with EIFS materials and as recommended by EIFS manufacturer.

D. Weeps: Polyethylene tubing.

1. Provide weeps at head of openings, etc., in accordance with EIFS manufacturer's recommendations.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate is sound and free of oil, dirt, other surface contaminants, efflorescence, loose materials, or protrusions that could interfere with EIFS installation and is of a type and construction that is acceptable to EIFS manufacturer. Do not begin work until substrate and adjacent materials are complete and thoroughly dry.

B. Verify that substrate surface is flat, with no deviation greater than 1/4 in when tested with a 10 ft straightedge.

3.2 PREPARATION

A. Apply primer to substrate as recommended by EIFS manufacturer for project conditions.

3.3 INSTALLATION - GENERAL

A. Install in accordance with EIFS manufacturer's instructions and ASTM C1397.

1. Where different requirements appear in either document, comply with the most stringent.

2. Neither of these documents supercedes provisions of Contract Documents that defines contractual relationships between parties or scope of this work.

3.4 INSTALLATION - WATER-RESISTIVE BARRIER

A. Apply barrier coating as recommended by coating manufacturer; prime substrate as required before application.

B. Seal substrate transitions and intersections with other materials to form continuous water-resistive barrier on exterior of sheathing, using method recommended by manufacturer.

C. At door and window rough openings and other wall penetrations, seal water-resistive barrier and flexible flashings to rough opening before installation of metal flashings, sills, or frames, using method recommended by manufacturer.

D. Lap flexible flashing or flashing tape at least 2 inches on each side of joint or transition.

3.5 INSTALLATION - INSULATION

A. Install in accordance with manufacturer's instructions.

B. Install back wrap reinforcing mesh at all openings and terminations that are not to be protected with trim.

C. On wall surfaces, install boards horizontally.

D. Place boards in a method to maximize tight joints. Stagger vertical joints and interlock at corners. Butt edges and ends tight to adjacent board and to protrusions. Achieve a continuous flush insulation surface, with no gaps in excess of 1/16 inch.

E. Fill gaps greater than 1/16 inch with strips or shims cut from the same insulation material.

F. Rasp irregularities off surface of installed insulation board.

G. Adhesive Attachment: Use method required by manufacturer to achieve drainage efficiency specified; do not close up drainage channels when placing insulation board.

3.6 INSTALLATION - CLASS PB FINISH

A. Base Coat: Apply in thickness as necessary to fully embed reinforcing mesh, wrinkle free, including back-wrap at terminations of EIFS. Install reinforcing fabric as recommended by EIFS manufacturer.

1. Lap reinforcing mesh edges and ends a minimum of 2-1/2 inches.
2. Allow base coat to dry a minimum of 24 hours before next coating application.

B. As required by impact resistance requirements, install second layer of reinforcing mesh embedded in second coat of base coating, tightly butting ends and edges of mesh.

C. Apply finish coat after base coat has dried not less than 24 hours, embed finish aggregate, and finish to a uniform texture and color.

D. Finish Coat Thickness: As recommended by manufacturer.

E. Seal control and expansion joints within the field of exterior finish and insulation system, using procedures recommended by sealant and finish system manufacturers.

3.7 CLEANING

A. See Section 01 7000 - Execution and Closeout Requirements for additional requirements.

B. Clean EIFS surfaces and work areas of foreign materials resulting from EIFS operations.

3.8 PROTECTION

A. Protect completed work from damage and soiling by subsequent work.

END OF SECTION

SECTION 07 2500 - WEATHER BARRIERS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Water-Resistive Barrier: Under exterior wall cladding, over sheathing or other substrate; not air tight or vapor retardant.

1.2 RELATED REQUIREMENTS

A. Section 07 2400 - Exterior Insulation and Finish Systems.

B. Section 07 6200 - Sheet Metal Flashing and Trim: Metal flashings installed in conjunction with weather barriers.

C. Section 07 9200 - Joint Sealants: Sealing building expansion joints.

1.3 DEFINITIONS

A. Weather Barrier: Assemblies that form either water-resistive barriers, air barriers, or vapor retarders.

1.4 REFERENCE STANDARDS

A. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

C. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials.

D. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials.

E. ICC-ES AC212 - Acceptance Criteria for Water-Resistive Coatings Used as Water-Resistive Barriers over Exterior Sheathing.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on material characteristics, performance criteria, and limitations.

C. Manufacturer's Installation Instructions: Indicate preparation, installation methods, and storage and handling criteria.

1.6 FIELD CONDITIONS

A. Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

PART 2 PRODUCTS

2.1 WATER-RESISTIVE BARRIER MATERIALS (WATER VAPOR PERMEABLE AND WATER-RESISTIVE)

A. Water-Resistive Barrier, Fluid Applied: Vapor permeable, elastomeric waterproofing.

1. Water-Resistive Barrier Coating:

a. Air Permeance: 0.004 cfm/sq ft, maximum, when tested in accordance with ASTM E2178.

b. Water Vapor Permeance: 5 perms, minimum, when tested in accordance with ASTM E96/E96M Procedure B (Water Method) at 73.4 degrees F.

c. Ultraviolet (UV) and Weathering Resistance: Approved in writing by manufacturer for up to six months of weather exposure after application.

d. Surface Burning Characteristics: Flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

e. Nail Sealability: Pass, when tested in accordance with ASTM D1970/D1970M.

f. Sealants, Tapes and Accessories: As recommended by coating manufacturer.

g. Manufacturers:
   1) Parex USA, Inc; Parex USA WeatherSeal Spray & Roll-on: www.parexusa.com/#sle.
   2) PROSOCO, Inc; R-GUARD Spray Wrap MVP: www.prosoco.com/r-guard/#sle.
   3) Sto Corp; Sto Gold Coat: www.stocorp.com/#sle.
   4) Substitutions: See Section 01 6000 - Product Requirements.

2.2 ACCESSORIES

A. Sealants, Tapes, and Accessories for Sealing Weather Barrier and Sealing Weather Barrier to Adjacent Substrates: As specified or as recommended by weather barrier manufacturer.

B. Flexible Flashing: Self-adhesive sheet flashing complying with ASTM D1970/D1970M, except slip resistance requirement is waived if not installed on a roof.

1. Width: 4 inches.

2. Composition: Butyl rubber sheet laminated to elasticized polyethylene sheet.

3. Thickness: 30 mil, 0.030 inch, nominal; exception from ASTM D1970/D1970M.

4. Manufacturers:
    a. DuPont de Nemours, Inc; StraightFlash: www.dupont.com/#sle.
    b. Fortifiber Building Systems Group; FortiFlash Butyl: www.fortifiber.com/#sle.
    c. GCP Applied Technologies; Grace Perm-A-Barrier Detail Membrane: www.gcpat.com
    d. Substitutions: See Section 01 6000 - Product Requirements.

C. Thinners and Cleaners: As recommended by material manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces and conditions are ready to accept the work of this section.

3.2 PREPARATION

A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.

3.3 INSTALLATION

A. Install materials in accordance with manufacturer's instructions.

B. Water-Resistive Barriers: Install continuous barrier over surfaces indicated, with sheets lapped to shed water but with seams not sealed.

C. Apply sealants and adhesives within recommended application temperature ranges. Consult manufacturer if temperature is out of this range.

D. Coatings:
1. Prepare substrate in manner recommended by coating manufacturer; treat joints in substrate and between dissimilar materials as recommended by manufacturer.
2. Mastic Coating: Install by trowel or roller to minimum thickness of 1/4 inch; use sheet seal to join to adjacent construction, seal air tight with sealant.
3. Use flashing to seal to adjacent construction and to bridge joints.

E. Openings and Penetrations in Exterior Weather Barriers:
1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches onto weather barrier and at least 6 inches up jambs; mechanically fasten stretched edges.

2. At openings to be filled with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with sealing tape at least 4 inches wide; do not seal sill flange.
3. At openings to be filled with non-flanged frames, seal weather barrier to each side of opening framing, using flashing at least 9 inches wide, covering entire depth of framing.
4. At head of openings, install flashing under weather barrier extending at least 2 inches beyond face of jambs; seal weather barrier to flashing.
5. At interior face of openings, seal gap between window/door frame and rough framing, using joint sealant over backer rod.
6. Service and Other Penetrations: Form flashing around penetrating item and seal to weather barrier surface.

3.4 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Owner92s Inspection and Testing: Cooperate with Owner92s testing agency.
1. Allow access to work areas and staging.
2. Notify Owner92s testing agency in writing of schedule for work of this section to allow sufficient time for testing and inspection.
3. Do not cover work of this section until testing and inspection is accepted.

C. Coordination of ABAA Tests and Inspections:
1. Provide testing and inspection required by ABAA QAP.
2. Notify ABAA in writing of schedule for air barrier work, and allow adequate time for testing and inspection.
3. Cooperate with ABAA testing agency.
4. Allow access to air barrier work areas and staging.
5. Do not cover air barrier work until tested, inspected, and accepted.

D. Take digital photographs of each portion of the installation prior to covering up.

3.5 PROTECTION

A. Do not leave materials exposed to weather longer than recommended by manufacturer.

END OF SECTION

SECTION 07 4113 - METAL ROOF PANELS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Architectural roofing system of preformed steel panels.

1.2 RELATED REQUIREMENTS

A. Section 01 2300 - Alternates: Alternate #4 - Roofing.

B. Section 07 2100 - Thermal Insulation: Rigid roof insulation.

C. Section 07 4213 - Metal Wall Panels: Preformed wall panels.

D. Section 07 9200 - Joint Sealants: Sealing joints between metal roof panel system and adjacent construction.

1.3 REFERENCE STANDARDS

A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix).

B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

C. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

E. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Storage and handling requirements and recommendations.
2. Installation methods.
3. Specimen warranty.

C. Shop Drawings: Include layouts of roof panels, details of edge and penetration conditions, spacing and type of connections, flashings, underlayments, and special conditions.

1. Show work to be field-fabricated or field-assembled.

D. Verification Samples: For each roofing system specified, submit samples of minimum size 12 inches square, representing actual roofing metal, thickness, profile, color, and texture.

1. Include typical panel joint in sample.

E. Test Reports: Indicate compliance of metal roofing system to specified requirements.

F. Warranty: Submit specified manufacturer's warranty and ensure that forms have been completed in Owner's name and are registered with manufacturer.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store roofing panels on project site as recommended by manufacturer to minimize damage to panels prior to installation.

1.7 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Finish Warranty: Provide manufacturer's special warranty covering failure of factory-applied exterior finish on metal roof panels and agreeing to repair or replace panels that show evidence of finish degradation, including significant fading, chalking, cracking, or peeling within specified warranty period of twenty years from Date of Substantial Completion.

C. Waterproofing Warranty: Provide manufacturer's warranty for weathertightness of roofing system, including agreement to repair or replace roofing that fails to keep out water within specified warranty period of twenty years from Date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Metal Roof Panels:

1. Firestone Building Products LLC: www.firestonebpco.com/#sle.
2. Petersen Aluminum Corporation: www.pac-clad.com/sle.
3. Western States Metal Roofing: https://www.westernstatesmetalroofing.com.

2.2 PERFORMANCE REQUIREMENTS

A. Metal Roof Panels: Provide complete roofing assemblies, including roof panels, clips, fasteners, connectors, and miscellaneous accessories, tested for compliance with the following minimum standards:

1. Structural Design Criteria: Provide panel assemblies designed to safely support design loads at support spacing indicated, with deflection not to exceed L/180 of span length(L) when tested in accordance with ASTM E1592.
2. Overall: Complete weathertight system tested and approved in accordance with ASTM E1592.
3. Thermal Movement: Design system to accommodate without deformation anticipated thermal movement over ambient temperature range of 100 degrees F.

2.3 ARCHITECTURAL METAL ROOF PANELS

A. Architectural Metal Roofing: Provide complete engineered system complying with specified requirements and capable of remaining weathertight while withstanding anticipated movement of substrate and thermally induced movement of roofing system.

B. Metal Panels: Factory-formed panels with factory-applied finish.

1. Steel Panels:
   a. Zinc-coated steel complying with ASTM A653/A653M; minimum G60 galvanizing.
   b. Steel Thickness: Minimum 24 gage (0.024 inch).
2. Profile: Standing seam, with minimum 1.5 inch seam height; concealed fastener system for integral self-lock seam.
3. Length: Maximum possible length to minimize lapped joints. Where lapped joints are unavoidable, space laps so that each sheet spans over three or more supports.
4. Width: Maximum panel coverage of 16 inches.

2.4 ATTACHMENT SYSTEM

A. Concealed System: Provide manufacturer's standard stainless steel or nylon-coated aluminum concealed anchor clips designed for specific roofing system and engineered to meet performance requirements, including anticipated thermal movement.

2.5 FABRICATION

A. Panels: Provide factory or field fabricated panels with applied finish and accessory items, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.

2.6 FINISHES

A. Fluoropolymer Coil Coating System: Manufacturer's standard multi-coat aluminum coil coating system complying with AAMA 2605, including at least 70 percent polyvinylidene fluoride (PVDF) resin, and at least 80 percent of coil coated aluminum surfaces having minimum total dry film thickness (DFT) of 0.9 mil, 0.0009 inch; Color: Firestone Steelscape Burnt Rust.

2.7 ACCESSORIES

A. Miscellaneous Sheet Metal Items: Provide flashings, gutters, downspouts, trim, moldings, closure strips, preformed crickets, caps, and equipment curbs of the same material, thickness, and finish as used for the roofing panels. Items completely concealed after installation may optionally be made of stainless steel.

B. Rib and Ridge Closures: Provide prefabricated, close-fitting components of steel with corrosion resistant finish or combination steel and closed-cell foam.

C. Sealants:

1. Exposed Sealant: Elastomeric; silicone, polyurethane, or silyl-terminated polyether/polyurethane.
2. Concealed Sealant: Non-curing butyl sealant or tape sealant.

D. Thermal Insulation: Provide rigid type, faced with white, flexible, non-dusting vapor retarder tested for maximum flame spread index of 50, per ASTM E84; for installation using spacer blocks.

1. Thermal Resistance: Minimum R-value of 20.

E. Ice and Water Shield: Self-adhereing synthetic underlayment made from polymer-modified asphalt.

1. UV Exposure: 90 Days.
2. Nail Sealability: D1970.
3. Mill Thickness: 40.
4. Roll Size: 36" x 67'.
5. Roll Weight: 50 lbs.

F. Underlayment: Synthetic non-asphaltic sheet, intended by manufacturer for mechanically fastened roofing underlayment without sealed seams over cover board.

1. Self Sealability: Passing nail sealability test specified in ASTM D1970/D1970M.
2. Low Temperature Flexibility: Passing test specified in ASTM D1970/D1970M.
3. Fasteners: As specified by manufacturer and building code qualification report or approval.
4. Manufacturers:
   a. System Components Corporation, Inc; FelTex: www.systemcomponents.net/#sle.
   b. Cover Board: 5/8" DensDeck.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation of preformed metal roof panels until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Coordinate roofing work with provisions for roof drainage, flashing, trim, penetrations, and other adjoining work to assure that the completed roof will be free of leaks.

B. Separate dissimilar metals by applying a bituminous coating, self-adhering rubberized asphalt sheet, or other permanent method approved by roof panel manufacturer.

C. Where metal will be in contact with wood or other absorbent material subject to wetting, seal joints with sealing compound and apply one coat of heavy-bodied bituminous paint.

3.3 INSTALLATION

A. Overall: Install roofing system in accordance with approved shop drawings and panel manufacturer's instructions and recommendations, as applicable to specific project conditions. Anchor all components of roofing system securely in place while allowing for thermal and structural movement.

1. Install roofing system with concealed clips and fasteners, except as otherwise recommended by manufacturer for specific circumstances.

2. Minimize field cutting of panels. Where field cutting is absolutely required, use methods that will not distort panel profiles. Use of torches for field cutting is absolutely prohibited.

B. Accessories: Install all components required for a complete roofing assembly, including flashings, gutters, downspouts, trim, moldings, closure strips, rib closures, ridge closures, and similar roof accessory items.

C. Roof Panels: Install panels in strict accordance with manufacturer's instructions, minimizing transverse joints except at junction with penetrations.

1. Form weathertight standing seams incorporating concealed clips, using an automatic mechanical seaming device approved by the panel manufacturer.

D. Insulation: Install insulation between roof covering and supporting members to present a neat appearance. Fold, staple, and tape seams unless otherwise approved by Architect.

3.4 CLEANING

A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.

3.5 PROTECTION

A. Do not permit storage of materials or roof traffic on installed roof panels. Provide temporary walkways or planks as necessary to avoid damage to completed work. Protect roofing until completion of project.

B. Touch-up, repair, or replace damaged roof panels or accessories before Date of Substantial Completion.

END OF SECTION

SECTION 07 4213 - METAL WALL PANELS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Manufactured metal panels for exterior wall panels, with related flashings and accessory components.

B. Sub-girt framing system, attached to building structural frame.

1.2 RELATED REQUIREMENTS

A. Section 01 2300 - Alternates: Alternate #4 - Roofing.

B. Section 07 2100 - Thermal Insulation.

C. Section 07 2500 - Weather Barriers: Weather barrier under wall panels.

D. Section 07 9200 - Joint Sealants: Sealing joints between metal wall panel system and adjacent construction.

1.3 REFERENCE STANDARDS

A. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document).

B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

C. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Storage and handling requirements and recommendations.
2. Installation methods.
3. Specimen warranty.

C. Shop Drawings: Indicate dimensions, layout, joints, construction details, and methods of anchorage.

D. Shop drawings shall be signed and sealed by a Professional Engineer authorized to practice in the jurisdiction of the project location.

E. Samples: Submit two samples of wall panel, 12 inch by 12 inch in size illustrating finish color, sheen, and texture.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years of documented experience.

B. Installer Qualifications: Company specializing in installing products of the type specified in this section with minimum five years of documented experience.

1.6 MOCK-UP

A. Construct mock-up, 6 feet long by 6 feet wide, minimum; include panel system, attachments to building frame, associated vapor retarder and air seal materials, weep drainage system, sealants and seals, related insulation, and transisiton to roof panel in mock-up.

B. Locate where directed by Architect.

C. Accepted mock-up may remain as part of the Work.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.

B. Store prefinished material off the ground and protected from weather; prevent twisting, bending, or abrasion; provide ventilation; slope metal sheets to ensure proper drainage.

C. Prevent contact with materials that may cause discoloration or staining of products.

1.8 WARRANTY

A. Correct defective work within a ten year period after Date of Substantial Completion for degradation of panel finish, including color fading caused by exposure to weather.

B. Correct defective work within a five year period after Date of Substantial Completion, including defects in water tightness and integrity of seals for metal wall panels.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Metal Wall Panels - Concealed Fasteners:

1. Firestone Building Products: www.firestonebpco.com.
2. Substitutions: See Section 01 6000 - Product Requirements.

2.2 MANUFACTURED METAL PANELS

A. Wall Panel System: Provide factory-formed metal wall panels designed to be field assembled by interlocking seams and incorporating concealed fasteners.

1. Provide exterior panels and thermally broken rainscreen attachment system.
2. Design and size components to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of wall.
3. Design Pressure: In accordance with applicable codes.
4. Maximum Allowable Deflection of Panel: L/90 for length(L) of span.
5. Movement: Accommodate movement within system without damage to components or deterioration of seals, movement between system and perimeter components when subject to seasonal temperature cycling; dynamic loading and release of loads; and deflection of structural support framing.
6. Drainage: Provide positive drainage to exterior for moisture entering or condensation occurring within panel system.
7. Fabrication: Formed true to shape, accurate in size, square, and free from distortion or defects; pieces of longest practical lengths to provide pattern as indicated on Drawings.
8. Corners: Factory-fabricated in one continuous piece with minimum 6 inch returns.
9. Provide continuity of weather barrier seal at building enclosure elements in conjunction with materials specified in Section 07 2500 - Weather Barriers.
10. Custom Fluoropolymer Coating System: Polyvinylidene fluoride (PVDF) multi-coat thermoplastic fluoropolymer coating system, including minimum 70 percent PVDF color topcoat and minimum total dry film thickness of 1.0mm; color and gloss in custom painted finish.

B. Exterior Panels:

1. Profile: Vertical; standing seam.
2. Side Seams: integral self-locking seam system, sealed with continuous bead of sealant, unless otherwise recommended by manufacturer.
3. Material: Precoated galvanized steel sheet, 22 gage, 0.0299 inch minimum thickness.

4. Finish Basis-of-Design: Cool Tech ® 500 PVDF Paint System.
5. Panel Depth: 1-1/2 inches.
6. Panel Width: 16 inches, net coverage.
7. Color: Firestone Steelscape Burnt Rust.

C. Subgirts: Thermally broken rainscreen attachment system.

D. Internal and External Corners: Same material, thickness, and finish as exterior sheets; profile to suit system; shop cut and factory mitered to required angles.

E. Trim: Same material, thickness and finish as exterior sheets; brake formed to required profiles.

2.3 MATERIALS

A. Precoated Steel Sheet: Hot-dipped galvanized steel sheet, ASTM A653/A653M, Structural Steel (SS) or Forming Steel (FS), with G90/Z275 coating; continuous coil-coated on exposed surfaces with specified finish coating and on panel back with specified panel back coating.

2.4 FINISHES

A. Exposed Surface Finish: Panel manufacturer's standard polyvinylidene fluoride (PVDF) coating, top coat over manufacturer's standard primer.

1. Color: Firestone Steelscape Burnt Rust.

2.5 ACCESSORIES

A. Gaskets: Manufacturer's standard type suitable for use with system, permanently resilient; ultraviolet and ozone resistant.

B. Concealed Sealants: Non-curing butyl sealant or tape sealant.

C. Exposed Sealant: Elastomeric; silicone, polyurethane, or silyl-terminated polyether/polyurethane.

D. Fasteners: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten miscellaneous metal subframing members through insulation and sheathing boards into structural wall framing or substrates..

E. Corner Units: Provide factory fabricated mitered corner units of the same profile(s) as specified. Corner units shall be furnished for outside and inside corner conditions.

F. Ventilation strips shall be provided at top of wall panels, window sills, and transitions between metal panels and other exterior finish materials to allow for air exhaust at top of wall cavity. Vent strips shall be internally baffled to prevent wind driven rain from freely entering the wall cavity.

G. Ventilation strips shall be provided at base of wall panels, window head, and transitions between metal panels and other exterior finish materials to allow for air intake and water weep holes at bottom of wall cavity.

H. Flashing and Trim: Formed from same material, finish, and gauge as wall panels. Provide flashing and trim as required to provide finished appearance. Locations include, but are not limited to, head, sill, corners, jambs, framed openings, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal wall panels.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that building framing members are ready to receive panels.

B. Verify that weather barrier has been installed over substrate completely and correctly.

3.2 PREPARATION

A. Install subframing, as indicated, directly over continuous thermal insulation. Subframing shall attach to the structural wall elements with screw fasteners. Subframing shall be spaced as necessary to accommodate the required clip spacing for the metal cladding panels.

3.3 INSTALLATION

A. Install panels on walls in accordance with manufacturer's instructions.

B. Protect surfaces in contact with cementitious materials and dissimilar metals with bituminous paint. Allow to dry prior to installation.

C. Fasten panels to structural supports; aligned, level, and plumb.

D. Seal and place gaskets to prevent weather penetration. Maintain neat appearance.

3.4 TOLERANCES

A. Maximum Offset From True Alignment Between Adjacent Members Butting or In Line: 1/16 inch.

B. Maximum Variation from Plane or Location Indicated on Drawings: 1/4 inch.

3.5 CLEANING

A. Remove site cuttings from finish surfaces.

B. Remove protective material from wall panel surfaces.

C. Clean and wash prefinished surfaces with mild soap and water; rinse with clean water.

D. Upon completion of installation, thoroughly clean prefinished aluminum surfaces in accordance with AAMA 609 & 610.

END OF SECTION

SECTION 07 4213.23 - METAL COMPOSITE MATERIAL WALL PANELS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Exterior cladding consisting of formed metal composite material (MCM) sheet, secondary supports, and anchors to structure, attached to solid backup.

B. Matching flashing and trim.

1.2 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Installation of anchors.

B. Section 04 2000 - Unit Masonry: Installation of anchors.

C. Section 07 2100 - Thermal Insulation: Continuous insulation.

D. Section 07 2500 - Weather Barriers: Water-resistive barrier behind wall panel system.

E. Section 07 6200 - Sheet Metal Flashing and Trim: Metal flashing components integrated with this wall system.

F. Section 07 9200 - Joint Sealants: Sealing joints between siding and adjacent construction and fixtures.

1.3 REFERENCE STANDARDS

A. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.

B. ASTM D1781 - Standard Test Method for Climbing Drum Peel for Adhesives.

C. ASTM D1929 - Standard Test Method for Determining Ignition Temperature of Plastics.

D. ASTM D4145 - Standard Test Method for Coating Flexibility of Prepainted Sheet.

E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

F. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Pre-Installation Meeting: Convene one week before starting work of this section to verify project requirements, coordinate with installers of other work, establish condition and

completeness of building substrate, and review manufacturers' installation instructions and warranty requirements.

1. Require attendance by the installer and relevant sub-contractors.
2. Include MCM sheet manufacturer’s representative and wall system manufacturer’s representative to review storage and handling procedures.
3. Review in detail truck transportation, parking, vertical transportation, schedule, personnel, installation of adjacent materials and substrate.
4. Review procedures for protection of work and other construction.
5. Review safety precautions.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data - MCM Sheets: Manufacturer's data sheets on each product to be used, including thickness, physical characteristics, and finish, and:

1. Finish manufacturer's data sheet showing physical and performance characteristics.
2. Storage and handling requirements and recommendations.
3. Fabrication instructions and recommendations.
4. Specimen warranty for finish, as specified herein.

C. Product Data - Wall System: Manufacturer's data sheets on each product to be used, including:

1. Physical characteristics of components shown on shop drawings.
2. Storage and handling requirements and recommendations.
3. Installation instructions and recommendations.
4. Specimen warranty for wall system, as specified herein.

D. Shop Drawings: Show layout and elevations, dimensions and thickness of panels, connections, details and location of joints, sealants and gaskets, method of anchorage, support clips, number of anchors, supports, reinforcement, trim, flashings, and accessories.

1. Indicate panel numbering system.
2. Differentiate between shop and field fabrication.
3. Indicate substrates and adjacent work with which the wall system must be coordinated.
4. Include large-scale details of anchorages and connecting elements.
5. Include large-scale details or schematic, exploded or isometric diagrams to fully explain flashing at a scale of not less than 1-1/2 inches per 12 inches.
6. Include design engineer's stamp or seal on shop drawings for attachments and anchors.

E. Selection Samples: For each finish product specified, submit at least three sample color chips representing manufacturer's full range of available colors and patterns.

F. Verification Samples: For each finish product specified, submit at least three samples, minimum size 12 inch square, and representing actual product in color and texture.

G. Certificate: Certify that the work results of this section meet or exceed specified requirements.

H. Design Data: Submit structural calculations stamped by design engineer, for Architect's information and project record.

I. Test Report: Submit test report verifying compliance with NFPA 285 for previously-tested exterior wall assembly.

J. Manufacturer's Field Reports: Provide within 48 hours of field review. State what was observed and what changes, if any, were requested or required.

K. Installer's qualification statement.

L. Testing agency's qualification statement.

M. Maintenance Data: Care of finishes and warranty requirements.

1.6 QUALITY ASSURANCE

A. Field Measurements: Verify actual dimensions by field measurement before fabrication; show recorded measurements on shop drawings.

B. Design Engineer's Qualifications: Design structural supports and anchorages under direct supervision of a Structural Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

C. Manufacturer Qualifications: Company specializing in manufacturing wall panel systems specified in this section.

1. With not less than five years of documented experience.
2. Approved by MCM sheet manufacturer.

D. Installer Qualifications: Company specializing in performing work of type specified in this section.

1. With minimum five years of documented experience.
2. Approved by wall panel system manufacturer.

E. Testing Agency Qualifications: Independent agency experienced in testing assemblies of the type required for this project and having the necessary facilities for full-size mock-up testing of the type specified.

1.7 MOCK-UPS

A. Provide a mock-up for evaluation of fabrication workmanship.

B. Locate where directed.

C. Provide specified finish on panels.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver products in manufacturer's original, unopened, undamaged containers with identification labels intact.

1. Protect finishes by applying heavy-duty removable plastic film during production.
2. Package for protection against transportation damage.
3. Provide markings to identify components consistently with drawings.
4. Exercise care in unloading, storing, and installing panels to prevent bending, warping, twisting, and surface damage.

B. Store products protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.

1. Store in well-ventilated space out of direct sunlight.
2. Protect from moisture and condensation with tarpaulins or other suitable weathertight covering installed to provide ventilation.
3. Store at a slope to ensure positive drainage of accumulated water.
4. Do not store in enclosed space where ambient temperature can exceed 120 degrees F.
5. Avoid contact with other materials that might cause staining, denting, or other surface damage.

1.9 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Special Warranty: Provide 5-year warranty covering water tightness and integrity of seals of wall panels. Complete forms in Owner's name and register with warrantor.

C. Finish Warranty: Provide 5-year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking. Complete forms in Owner's name and register with warrantor.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Metal Composite Material (MCM) Sheet Manufacturers:

1. ALUCOBOND by 3A Composites USA: www.alucobondusa.com/#sle.
2. ALPOLIC Materials: www.alpolic-americas.com/#sle.
3. Arconic Architectural Products LLC; Reynobond: www.arconic.com.

B. Wall Panel System Manufacturers:

1. Elevate: www.holcimelevate.com/#sle.
2. Kanalco Ltd: www.kanalco.com.
3. Petersen Aluminum Corporation: www.pac-clad.com/#sle.

2.2 WALL PANEL SYSTEM

A. Wall Panel System: Metal panels, fasteners, and anchors designed to be supported by framing or other substrate provided by others; provide installed panel system capable of maintaining specified performance without defects, damage, or failure.

1. Provide structural design by or under direct supervision of a Structural Engineer licensed in the State in which the Project is located.
2. Provide panel jointing and weatherseal using reveal joints and gaskets but no sealant.
3. Anchor panels to supporting framing without exposed fasteners.

2.3 PERFORMANCE REQUIREMENTS

A. Thermal Movement: Provide for free and noiseless vertical and horizontal thermal movement due to expansion and contraction under material temperature range of minus 20 degrees F to 180 degrees F without buckling, opening of joints, undue stress on fasteners, or other detrimental effects; allow for ambient temperature at time of fabrication, assembly, and erection procedures.

B. Fire Performance: Use test method complying with NFPA 285.

2.4 PANELS

A. Panels: 1 inch deep pans formed of metal composite material sheet by routing back edges of sheet, removing corners, and folding edges.

1. Reinforce corners with riveted aluminum angles.

2. Provide concealed attachment to supporting structure by adhering attachment members to back of panel; attachment members may also function as stiffeners.
3. Maintain maximum panel bow of 0.8 percent of panel dimension in width and length; provide stiffeners of sufficient size and strength to maintain panel flatness without showing local stresses or read-through on panel face.
4. Secure members to back face of panels using structural silicone sealant approved by MCM sheet manufacturer.
5. Fabricate panels under controlled shop conditions.
6. Where final dimensions cannot be established by field measurement before commencement of manufacturing, make allowance for field adjustments without requiring field fabrication of panels.
7. Fabricate as indicated on drawings and as recommended by MCM sheet manufacturer.
    a. Make panel lines, breaks, curves, and angles sharp and true.
    b. Keep plane surfaces free from warp or buckle.
    c. Keep panel surfaces free of scratches or marks caused during fabrication.
8. Provide joint details providing a watertight and structurally sound wall panel system that allows no uncontrolled water penetration on inside face of panel system.
9. For "dry" jointing, secure extrusions to returned pan edges with stainless steel rivets; provide means of concealed drainage with baffles and weeps for water that might accumulate in members of system.

2.5 MATERIALS

A. Metal Composite Material (MCM) Sheet: Two sheets of aluminum sandwiching a core of extruded thermoplastic material; no foamed insulation material content.
    1. Overall Sheet Thickness: 0.118 inch, minimum.
    2. Face Sheet Thickness: 0.019 inch, minimum.
    3. Alloy: Manufacturer's standard, selected for best appearance and finish durability.
    4. Bond and Peel Strength: No adhesive failure of the bond between the core and the skin nor cohesive failure of the core itself below 22.4 inch-pound/inch with no degradation in bond performance, when tested in accordance with ASTM D1781, simulating resistance to panel delamination, after 8 hours of submersion in boiling water and after 21 days of immersion in water at 70 degrees F.
    5. Surface Burning Characteristics: Flame spread index of 25, maximum; smoke developed index of 450, maximum; when tested in accordance with ASTM E84.
    6. Flammability: Self-ignition temperature of 650 degrees F or greater when tested in accordance with ASTM D1929.

B. Metal Framing Members: Include sub-girts, zee-clips, base and sill angles and channels, hat-shaped and rigid channels, and furring channels required for complete installation.

1. Provide material strength, dimensions, configuration as required to meet applied loads and in compliance with applicable building code.

2.6 FINISHES

A. Factory Finish: Two coat fluoropolymer resin coating, approved by coating manufacturer for length of warranty specified for project, and applied by coil manufacturing facility that specializes in coil applied finishes.

1. Coating Flexibility: Pass ASTM D4145 minimum 1T Bend at time of manufacturing.
2. Long-Term Performance: Not less than that specified under WARRANTY in PART 1.

2.7 ACCESSORIES

A. Flashing: Sheet aluminum; 0.040 inch thick, minimum; finish and color to match MCM sheet; see Section 07 6200 for additional requirements.

B. Attachment System: Thermally broken attachment system.

1. Products:
   a. Basis of Design: Knight Wall Systems; CI System: www.knightwallsystems.com.
2. Anchors: Manufacturer's standard type to suit application.
3. Fasteners: Manufacturer's standard type to suit application.

C. Bituminous Coating: Cold-applied asphalt mastic, noncorrosive compound free of asbestos, sulfur, and other deleterious impurities; 15-mil dry film thickness per coat.

D. Joint Sealer: Provide clear silicone sealant of type approved by MCM sheet manufacturer, and in compliance with ASTM C920.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine dimensions, tolerances, and interfaces with other work.

B. Examine substrate on-site to determine that conditions are acceptable for product installation in accordance with manufacturer's written instructions.

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

D. Notify Architect in writing of conditions detrimental to proper and timely completion of work, and do not proceed with erection until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protect adjacent work areas and finish surfaces from damage during installation.

B. Provide anchorage items to be cast into concrete or built into masonry to appropriate installer(s) together with setting templates.

1. See Section 03 3000 for additional cast-in-place concrete requirements.
2. See Section 04 2000 for additional unit masonry requirements.

3.3 INSTALLATION

A. Do not install products that are defective, including warped, bowed, dented, and broken members, and members with damaged finishes.

B. Comply with instructions and recommendations of MCM sheet manufacturer and wall system manufacturer, as well as with approved shop drawings.

C. Install wall system securely allowing for necessary thermal and structural movement; comply with wall system manufacturer's instructions for installation of concealed fasteners.

D. Do not handle or tool products during erection in manner that damages finish, decreases strength, or results in visual imperfection or failure in performance. Return component parts that require alteration to shop for refabrication, if possible, or for replacement with new parts.

E. Do not form panels in field unless required by wall system manufacturer and approved by the Architect; comply with MCM sheet manufacturer's instructions and recommendations for field forming.

F. Separate dissimilar metals; use gasket fasteners, isolation shims, or isolation tape where needed to eliminate possibility of electrolytic action between metals.

G. Install flashings as indicated on shop drawings. At flashing butt joints, provide a lap strap under flashing and seal lapped surfaces with a full bed of non-hardening sealant.

H. Install square, plumb, straight, and true, accurately fitted, with tight joints and intersections maintaining the following installation tolerances:

1. Variation From Plane or Location: 1/2 inch in 30 feet of length and up to 3/4 inch in 300 feet, maximum.
2. Deviation of Vertical Member From True Line: 0.1 inch in 25 feet run, maximum.
3. Deviation of Horizontal Member From True Line: 0.1 inch in 25 feet run, maximum.
4. Offset From True Alignment Between Two Adjacent Members Abutting End To End, In Line: 0.03 inch, maximum.

I. Replace damaged products.

1. Exception: Field repairs of minor damage to finishes are permitted.
2. Field Repairs to Finishes: Using materials and methods sufficient that repairs are not discernible when viewed at distance of 10 feet under all typical light conditions experienced at the project.

3.4 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements for additional requirements.

B. Wall System Manufacturer's Field Services: Provide field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with instructions.

C. Site Visits: Schedule two site visits during execution of installation.

3.5 CLEANING

A. Ensure weep holes and drainage channels are unobstructed and free of dirt and sealants.

B. Remove protective film after installation of joint sealers, after cleaning of adjacent materials, and immediately prior to completion of work.

C. Remove temporary coverings and protection of adjacent work areas.

D. Clean installed products in accordance with manufacturer's instructions.

3.6 PROTECTION

A. Protect installed panel system from damage until Date of Substantial Completion.

END OF SECTION

SECTION 07 5400 - THERMOPLASTIC MEMBRANE ROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Adhered system with thermoplastic roofing membrane.

B. Insulation, flat and tapered.

C. Cover boards.

D. Flashings.

E. Roofing stack boots, roofing expansion joints, and walkway pads.

1.2 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Wood cant strips, nailers, blocking, parapet sheathing and curbs.

B. Section 07 6200 - Sheet Metal Flashing and Trim: Counterflashings.

C. Section 07 7200 - Roof Accessories: Roof-mounted units; prefabricated curbs.

1.3 REFERENCE STANDARDS

A. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.

B. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.

C. ASTM D4434/D4434M - Standard Specification for Poly(Vinyl Chloride) Sheet Roofing.

D. NRCA (RM) - The NRCA Roofing Manual.

E. NRCA (WM) - The NRCA Waterproofing Manual.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before starting work of this section.

1. Review preparation and installation procedures and coordinating and scheduling required with related work.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data indicating membrane materials, flashing materials, insulation, surfacing, and fasteners.

C. Shop Drawings: Submit drawings that indicate joint or termination detail conditions and conditions of interface with other materials.

D. Manufacturer's qualification statement.

E. Installer's qualification statement.

F. Specimen Warranty: For approval.

G. Warranty Documentation:

1. Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
2. Submit installer's written verification that installation complies with warranty conditions for waterproof membrane.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years of documented experience.

B. Installer Qualifications: Company specializing in performing work of this section with at least five years of documented experience.

C. Single Source Responsibility for Roof Assemblies: Provide and install products from single source.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original containers, dry and undamaged, with seals and labels intact, unless otherwise indicated.

B. Store materials in weather protected environment, clear of ground and moisture.

C. Ensure storage and staging of materials does not exceed static and dynamic load-bearing capacities of roof decking.

D. Protect foam insulation from direct exposure to sunlight.

1.8 FIELD CONDITIONS

A. Do not apply roofing membrane during unsuitable weather.

B. Do not apply roofing membrane when ambient temperature is below or above that recommended by manufacturer.

C. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.

D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

E. Schedule applications so that no partially completed sections of roof are left exposed at end of workday.

1.9 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. System Warranty: Provide manufacturer's system warranty agreeing to repair or replace roofing that leaks or is damaged due to wind or other natural causes.

1. Warranty Term: 20 years.
    a. No Dollar Limit (NDL): Comprehensive, no-dollar limit liability; “edge-to-edge” system coverage including membrane, insulation, and metal; and coverage that is transferable from owner-to-owner.
2. For repair and replacement include costs of both material and labor in warranty.
3. Exceptions are not Permitted:
    a. Damage due to roof traffic.
    b. Damage due to wind speed greater than 56 miles per hour but less than 90 miles per hour.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Thermoplastic Polyvinyl Chloride (PVC) Membrane Roofing Materials:

1. Carlisle SynTec Systems: www.carlisle-syntec.com/#sle.
2. GAF;: www.gaf.com/#sle.
3. Holcim Building Envelope (Formerly Firestone Building Products): www.holcimelevate.com.

4. Johns Manville: www.jm.com.

B. Insulation:

1. Carlisle SynTec Systems: www.carlisle-syntec.com/#sle.
2. Holcim Building Envelope (Formerly Firestone Building Products, LLC): www.holcimelevate.com.

2.2 ROOFING

A. PVC Roofing: One ply membrane, fully adhered, over insulation.

B. Acceptable Insulation Types - Constant Thickness Application:

1. Minimum 2 layers of polyisocyanurate board.

C. Acceptable Insulation Types - Tapered Application:

1. Tapered polyisocyanurate board covered with cover board.

2.3 MEMBRANE ROOFING AND ASSOCIATED MATERIALS

A. Membrane Roofing Materials:

1. PVC: Polyvinyl chloride (PVC) complying with ASTM D4434/D4434M, Type II, sheet contains reinforcing fibers or reinforcing fabrics.
   a. Thickness: 80 mil, 0.080 inch, minimum.
2. Sheet Width: Factory fabricated into widest possible sheets.
3. Color: White.

B. Seaming Materials: As recommended by membrane manufacturer.

C. Membrane Fasteners: As recommended and approved by membrane manufacturer.

1. Membrane-surfaced washers and screws.

D. Flexible Flashing Material: Same material as membrane.

1. Thickness: 0.060 inches, minimum.
2. Unreinforced membrane shall not be used except where shown in details.

2.4 PARAPET SHEATHING

A. Parapet Sheathing: See Section 06 1000 - Rough Carpentry.

2.5 COVER BOARDS

A. Cover Boards: Glass-mat faced gypsum panels complying with ASTM C1177/C1177M.

1. Thickness: 1/2 inch, fire-resistant.
2. Products:
    a. Georgia-Pacific; DensDeck Prime with EONIC Technology: www.densdeck.com/#sle.

2.6 INSULATION

A. Polyisocyanurate **(ISO)** Board Insulation **(IN-06)**: Rigid cellular foam, complying with ASTM C1289.

1. Classifications:
    a. Type II: Faced with either cellulosic facers or glass fiber mat facers on both major surfaces of the core foam.
        1) Class 1 - Faced with glass fiber reinforced cellulosic facers on both major surfaces of the core foam.
        2) Compressive Strength: Classes 1-2-3, Grade 2, 20 psi (138 kPa), minimum.
        3) Thermal Resistance, R-value: At 1-1/2 inches thick; Class 1, Grades 1-2-3, 8.4 (1.48), minimum, at 75 degrees F.
2. Board Size: 48 by 96 inches.
3. Board Thickness: 1.5 inches.
4. Tapered Board: Slope as indicated; minimum thickness 1/2 inch; fabricate of fewest layers possible.

2.7 ACCESSORIES

A. Prefabricated Roofing Expansion Joint Flashing: Sheet butyl over closed-cell foam backing seamed to galvanized steel flanges.

B. Insulation Joint Tape: Glass fiber reinforced type as recommended by insulation manufacturer, compatible with roofing materials; 6 inches wide; self adhering.

C. Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.

D. Membrane Adhesive: As recommended by membrane manufacturer.

E. Surface Conditioner for Adhesives: Compatible with membrane and adhesives.

F. Thinners and Cleaners: As recommended by adhesive manufacturer, compatible with membrane.

G. Insulation Adhesive: As recommended by insulation manufacturer.

H. Insulation Perimeter Restraint: Metal edge device configured to restrain insulation boards in position and provide top flashing over ballast.

I. Sealants: As recommended by membrane manufacturer.

J. Walkway Pads: Suitable for maintenance traffic, contrasting color or otherwise visually distinctive from roof membrane.

1. Composition: Roofing membrane manufacturer's standard.
2. Surface Color: White or Yellow.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces and site conditions are ready to receive work.

B. Verify deck is supported and secure.

C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.

D. Verify deck surfaces are dry and free of snow or ice.

E. Verify that roof openings, curbs, and penetrations through roof are solidly set, and nailing strips are in place.

3.2 INSTALLATION, GENERAL

A. Perform work in accordance with manufacturer's instructions, NRCA (RM), and NRCA (WM) applicable requirements.

B. Do not apply roofing membrane during cold or wet weather conditions.

C. Do not apply roofing membrane when ambient temperature is outside the temperature range recommended by manufacturer.

D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.

E. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

3.3 INSTALLATION - INSULATION, UNDER MEMBRANE

A. Attachment of Insulation:

1. Mechanically fasten first layer of insulation to deck in accordance with roofing manufacturer's instructions.
2. Embed second layer of insulation into full bed of adhesive in accordance with roofing and insulation manufacturers' instructions.

B. Cover Boards: Mechanically fasten cover boards in accordance with roofing manufacturer's instructions.

C. Lay subsequent layers of insulation with joints staggered minimum 6 inches from joints of preceding layer.

D. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.

E. On metal deck, place boards parallel to flutes with insulation board edges bearing on deck flutes.

F. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.

G. Tape joints of insulation in accordance with roofing and insulation manufacturers' instructions.

H. At roof drains, use factory-tapered boards to slope down to roof drains over a distance of 18 inches.

I. Do not install more insulation than can be covered with membrane in same day.

3.4 INSTALLATION - MEMBRANE

A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.

B. Shingle joints on sloped substrate in direction of drainage.

C. Overlap edges and ends and seal seams by heat welding, minimum 3 inches. Seal permanently waterproof.

D. At intersections with vertical surfaces:

1. Extend membrane up a minimum of 4 inches onto vertical surfaces.
2. Fully adhere flexible flashing over membrane and up to reglets or term bars.

E. Around roof penetrations, seal flanges and flashings with flexible flashing.

F. Install roofing expansion joints where indicated. Make joints watertight.

1. Install prefabricated joint components in accordance with manufacturer's instructions.

G. Coordinate installation of roof drains and sumps and related flashings.

3.5 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements for additional requirements.

B. Owner will provide testing services, and Contractor to provide temporary construction and materials for testing in accordance with requirements.

C. Provide daily on-site attendance of roofing and insulation manufacturer's representative during installation of this work.

3.6 CLEANING

A. See Section 01 7000 - Execution and Closeout Requirements for additional requirements.

B. Remove bituminous markings from finished surfaces.

C. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and comply with their documented instructions.

D. Repair or replace defaced or damaged finishes caused by work of this section.

3.7 PROTECTION

A. Protect installed roofing and flashings from construction operations.

B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

END OF SECTION

SECTION 07 6200 - SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fabricated sheet metal items, including flashings, counterflashings, gutters, downspouts, sheet metal roofing, scuppers and collector boxes, and other items indicated in Schedule.

B. Sealants for joints within sheet metal fabrications.

C. Precast concrete splash pads.

1.2 RELATED REQUIREMENTS

A. Section 07 6100 - Sheet Metal Roofing.

B. Section 07 9200 - Joint Sealants: Sealing non-lap joints between sheet metal fabrications and adjacent construction.

1.3 REFERENCE STANDARDS

A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix).

B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.

D. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free.

E. SMACNA (ASMM) - Architectural Sheet Metal Manual.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

C. Samples: Submit two samples 12 by 12 inch in size illustrating metal finish color.

1.5 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA (ASMM) requirements and standard details, except as otherwise indicated.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.1 SHEET MATERIALS

A. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239) inch thick base metal, shop pre-coated with PVDF coating.

1. PVDF (Polyvinylidene Fluoride) Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system.
2. Color: As selected by Architect from manufacturer's custom colors.

2.2 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Form pieces in longest possible lengths.

C. Hem exposed edges on underside 1/2 inch; miter and seam corners.

D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

E. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.

F. Fabricate flashings to allow toe to extend 2 inches over roofing gravel. Return and brake edges.

2.3 GUTTERS AND DOWNSPOUT FABRICATION

A. Downspouts: Rectangular profile.

1. Color: To match Metal Wall Panels.

2.4 GUTTER AND DOWNSPOUT: SIZE INDICATED.

A. Accessories: Profiled to suit gutters and downspouts. Color to match Metal Wall Panels.

1. Anchorage Devices: In accordance with SMACNA (ASMM) requirements.
2. Downspout Supports: Brackets.

B. Splash Pads: Precast concrete type, of size and profiles indicated; minimum 3000 psi at 28 days, with minimum 5 percent air entrainment.

2.5 ACCESSORIES

A. Fasteners: Galvanized steel, with soft neoprene washers.

B. Primer: Zinc chromate type.

C. Concealed Sealants: Non-curing butyl sealant.

D. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; translucent.

E. Plastic Cement: ASTM D4586/D4586M, Type I.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.

B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.2 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

B. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

3.3 INSTALLATION

A. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..

B. Apply plastic cement compound between metal flashings and felt flashings.

C. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

D. Secure gutters and downspouts in place with concealed fasteners.

E. Set splash pads under downspouts.

END OF SECTION

SECTION 07 7100 - ROOF SPECIALTIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Manufactured roof specialties, including copings, gravel stops, and vents.

1.2 RELATED REQUIREMENTS

A. Section 07 7200 - Roof Accessories: Manufactured curbs.

1.3 REFERENCE STANDARDS

A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.

B. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix).

C. ANSI/SPRI/FM 4435/ES-1 - Test Standard for Edge Systems Used with Low Slope Roofing Systems.

D. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

E. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

F. NRCA (RM) - The NRCA Roofing Manual.

G. SMACNA (ASMM) - Architectural Sheet Metal Manual.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on shape of components, materials and finishes, anchor types and locations.

C. Shop Drawings: Indicate configuration and dimension of components, adjacent construction, required clearances and tolerances, and other affected work.

D. Samples: Submit two appropriately sized samples of coping.

E. Manufacturer's Installation Instructions: Indicate special procedures, fasteners, supporting members, and perimeter conditions requiring special attention.

PART 2 PRODUCTS

2.1 COMPONENTS

A. Roof Edge Flashings: Factory fabricated to sizes required; mitered, welded corners; concealed fasteners.

1. Configuration: Fascia, cant, gravel stop, and edge securement for roof membrane.
2. Pull-Off Resistance: Tested in accordance with ANSI/SPRI/FM 4435/ES-1 using test methods RE-1 and RE-2 to positive and negative design wind pressure as defined by applicable local building code.
3. Material: Formed steel sheet, galvanized, 24 gage, 0.024 inch thick, minimum.
4. Finish: 70 percent polyvinylidene fluoride.
5. Color: To be selected by Architect from manufacturer's standard range.

B. Copings: Factory fabricated to sizes required; mitered, welded corners; concealed fasteners.

1. Configuration: Concealed continuous hold down cleat at both legs; internal splice piece at joints of same material, thickness and finish as cap; concealed stainless steel fasteners.
2. Pull-Off Resistance: Tested in accordance with SPRI ES-1 RE-3 to positive and negative design wind pressure as defined by applicable code.
3. Material: Formed steel sheet, galvanized, 24 gage, 0.024 inch thick, minimum.
4. Finish: 70 percent polyvinylidene fluoride.
5. Color: To be selected by Architect from manufacturer's standard range.
6. Manufacturers:
    a. OMG Roofing Products: www.omgroofing.com/#sle.
    b. Metal-Era: www.metalera.com.

2.2 FINISHES

A. Clear Anodized Finish: AAMA 611 AA-M12C22A41 Class I clear anodic coating not less than 0.7 mils thick.

B. Baked Enamel: Pigmented Organic Coating System, AAMA 2603; polyester baked enamel finish system; color as indicated.

C. PVDF (Polyvinylidene Fluoride) Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system; color as selected from manufacturer's standard colors.

2.3 ACCESSORIES

A. Sealant for Joints in Linear Components: As recommended by component manufacturer.

B. Adhesive for Anchoring to Roof Membrane: Compatible with roof membrane and approved by roof membrane manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that deck, curbs, roof membrane, base flashing, and other items affecting work of this Section are in place and positioned correctly.

3.2 INSTALLATION

A. Install components in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.

B. Seal joints within components when required by component manufacturer.

C. Anchor components securely.

D. Coordinate installation of components of this section with installation of roofing membrane and base flashings.

E. Coordinate installation of sealants and roofing cement with work of this section to ensure water tightness.

END OF SECTION

SECTION 07 7200 - ROOF ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Curbs.

B. Equipment rails.

C. Roof penetrations mounting curbs.

D. Non-penetrating pedestals.

1.2 RELATED REQUIREMENTS

A. Section 05 3100 - Steel Decking.

B. Divsion 07 - Roofing System.

C. Section 07 7100 - Roof Specialties: Other manufactured roof items.

D. Section 07 7123 - Manufactured Gutters and Downspouts.

E. Division 22 - Plumbing: Items requred to penetrate roofing through roof vaults.

F. Division 23 - Mechanical: Items requred to penetrate roofing through roof vaults.

G. Division 26 - Electrical: Items requred to penetrate roofing through roof vaults.

1.3 REFERENCE STANDARDS

A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

D. FEMA P-749 – Earthquake-Resistant Design Concepts: An Introduction to the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures.

E. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation.

1.4 SUBMITTALS

A. Product Data: Manufacturer's data sheets on each product to be used.

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.
4. Maintenance requirements.

B. Shop Drawings: Submit detailed layout developed for this project and provide dimensioned location and number for each type of roof accessory.

C. Warranty Documentation:

1. Submit manufacturer warranty.
2. Ensure that forms have been completed in Owner's name and registered with manufacturer.
3. Submit documentation that roof accessories are acceptable to roofing manufacturer, and do not limit the roofing warranty.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store products under cover and elevated above grade.

1.6 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective Work within a five year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.1 ROOF CURBS

A. Roof Curbs Mounting Assemblies: Factory fabricated hollow sheet metal construction, internally reinforced, and capable of supporting superimposed live and dead loads and designated equipment load with fully mitered and sealed corner joints welded or mechanically fastened, and integral counterflashing with top and edges formed to shed water.

1. Applications: Roof curbs used for roof penetrations/openings as indicated on drawings.

2. Roof Curb Mounting Substrate: Curb substrate consists of corrugated metal roof deck with insulation.
3. Sheet Metal Material:
4. Galvanized Steel: Hot-dip zinc coated steel sheet complying with ASTM A653/A653M, SS Grade 33; G60 coating designation; 18 gage, 0.048 inch thick.
5. Provide layouts and configurations indicated on drawings.

B. Curbs Adjacent to Roof Openings: Provide curb on each side of opening, with top of curb horizontal for equipment mounting.
1. Provide preservative treated wood nailers along top of curb.
2. Insulate inside curbs with 1-1/2 inch thick fiberglass insulation.
3. Height Above Finished Roof Surface: 8 inches, minimum.

C. Equipment Rail Curbs: Straight curbs on each side of equipment, with top of curbs horizontal and level with each other for equipment mounting.
1. Provide preservative treated wood nailers along top of rails.
2. Height Above Finished Roof Surface: 8 inches, minimum.

D. Pipe, Duct, or Conduit Mounting Curbs: Vertical posts, minimum 8 inches square unless otherwise indicated.
1. Height Above Finished Roof Surface: 8 inches, minimum.

2.2 NON-PENETRATING ROOFTOP SUPPORTS/ASSEMBLIES

A. Non-Penetrating Rooftop Support/Assemblies: Manufacturer-engineered and factory-fabricated, with pedestal bases that rest on top of roofing membrane, and not requiring any attachment to roof structure and not penetrating roofing assembly.
1. Design Loadings and Configurations: As required by applicable codes.
2. Height: Provide minimum clearance of 6 inches under supported items to top of roofing.
3. Support Spacing and Base Sizes: As required to distribute load sufficiently to prevent indentation of roofing assembly.
4. Steel Components: Stainless steel, or carbon steel hot-dip galvanized after fabrication in accordance with ASTM A123/A123M.
5. Hardware, Bolts, Nuts, and Washers: Stainless steel, or carbon steel hot-dip galvanized after fabrication in accordance with ASTM A153/A153M.

B. Pipe Supports: Provide attachment fixtures complying with MSS SP-58 and as indicated.
1. Attachment/Support Fixtures: As recommended by manufacturer, same type as indicated for equivalent indoor hangers and supports; corrosion resistant material.
2. See relevant piping system specification section for additional requirements.

C. Non-Penetrating Pedestals: Steel pedestals with square, round, or rectangular bases.

1. Bases: High density polypropylene.
2. Base Sizes: As required to distribute load sufficiently to prevent indentation of roofing assembly.
3. Steel Components: Stainless steel, or carbon steel hot-dip galvanized after fabrication in accordance with ASTM A123/A123M.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using methods recommended by manufacturer for achieving acceptable results for applicable substrate under project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions, in manner that maintains roofing system weather-tight integrity.

3.4 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

SECTION 07 9200 - JOINT SEALANTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Nonsag gunnable joint sealants.

B. Self-leveling pourable joint sealants.

C. Joint backings and accessories.

1.2 RELATED REQUIREMENTS

A. Section 07 8400 - Firestopping: Firestopping sealants.

B. Section 09 2116 - Gypsum Board Assemblies: Sealing acoustical and sound-rated walls and ceilings.

1.3 REFERENCE STANDARDS

A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer.

B. ASTM C834 - Standard Specification for Latex Sealants.

C. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications.

D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.

E. ASTM C1193 - Standard Guide for Use of Joint Sealants.

F. ASTM C1311 - Standard Specification for Solvent Release Sealants.

G. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants.

H. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints.

1.4 SUBMITTALS

A. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.

1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
2. List of backing materials approved for use with the specific product.
3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
4. Substrates the product should not be used on.

B. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

1.5 QUALITY ASSURANCE

A. Field Adhesion Test Procedures:

1. Allow sealants to fully cure as recommended by manufacturer before testing.
2. Have a copy of the test method document available during tests.
3. Record the type of failure that occurred, other information required by test method, and the information required on the Field Quality Control Log.
4. If any combination of sealant type and substrate does not show evidence of minimum adhesion or shows cohesion failure before minimum adhesion, report results to Architect.

B. Field Adhesion Tests of Joints: Test for adhesion using most appropriate method in accordance with ASTM C1521, or other applicable method as recommended by manufacturer.

1.6 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective work within a five year period after Date of Substantial Completion.

C. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal , exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Non-Sag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.

1. DAP Products, Inc.: www.dap.com.
2. Pecora Corporation: www.pecora.com.
3. Sika Corporation: www.usa-sika.com.

4. Tremco Commercial Sealants & Waterproofing: www.tremcosealants.com/#sle.

B. Self-Leveling Sealants: Pourable or self-leveling sealant that has sufficient flow to form a smooth, level surface when applied in a horizontal joint.

1. Dow Chemical Company: consumer.dow.com/en-us/industry/ind-building-construction.html/#sle.
2. Pecora Corporation: www.pecora.com.
3. Sika Corporation: www.usa-sika.com.
4. Tremco Commercial Sealants & Waterproofing: www.tremcosealants.com/#sle.

2.2 JOINT SEALANT APPLICATIONS

A. Scope:

1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
   a. Wall expansion and control joints.
   b. Joints between door, window, and other frames and adjacent construction.
   c. Joints between different exposed materials.
   d. Openings below ledge angles in masonry.
   e. Other joints indicated below.
2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
   a. Joints between door, window, and other frames and adjacent construction.
   b. In sound-rated wall and ceiling assemblies, gaps at electrical outlets, wiring devices, piping, and other openings; between wall/ceiling and other construction; and other flanking sound paths.
   c. Other joints indicated below.
3. Do not seal the following types of joints.
   a. Intentional weepholes in masonry.
   b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
   c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
   d. Joints where installation of sealant is specified in another section.
   e. Joints between suspended panel ceilings/grid and walls.

B. Exterior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.

1. Lap Joints between Manufactured Metal Panels: Butyl rubber, non-curing.

2. Control and Expansion Joints in Concrete Paving: Self-leveling polyurethane "traffic-grade" sealant.

C. Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.

1. Wall and Ceiling Joints in Non-Wet Areas: Acrylic emulsion latex sealant; Type OP, Grade NF.

2. Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; white; Type S, Grade NS.

3. In Sound-Rated Assemblies: Acrylic emulsion latex sealant; Type OP, Grade NF.

D. Interior Wet Areas: restrooms and breakrooms; fixtures in wet areas include plumbing fixtures, countertops, cabinets, and other similar items.

2.3 JOINT SEALANTS - GENERAL

A. Colors: As selected by the Architect.

2.4 NONSAG JOINT SEALANTS

A. Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.

1. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.

2. Color: To be selected by Architect from manufacturer's standard range.

3. Cure Type: Single-component, neutral moisture curing.

4. Location: Exterior and interior vertical joints.

B. Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.

1. Color: White.

2. Location: Interior wet areas.

3. Manufacturers:

a. Pecora Corporation: www.pecora.com/#sle.

b. Sika Corporation: www.usa-sika.com/#sle.

C. Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; not expected to withstand continuous water immersion or traffic.

1. Movement Capability: Plus and minus 25 percent, minimum.

D. Non-Sag "Traffic-Grade" Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; explicitly approved by manufacturer for continuous water immersion and traffic.

1. Movement Capability: Plus and minus 25 percent, minimum.
2. Hardness Range: 40 to 50, Shore A, when tested in accordance with ASTM C661.
3. Color: To be selected by Architect from manufacturer's standard range.
4. Location: Interior floors.

E. Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.

F. Non-Curing Butyl Sealant: Solvent-based, single component, non-sag, non-skinning, non-hardening, non-bleeding; non-vapor-permeable; intended for fully concealed applications.

2.5 SELF-LEVELING SEALANTS

A. Self-Leveling Polyurethane Sealant: ASTM C920, Grade P, Uses M and A; single or multi-component; explicitly approved by manufacturer for traffic exposure; not expected to withstand continuous water immersion .

1. Movement Capability: Plus and minus 25 percent, minimum.
2. Color: To be selected by Architect from manufacturer's standard range.
3. Location: Exterior horizontal joints.

2.6 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.

1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type C - Closed Cell Polyethylene.
2. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

C. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

3.2 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.3 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Perform acoustical sealant application work in accordance with ASTM C919.

D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer.

E. Install bond breaker backing tape where backer rod cannot be used.

F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

G. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

H. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

END OF SECTION

SECTION 08 1113 - HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Non-fire-rated hollow metal doors and frames.

B. Hollow metal frames for wood doors.

C. Fire-rated hollow metal doors and frames.

D. Thermally insulated hollow metal doors with frames.

E. Hollow metal borrowed lites glazing frames.

1.2 RELATED REQUIREMENTS

A. Section 07 2119 - Foamed-In-Place Insulation: Window and Door Filler Foam in frames and around openings.

B. Section 08 7100 - Finish Hardware.

C. Section 08 8000 - Glazing: Glass for doors and borrowed lites.

1.3 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design.

B. ANSI/SDI A250.3 - Test Procedure and Acceptance Criteria for Factory Applied Finish Coatings for Steel Doors and Frames.

C. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors.

D. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100).

E. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.

F. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

G. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.

H. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.

I. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames.

J. ICC A117.1 - Accessible and Usable Buildings and Facilities.

K. ITS (DIR) - Directory of Listed Products.

L. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames.

M. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames.

N. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames.

O. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames.

P. NFPA 80 - Standard for Fire Doors and Other Opening Protectives.

Q. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies.

R. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames.

S. UL (DIR) - Online Certifications Directory.

T. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

C. Manufacturer's Qualification Statement.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Provide hollow metal doors and frames from SDI Certified manufacturer: www.steeldoor.org/sdicertified.php/#sle.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Hollow Metal Doors and Frames:

1. Ceco Door, an Assa Abloy Group company: www.assaabloydss.com.
2. De La Fontaine Inc: www.delafontaine.com.
3. Republic Doors, an Allegion brand: www.republicdoor.com/#sle.
4. Southwestern Hollow Metal, Raton, NM 87740: Phone: (575) 445-5582.
5. Steelcraft, an Allegion brand: www.allegion.com/sle.

2.2 PERFORMANCE REQUIREMENTS

A. Requirements for Hollow Metal Doors and Frames:

1. Steel Sheet: Comply with one or more of the following requirements; galvannealed steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
2. Accessibility: Comply with ICC A117.1 and ADA Standards.
3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
4. Door Edge Profile: Manufacturers standard for application indicated.
5. Typical Door Face Sheets: Flush.
6. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.3 HOLLOW METAL DOORS

A. Exterior Doors: Thermally insulated.

1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
    a. Level 2 - Heavy-duty.
    b. Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.
    c. Model 1 - Full Flush.
    d. Door Face Metal Thickness: 18 gage, 0.042 inch, minimum.
2. Door Core Material: Manufacturers standard core material/construction and in compliance with requirements.
3. Door Thickness: 1-3/4 inch, nominal.
4. Weatherstripping: Refer to Section 08 7100.

B. Interior Doors, Non-Fire-Rated:

1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
    a. Level 2 - Heavy-duty.
    b. Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.
    c. Model 1 - Full Flush.
    d. Door Face Metal Thickness: 18 gage, 0.042 inch, minimum.
2. Door Core Material: Manufacturers standard core material/construction and in compliance with requirements.
3. Door Thickness: 1-3/4 inch, nominal.

C. Fire-Rated Doors:

1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
    a. Level 2 - Heavy-duty.
    b. Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.
    c. Model 1 - Full Flush.
    d. Door Face Metal Thickness: 18 gage, 0.042 inch, minimum.
2. Fire Rating: As indicated on Door Schedule, tested in accordance with UL 10C and NFPA 252 ("positive pressure fire tests").
    a. Provide units listed and labeled by UL (DIR) or ITS (DIR).
    b. Attach fire rating label to each fire rated unit.

3. Door Core Material: Manufacturers standard core material/construction in compliance with requirements.
4. Door Thickness: 1-3/4 inch, nominal.

2.4 HOLLOW METAL FRAMES

A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

B. Exterior Door Frames: Full profile/continuously welded type.
1. Frame Metal Thickness: 16 gage, 0.053 inch, minimum.
2. Weatherstripping: Separate, see Section 08 7100.

C. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
1. Frame Metal Thickness: 16 gage, 0.053 inch, minimum.

D. Door Frames, Fire-Rated: Full profile/continuously welded type.
1. Fire Rating: Same as door, labeled.
2. Frame Metal Thickness: 16 gage, 0.053 inch, minimum.

E. Frames for Wood Doors: Comply with frame requirements in accordance with corresponding door.

F. Borrowed Lites Glazing Frames: Construction and face dimensions to match door frames, and as indicated on drawings.

G. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.

H. Frames Wider than 48 inches: Reinforce with steel channel fitted tightly into frame head, flush with top.

2.5 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

B. Factory Finish: Complying with ANSI/SDI A250.3, manufacturer's standard coating.
1. Color: As indicated on drawings.

C. Bituminous Coating: Asphalt emulsion or other high-build, water-resistant, resilient coating.

2.6 ACCESSORIES

A. Glazing: As specified in Section 08 8000.

B. Removable Stops: Formed sheet steel, shape as indicated on drawings, mitered or butted corners; prepared for countersink style tamper proof screws.

C. Astragals for Double Doors: Specified in Section 08 7100.

D. Grout for Frames: Portland cement grout with maximum 4 inch slump for hand troweling; thinner pumpable grout is prohibited.

E. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Verify that finished walls are in plane to ensure proper door alignment.

3.2 PREPARATION

A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.3 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.

B. Install fire rated units in accordance with NFPA 80.

C. Coordinate frame anchor placement with wall construction.

D. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.

E. Install grout fill in all exterior frames, unless otherwise indicated.

1. Install grout fill in interior frames, where indicated.

F. At frames in Wood / Metal Stud Partitions: Fill space between stud framing and frames with Expanding Foam (Closed Cell) Insulation.

1. Install foam insulation fill in all exterior frames, unless otherwise indicated.

2. Install foam insulation fill in interior frames, where indicated.

G. At frames in Concrete Walls / Partitions: Fill space between concrete and frames with Mineral Fiber Insulation.

1. Install mineral fiber insulation fill in all exterior frames, unless otherwise indicated.
2. Install mineral fiber insulation fill in interior frames, where indicated.

H. Install door hardware as specified in Section 08 7100.

I. Coordinate installation of electrical connections to electrical hardware items.

J. Touch up damaged factory finishes.

3.4 TOLERANCES

A. Clearances Between Door and Frame: Comply with related requirements of specified frame standards or custom guidelines indicated in accordance with SDI 117 or NAAMM HMMA 861.

B. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.5 ADJUSTING

A. Adjust for smooth and balanced door movement.

B. Test sound control doors for force to close, latch, and unlatch; adjust as necessary in compliance with requirements.

END OF SECTION

SECTION 08 1416 - FLUSH WOOD DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Flush wood doors; flush configuration; fire-rated and non-rated.

1.2 RELATED REQUIREMENTS

A. Section 08 1113 - Hollow Metal Doors and Frames.

B. Section 08 7100 - Door Hardware.

1.3 REFERENCE STANDARDS

A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards.

1.4 SUBMITTALS

A. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.

B. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.

1. Provide information as required by AWI/AWMAC/WI (AWS).

C. Samples: Submit two samples of door veneer, 12 by 12 inches in size illustrating wood grain, stain color, and sheen.

D. Certificate: Submit labels and certificates required by quality assurance and quality control programs.

E. Manufacturer's qualification statement.

F. Installer's qualification statement.

G. Warranty, executed in Owner's name.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section, with not less than five years of documented experience.

1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.

B. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than five years of documented experience.

C. Woodwork Quality Assurance Program:

1. Provide labels indicating that the installed work complies with AWI/AWMAC/WI (AWS) requirements for grade or grades specified.
2. Provide designated labels on shop drawings as required by quality assurance program.
3. Provide designated labels on installed products as required by quality assurance program.
4. Submit documentation upon completion of installation that verifies this work is in compliance with specified requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Package, deliver and store doors in accordance with specified quality standard.

B. Accept doors on site in manufacturer's packaging, and inspect for damage.

C. Protect doors with resilient packaging sealed with heat shrunk plastic; do not store in damp or wet areas or areas where sunlight might bleach veneer; seal top and bottom edges with tinted sealer if stored more than one week, and break seal on site to permit ventilation.

1.7 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Manufacturer Warranty: Provide manufacturer's warranty on interior doors for the life of the installation. Complete forms in Owner's name and register with manufacturer.

1. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Wood Veneer Faced Doors:

1. Masonite Architectural: www.architectural.masonite.com/#sle.
2. VT Industries, Inc: www.vtindustries.com/#sle.

2.2 DOORS

A. Doors: See drawings for locations and additional requirements.

1. Quality Standard: Custom Grade, Heavy Duty performance, in accordance with AWI/AWMAC/WI (AWS), unless noted otherwise.

2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.

B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.

1. Provide solid core doors at each location.

2.3 DOOR AND PANEL CORES

A. Non-Rated Solid Core: Type particleboard core (PC), plies and faces as indicated.

2.4 DOOR FACINGS

A. Veneer Facing for Transparent Finish: White birch, veneer grade in accordance with quality standard indicated, plain sliced (flat cut), with book match between leaves of veneer, running match of spliced veneer leaves assembled on door or panel face.

2.5 DOOR CONSTRUCTION

A. Fabricate doors in accordance with door quality standard specified.

B. Cores Constructed with stiles and rails:

1. Provide solid blocks at lock edge for hardware reinforcement.

C. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.

D. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.

E. Provide edge clearances in accordance with the quality standard specified.

2.6 FINISHES - WOOD VENEER DOORS

A. Finish work in accordance with AWI/AWMAC/WI (AWS), Section 5 - Finishing for grade specified and as follows:

1. Transparent:

a. System - 5, Varnish, Conversion.

b. Stain: As selected by Architect.

c. Sheen: Flat.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.2 INSTALLATION

A. Install doors in accordance with manufacturer's instructions and specified quality standard.

B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.

C. Use machine tools to cut or drill for hardware.

D. Coordinate installation of doors with installation of frames and hardware.

3.3 TOLERANCES

A. Comply with specified quality standard for fit and clearance tolerances.

B. Comply with specified quality standard for telegraphing, warp, and squareness.

3.4 ADJUSTING

A. Adjust doors for smooth and balanced door movement.

B. Adjust closers for full closure.

3.5 SCHEDULE - SEE DRAWINGS

END OF SECTION

SECTION 08 3100 - ACCESS DOORS AND PANELS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Wall and ceiling access door and frame units.

1.2 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.

C. Shop Drawings: Indicate exact position of each access door and/or panel unit.

D. Project Record Documents: Record actual locations of each access unit.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years documented experience.

PART 2 PRODUCTS

2.1 ACCESS DOORS AND PANELS ASSEMBLIES

A. Wall-Mounted Units:

1. Material: Steel.
2. Size: 12 inch by 12 inch.
3. Door/Panel: Hinged, standard duty, with tool-operated spring or cam lock and no handle.
4. Gypsum Board Mounting Criteria: Provide drywall bead frame with door surface flush with wall surface.

B. Wall-Mounted Units in Wet Areas:

1. Material: Steel, hot-dipped zinc, or zinc-aluminum-alloy coated.
2. Size: 12 inch by 12 inch.

3. Door/Panel: Hinged, standard duty, with tool-operated spring or cam lock and no handle.
4. Gypsum Board Mounting Criteria: Provide drywall bead frame with door surface flush with wall surface.

C. Ceiling-Mounted Units:

1. Material: Steel.
2. Size - Other Ceilings: 18 inch by 18 inch.

2.2 WALL AND CEILING MOUNTED UNITS

A. Manufacturers:

1. Babcock-Davis: www.babcockdavis.com/#sle.
2. Karp Associates, Inc: www.karpinc.com.

B. Wall and Ceiling Mounted Units: Factory fabricated door and frame, fully assembled units with corner joints welded, filled and ground flush; square and without rack or warp; coordinate requirements with type of installation assembly being used for each unit.

1. Door Style: Single thickness with rolled or turned in edges.
2. Steel Finish: Primed.
3. Hardware:
   a. Hinges for Non-Fire-Rated Units: Concealed, constant force closure spring type.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that rough openings are correctly sized and located.

B. Begin installation only after substrates have been properly prepared, and if the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Prepare surfaces using methods recommended by manufacturer for applicable substrates in accordance with project conditions.

3.3 INSTALLATION

A. Install units in accordance with manufacturer's instructions.

B. Install frames plumb and level in openings, and secure units rigidly in place.

C. Position units to provide convenient access to concealed equipment when necessary.

END OF SECTION

SECTION 08 3223 - SLIDING AND FOLDING GLAZED WALLS AND DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Glazed aluminum framed folding glass door wall panel systems.

1.2 RELATED REQUIREMENTS

A. Section 08 7100 - Door Hardware: Additional hardware.

B. Section 08 8000 - Glazing: Glass and glazing accessories.

1.3 REFERENCE STANDARDS

A. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document).

B. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.

C. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix).

D. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures.

E. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.

F. ASTM D1187/D1187M - Standard Specification for Asphalt-Base Emulsions for Use as Protective Coatings for Metal.

G. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

H. ASTM E413 - Classification for Rating Sound Insulation.

I. NFRC 100 - Procedure for Determining Fenestration Product U-factors.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide information on dimensions, frame and sill construction, glazing, and hardware.

C. Shop Drawings: Indicate opening dimensions, elevations of different types, and framed opening tolerances.

D. Samples: Submit two samples, 12 by 12 inch in size illustrating typical frame corner construction, accessories, and finishes.

E. Submit two samples of door hardware.

F. Manufacturer's Installation Instructions: Include complete preparation, installation, and cleaning requirements.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with not less than three years of documented experience.

B. Installer Qualifications: Company specializing in installation of products of type specified, with not less than three years of documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to project site and store in manufacturer's protective cartons until openings are ready for installation.

B. Protect finished surfaces with wrapping paper or strippable coating during installation. Do not use adhesive papers or sprayed coatings that bond to substrate when exposed to sunlight or weather.

1.7 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.1 BASIS OF DESIGN - ALUMINUM PANEL FRAME

A. Floor Mounted; Tested for Air, Water, and Wind Load Performance; Thermally Broken, with Insulating Glazing:

1. Basis of Design: NanaWall Systems, Inc; NW Aluminum SL70 Aluminum Framed Folding Panel System: www.nanawall.com/#sle.

2.2 PERFORMANCE REQUIREMENTS

A. Acoustical Performance: Provide glass partitions and door assemblies tested by qualified testing agency, calculated in accordance with ASTM E413, tested in accordance with ASTM E90, and rated for not less than Sound Transmission Class (STC) indicated.

2.3 SLIDING AND FOLDING GLAZED DOORS AND WALLS

A. Glazed Aluminum Framed Folding Glass Door Wall Panel Systems: Extruded aluminum sliding and fixed wall panel frames, factory fabricated; complete with sill, flashings, and support and anchorage devices.

1. Configuration: As shown on drawings.
2. Support System: Floor mounted.
3. Seals: Rubber, automatically extending from top and bottom rails.
4. Panel Rail Depth: 2-3/4 inch.
5. Top Rail Height: 4-1/8 inch, square edge.
6. Bottom Rail Height: 5-1/16 inch, square edge.
7. Panel Weight: 264 lbs, maximum.
8. Aluminum Frames: Factory finished; manufacturer's standard corner construction; thermally broken.
9. Drainage: Provide drainage to exterior for moisture entering joints and glazing spaces and for condensation occurring within frame construction.
10. Glass Stops: Same material and color as frame.
11. Aluminum Frame Finish: PVDF coating in accordance with AAMA 2605.
    a. Exterior Color: As selected from manufacturer's full range of colors
    b. Interior Color: As selected from manufacturer's full range of colors

B. Sliding Wall Panel Hardware: Manufacturer's standard hardware including carriages with sealed ball bearing rollers, and top or bottom tracks.

1. Door Hardware: Pull handle.
2. Locking Mechanisms: Minimum two-point deadbolt locking of each panel; manufacturer's standard type.
3. Exposed Hardware Finish: Manufacturer's standard.

C. Weatherstripping: Manufacturer's standard, continuous and replaceable; provide between exterior doors, panels, frame and track.

2.4 FACTORY ASSEMBLY

A. Factory assemble sliding/folding operable panel frames as single unit, including head, jambs, and bottom sections; provide concealed fasteners.

1. Sizes: Allow for tolerances of rough framed openings, clearances, and shims at perimeter of assemblies.
2. Joints and Corners: Flush, hairline and waterproof, accurately fitted and secured; prepared to receive anchors; fasteners and attachments concealed from view; reinforced as required for imposed loads.
3. Glazing: Factory installed.

2.5 ACCESSORIES

A. Anchors: Hot-dipped galvanized or stainless steel in accordance with project and manufacturer's installation requirements.

B. Sealant for Setting Sills and End Dams: Elastomeric sealant acceptable to door manufacturer.

C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M, Type I.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that openings are ready to receive work and opening dimensions and clearances are as indicated on approved shop drawings.

3.2 PREPARATION

A. Prepare opening to permit correct installation of door unit in coordination with air and vapor seal.

3.3 INSTALLATION

A. Install assemblies in accordance with manufacturer's instructions.

B. Attach frame and shims to perimeter opening to accommodate construction tolerances and other irregularities.

C. Use anchorage devices to securely fasten assembly to adjacent construction without distortion or imposed stresses.

3.4 TOLERANCES

A. Maintain dimensional tolerances and alignment with adjacent work.

B. Maximum Variation from Plumb: 1/16 inch.

C. Maximum Variation from Level: 1/16 inch.

D. Longitudinal or Diagonal Warp: Plus or minus 1/8 inch from 10 feet straight edge.

3.5 ADJUSTING

A. Adjust hardware for smooth operation.

3.6 CLEANING

A. Remove protective material from factory finished surfaces.

B. Remove labels and visible markings.

C. Wash surfaces by method recommended and acceptable to sealant and window manufacturer; rinse and wipe surfaces clean.

3.7 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

END OF SECTION

SECTION 08 3323 - OVERHEAD COILING DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Horizontal coiling metal doors.

1.2 RELATED REQUIREMENTS

A. Section 07 9200 - Joint Sealants: Sealing joints between frames and adjacent construction.

B. Section 08 7100 - Door Hardware: Cylinder cores and keys.

C. Division 26 - Conduit and Power requirements.

D. Division 28 - Fire Detection and Alarm interconnection requirements.

1.3 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.

B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

1.4 SUBMITTALS

A. Product Data: Provide general construction, electrical equipment, and component connections and details.

B. Shop Drawings: Indicate pertinent dimensioning, anchorage methods, hardware locations, and installation details.

PART 2 PRODUCTS

2.1 BASIS OF DESIGN MANUFACTURER

A. Horizontal Coiling Metal Doors:

1. McKeon Door Company; Side Coiling Service Door, Model SC3000D: www.mckeondoor.com.

2. Substitutions: See Section 01 6000 - Product Requirements.

2.2 COILING DOORS

A. Horiztonal Coiling Metal Doors: Steel slat curtain.

1. Capable of withstanding positive and negative wind loads of 20 psf without undue deflection or damage to components.
2. Sandwich Slats: Manufacturer's standard, with core of foamed-in-place polyurethane insulation; minimum R-value of 8.1.
3. Nominal Slat Size: 2 inches wide by required length.
4. Finish: Bronze.
5. Guide, Angles: Galvanized steel.

2.3 MATERIALS

A. Metal Curtain Construction: Interlocking slats.

1. Slat Ends: Alternate slats fitted with end locks to act as wearing surface in guides and to prevent lateral movement.
2. Curtain Bottom for Slat Curtains: Fitted with angles to provide reinforcement and positive contact in closed position.
3. Weatherstripping for Exterior Doors: Moisture and rot proof, resilient type, located at jamb edges, bottom of curtain, and where curtain enters hood enclosure of exterior doors.
4. Steel Slats: Minimum thickness, ___ gauge, ___ inch; ASTM A653/A653M galvanized steel sheet.

B. Guide Construction: Continuous, of profile to retain door in place with snap-on trim, mounting brackets of same metal.

C. Guides - Angle: ASTM A36/A36M metal angles, size as indicated.

1. Hot-dip galvanized in compliance with ASTM A123/A123M.

D. Guides - Sheet Metal: Formed from sheet metal, 22 gauge, 3 inch thick; 3 inch wide.

1. Hot-Dip Galvanizing: Minimum G90 coating, in compliance with ASTM A653/A653M.
2. Prime painted.

E. Lock Hardware:

F. Roller Shaft Counterbalance: Steel pipe and helical steel spring system, capable of producing torque sufficient to ensure smooth operation of curtain from any position and capable of holding position at mid-travel; with adjustable spring tension; requiring 25 lb nominal force to operate.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that adjacent construction is suitable for door installation.

B. Verify that electrical services have been installed and are accessible.

C. Verify that door opening is plumb, header is level, and dimensions are correct.

D. Notify Architect of any unacceptable conditions or varying dimensions.

E. Commencement of installation indicates acceptance of substrate and door opening conditions.

3.2 INSTALLATION

A. Install units in accordance with manufacturer's instructions.

B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.

C. Securely and rigidly brace components suspended from structure.

D. Fit and align assembly including hardware; level and plumb, to provide smooth operation.

3.3 TOLERANCES

A. Maintain dimensional tolerances and alignment with adjacent work.

B. Maximum Variation From Plumb: 1/16 inch.

C. Maximum Variation From Level: 1/16 inch.

D. Longitudinal or Diagonal Warp: Plus or minus 1/8 inch per 10 feet straight edge.

3.4 ADJUSTING

A. Adjust operating assemblies for smooth and noiseless operation.

3.5 CLEANING

A. Clean installed components.

B. Remove labels and visible markings.

END OF SECTION

SECTION 08 3473 – SOUND CONTROL DOOR ASSEMBLIES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Prefabricated sound control door assemblies, including frame and seals
2. Glazing of sound control doors

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Division 08 Sections for Door Hardware.

1.3 REFERENCES

A. American Society of Testing and Materials (ASTM):

1. ASTM E90 – Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss in Building Partitions.
2. ASTM E336 – Standard Test Method for Measurement of Airborne Sound Insulation in Buildings.
3. ASTM E2964 – Standard Test Method for Measurement of the Normalized Insertion Loss of Doors.
4. ASTM E413 – Classification for Determination of Sound Transmission Class

B. American Welding Society (AWS):

1. AWS D1.1 – Structural Welding Code – Steel
2. AWS D1.3 – Structural Welding Code – Sheet Steel

C. Underwriter's Laboratories (UL):

1. UL 10B – Fire Tests of Door Assemblies
2. UL 10C – Positive Pressure Fire Tests of Door Assemblies

D. Uniform Building Code (UBC):

1. UBC 7-2 – Positive Pressure Fire Test of Door Closers

E. National Fire Protection Association (NFPA):

1. NFPA 80 – Standard for Fire Doors and Fire Windows
2. NFPA 105 – Standard for Smoke Door Assemblies and Other Opening Protectives
3. NFPA 252 – Standard Methods of Fire Tests of Door Assemblies

F. Hollow Metal Manufacturers Association (HMMA):

1. HMMA 840 – Guide Specification for Installation and Storage of Hollow Metal Doors and Frames

1.4 SUBMITTALS

A. Product Data: Submit product data sheets for each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods and adjustment information.
4. Illustrations and descriptions of all seals and hardware items which will be exposed on doors and frames.

B. Shop Drawings: Manufacturer's specifications, catalog cuts, and other items needed to demonstrate compliance with the specified requirements.

1. Provide full size details of frames and sound gasket components.
2. Provide installation details applicable to the construction in which the doors and frames will be installed, including coordination with perimeter acoustical seals.
3. Indicate construction, sizes, thicknesses, reinforcing, anchoring, and finishes of all materials.

C. Test Reports: Submit test reports demonstrating compliance with the following:

1. Acoustical Performance: Provide certified laboratory test reports from a NVLAP or IAS certified acoustic laboratory showing that a fully operating installation of the specified door assembly, including any vision lites, proposed for the installation has been measured in accordance with ASTM E90 and ASTM E413 and has met or exceeded the scheduled STC ratings. Test reports shall include 1/3 octave band Transmission Loss (TL) test data and Sound Transmission Class (STC) ratings. The test results shall be representative of the performance of the proposed door assembly.
2. ADA Compliance: If applicable, provide certified test reports for clear door dimensions and opening force requirements.
3. Fire Resistance: If applicable, provide certified test reports from a NVLAP certified fire testing laboratory showing that the Sound Control Door/Frame assembly has been measured in accordance with ASTM E2074 and has met or exceeded the required fire rating.
4. Seismic Stability: If applicable, provide certified test reports and calculations demonstrating the assembly's ability to withstand pertinent seismic forces.
5. Bullet Resistance: If applicable, provide certified test reports demonstrating compliance with UL 752 for the specified bullet resistance level required.

6. Blast / Pressure Resistance: If applicable, provide certified test reports and calculations demonstrating that the assemblies meet the seating and/or unseating pressure requirements.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: The manufacturer shall be a firm with a minimum of five years of successful experience in manufacture of products with similar requirements.

B. Installer Qualifications: The installer shall be a firm with a minimum of five years of successful experience in installation of products with similar requirements.

C. Acoustic Performance: Door assemblies shall meet the minimum Sound Transmission Class (STC) rating specified herein when tested in accordance with ASTM E90 and ASTM E413.

D. ADA Requirements: Door assemblies shall comply with ADA requirements for opening/closing force and door clear dimensions with door open at 90 degrees measured between the face of the door and the opposite door stop.

E. Fire Rating Requirements: Door assemblies shall meet the minimum fire rating required and shall comply with UL 10B for neutral pressure requirements or UL 10C / UBC 7-2 for positive pressure requirements. Test reports shall also demonstrate compliance with NFPA 80.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect door systems during transit, handling, and storage to prevent damage, soiling and deterioration.

B. Deliver doors/frames to the project site with complete installation drawings and instructions for installation.

C. Deliver doors to the project site only after the building has been closed in. Store door units in the building in a dry location and stack in accordance with the manufacturer’s instructions.

D. Protect door assemblies, especially sound gaskets, from damage before, during and after installation.

E. Swing doors shall be stored off the ground in an upright position and shall be protected from weather and damage.

F. Note and special conditions for unloading doors.

1.7 WARRANTY

A. The Sound Control Door/Frame systems shall be guaranteed against defective materials and/or workmanship for a period of two (2) years from date of final acceptance of the installation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Noise Barriers, LLC

B. Industrial Acoustics (IAC)

C. Overly Door Company

D. Or approved equivalent

2.2 MATERIALS

A. Door Leaf:

1. Door leaf shall be fabricated from one skin a minimum of 12 gauge steel. Door shall be filled with minimum 6 pcf mineral wool or rigid fiberglass insulation.
2. Hinge side of the door leaf shall be chamfered to avoid distorting the acoustical seals when operating the door.

B. Door Frame:

1. Door frame shall be fabricated from minimum 14 gauge steel. Provide frames with anchors and attachments as necessary to transfer loads to surrounding wall construction. “Split” door frames are designed to be installed after the walls are constructed.
2. Frames shall be packed solid with:
   a. Minimum 6 pcf mineral wool or rigid fiberglass insulation in stud partitions.
   b. Grout in cast-in-place concrete or masonry partitions.

C. Acoustic Seals:

1. Side and head of door and frame shall be provided with two (2) sets of factory-installed self-aligning magnetic-compression seals to hold door in closed position by the magnetic force of perimeter seals. Corners must be mitered and sealed. Seal compression shall not exceed ADA requirements.
2. Bottom of door shall be provided with a factory-installed continuous, adjustable, Teflon-coated, neoprene compression seal mortised into the door bottom and designed to compress against floor as door is closed. Automatic door bottom seals will not be accepted.

D. Vision Lites:

1. Factory-installed double-glazed windows in dimensions per the door schedule. All glazing shall be installed by skilled workmen at the manufacturer’s facility.
2. Where noted on drawings or in door schedule, provide a double glazed window with dimension sizes glazing thickness required to maintain the specified acoustical performance of the doors.

3. Glazing shall be fully captured at the perimeter edge with neoprene channels or other resilient material.

E. Hardware:

1. Coordinate all hardware with manufacturer to ensure compatibility with the operation and acoustic integrity of each door assembly.
2. Provide minimum two (2) factory-installed cam-lift type hinges for each door. Finish of hinges shall be US26D.
3. Locks, pull handles, push plates, and other door hardware as specified in the hardware schedule will be furnished and factory-installed by the sound door supplier. Door leaf and frame for each unit shall be prepared to receive security locks as specified in the hardware schedule.

2.3 FABRICATION

A. Assemble doors using all welded construction conforming to AWS D1.1 and AWS D1.3.

B. Assembly and adjustment of door, frame, acoustic seals, and hinges shall be performed at the factory. Each entire unit shall be shipped to the job site ready for installation and subsequent operation. No field assembly of doors or frames shall be permitted.

C. Reinforce as required to withstand operating loads.

D. Painting / Cleaning:

1. On surfaces that are inaccessible after assembly, apply protective coating of the manufacturer's standard rust inhibitive primer.
2. After assembly and prior to inspection, thoroughly clean all surfaces.
3. After inspection and completion of repairs and revisions required by the inspection, apply a shop coat of rust inhibitive primer to exposed surfaces.

2.4 PERFORMANCE REQUIREMENTS

A. Refer to Appendix A for sound control door assembly schedule.

PART 3 EXECUTION

3.1 EXAMINATION

A. Prior to installation, examine all openings to assure conformance to all dimensions and tolerances shown on the contract documents and Sound Control Door manufacturer's approved shop drawings.

B. Check that wall openings and adjoining air and vapor seal materials are ready to receive work of this Section.

C. Confirm that a structural steel tube or reinforced stud occurs at the framed opening of stud partitions.

D. Bring to the attention of the Project Manager any discrepancies between this Specification and the field conditions prior to installation.

E. Proceed with installation only after all unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Installation of factory assembled door units shall be performed by factory trained personnel or under the supervision of the manufacturer.

B. Comply with manufacturer's recommended installation instructions and approved shop drawings.

C. Install the Sound Control Door items plumb, straight, square, level, and in their proper elevation, plane, and location.

D. All required field welding work must be performed by a certified welder in accordance with AWS D1.1 and AWS D1.3.

3.3 FIELD QUALITY CONTROL

A. Under no circumstances shall Sound Control Doors be propped open with a door stop or by wedging any materials underneath the door leaf. Any damages that result shall be the responsibility of the Contractor.

B. Provide protective plastic wrapping on Sound Control Door assemblies if additional work is to occur in the area. Remove wrapping prior to final acceptance.

3.4 ADJUSTING

A. Check and readjust operation finish hardware in work just prior to final inspection. Leave work in complete and proper operating condition. Remove and replace defective work.

B. Open and close each door assembly through at least ten (10) complete cycles of operation to verify that each component is properly installed and operating.

C. Contractor shall adjust door assembly installation until the following conditions are met:

1. No light is visible around the perimeter of the door when closed with the lights turned off on one side.
2. It is not possible to slide a piece of paper between the door leaf and the perimeter gaskets or between the bottom gasket and the threshold.

3.5 DEMONSTRATION

A. Upon installation, the manufacturer or qualified representative shall inspect each door assembly for proper installation and adjustment. Notice shall be made to the Project Manager in writing certifying that the doors have been installed properly.

B. Prior to acceptance of the installed Sound Control Door, at the discretion of the Owner or Project Manager, acoustic performance testing of the installation may be requested. Testing shall be performed by an independent acoustic consultant.

C. The installations shall be deemed acceptable if the Sound Control Door meets or exceeds a Noise Isolation Class (NIC) that is not more than six (6) points below the specified STC rating.

D. Repair or replace components of the Sound Control Door where test results indicate the STC rating does not meet requirements.

END OF SECTION

SECTION 08 4313 - ALUMINUM-FRAMED STOREFRONTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Aluminum-framed storefront, with vision glass.

B. Aluminum doors and frames.

C. Weatherstripping.

1.2 RELATED REQUIREMENTS

A. Section 07 2119 - Foamed-In-Place Insulation: Window and Door Filler Foam.

B. Section 07 2500 - Weather Barriers: Sealing framing to weather barrier installed on adjacent construction.

C. Section 08 7100 - Door Hardware: Hardware items other than specified in this section.

D. Section 08 8000 - Glazing: Glass and glazing accessories.

1.3 REFERENCE STANDARDS

A. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site.

B. AAMA 501.2 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems.

C. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document).

D. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.

E. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures.

F. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

G. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric).

H. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

I. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric).

J. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

K. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

L. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Conduct a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.5 SUBMITTALS

A. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, and internal drainage details.

B. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related work, expansion and contraction joint location and details, and field welding required.

C. Design Data: Provide framing member structural and physical characteristics, engineering calculations, and dimensional limitations.

D. Hardware Schedule: Complete itemization of each item of hardware to be provided for each door, cross-referenced to door identification numbers in Contract Documents.

E. Field Quality Control Submittals: Report of field testing for water penetration.

F. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in performing work of type specified and with at least five years of documented experience.

B. Installer Qualifications: Company specializing in performing work of type specified and with at least five years of documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Handle products of this section in accordance with AAMA CW-10.

B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

1.8 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective Work within a five year period after Date of Substantial Completion.

C. Provide five year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.1 BASIS OF DESIGN -- FRAMING FOR INSULATING GLAZING

A. Center-Set Style, Thermally-Broken:

1. Kawneer Company Inc.: www.kawneer.com.
    a. Exterior: Trifab VG 451T (Thermal) Framing System.
2. Vertical Mullion Dimensions: 2 inches wide by 4-1/2 inches deep.

2.2 BASIS OF DESIGN -- FRAMING FOR MONOLITHIC GLAZING

A. Center-Set Style:

1. Kawneer Company Inc.: www.kawneer.com.
    a. Interior: Trifab 400 (Non-Thermal) Framing System.
2. Vertical Mullion Dimensions: 1-3/4 inches wide by 4 inches deep.

2.3 BASIS OF DESIGN -- SWINGING DOORS

A. Wide Stile, Monolithic Glazing, Non-Thermally-Broken:

1. Kawneer Company Inc.: www.kawneer.com.
    a. Interior: 500 Heavy Wall (Non-Thermal) Entrances.
2. Thickness: 2 inches.

B. Wide Stile, Insulating Glazing, Thermally-Broken:

1. Kawneer Company Inc.: www.kawneer.com.
   a. Interior: 560 Insulclad Thermal Entrances.
2. Thickness: 2-1/4 inches.

C. Other Manufacturers: Provide either the product identified as "Basis of Design" or an equivalent product of one of the manufacturers listed below:

1. Manko Window Systems, Inc: www.mankowindows.com.
2. Tubelite, Inc: www.tubeliteinc.com.

2.4 MANUFACTURERS

A. Aluminum-Framed Storefront and Doors:

1. Kawneer North America: www.kawneer.com.
2. Tubelite, Inc: www.tubeliteinc.com.
3. Trulite Glass & Aluminum Solutions, LLC: www.trulite.com.

2.5 STOREFRONT

A. Aluminum-Framed Storefront: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.

1. Glazing Rabbet: For 1 inch insulating glazing.
2. Glazing Rabbet: For 3/8 inch monolithic glazing.
3. Finish: Class I color anodized and Dark Bronze, refer to drawings for location.
   a. Factory finish all surfaces that will be exposed in completed assemblies.
   b. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous paint.
4. Finish Color: As selected by Architect from manufacturer's standard line.
5. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors and hardware; fasteners and attachments concealed from view; reinforced as required for imposed loads.
6. Construction: Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.
7. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
8. Expansion/Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over a 12 hour period

without causing detrimental effect to system components, anchorages, and other building elements.

9. Movement: Allow for movement between storefront and adjacent construction, without damage to components or deterioration of seals.

10. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.

B. Performance Requirements:

1. Wind Loads: Design and size components to withstand the specified load requirements without damage or permanent set, when tested in accordance with ASTM E330/E330M, using loads 1.5 times the design wind loads and 10 second duration of maximum load.

   a. Design Wind Loads: Comply with requirements of ASCE 7.

   b. Member Deflection: Limit member deflection to flexure limit of glass in any direction, with full recovery of glazing materials.

2. Water Penetration Resistance on Manufactured Assembly: No uncontrolled water on interior face, when tested in accordance with ASTM E331 at pressure differential of 8 psf.

   a. Performed this test on a minimum of three (3) window units and (3) door units randomly selected by a third party consultant (prior to interior finishes).

   b. Contractor to provide and test to be witnessed by Architect and Owner.

3. Air Leakage Laboratory Test: Maximum of 0.06 cu ft/min sq ft of wall area, when tested in accordance with ASTM E283 at 6.27 psf pressure differential across assembly.

2.6 COMPONENTS

A. Aluminum Framing Members: Tubular aluminum sections, drainage holes and internal weep drainage system.

1. Framing members for interior applications need not be thermally broken.

2. Glazing Stops: Flush.

3. Structurally Reinforced Members: Extruded aluminum with internal reinforcement of structural steel member. Provide at locations where Sun Shades are indicated and where structural design indicates.

B. Miscellaneous Framing: Extruded aluminum, thermally broken to match framing members where required, integrate with framing member drainage system. Provide manufacturer's components as indicated or recommended by manufacturer.

1. Finish: Same as framing.

2. Subframing / Receptors: At perimeter of units, where indicated.

3. Thermal Flat Fillers: At head and jambs of exterior units where no subframing is indicated.

4. Sub-sills: At sills of exterior units.

C. Glazing: As specified in Section 08 8000.

D. Swing Doors: Glazed aluminum.

1. Thickness: As indicated.
2. Top Rail: 5 inches wide.
3. Vertical Stiles: 5 inches wide.
4. Bottom Rail: 10 inches wide.
5. Glazing Stops: Square.
6. Finish: Same as storefront.

2.7 MATERIALS

A. Extruded Aluminum: ASTM B221 (ASTM B221M).

B. Sheet Aluminum: ASTM B209 (ASTM B209M).

C. Fasteners: Stainless steel.

D. Exposed Flashings: Aluminum sheet, 20 gage, 0.032 inch minimum thickness; finish to match framing members.

E. Concealed Flashings: Sheet aluminum, 26 gage, 0.017 inch minimum thickness.

F. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.

2.8 FINISHES

A. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.

B. Class I Color Anodized Finish: AAMA 611 AA-M12C22A42 Integrally colored anodic coating not less than 0.7 mils thick.

2.9 HARDWARE

A. For each door, include weatherstripping, sill sweep strip, and threshold.

B. Other Door Hardware: As specified in Section 08 7100.

C. Weatherstripping: Rubber seal, continuous and replaceable; provide on all exterior doors.

D. Sill Sweep Strips: Resilient seal type, retracting, of neoprene; provide on all exterior doors.

E. Threshold: Extruded aluminum, one piece per door opening, ribbed surface; provide on all exterior doors.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify dimensions, tolerances, and method of attachment with other work.

B. Verify that wall openings and adjoining air and vapor seal materials are ready to receive work of this section.

3.2 INSTALLATION

A. Install wall system in accordance with manufacturer's instructions.

B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

C. Provide alignment attachments and shims to permanently fasten system to building structure.

D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.

E. Provide thermal isolation where components penetrate or disrupt building insulation.

F. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.

G. Where fasteners penetrate sill flashings, make watertight by seating and sealing fastener heads to sill flashing.

H. Install Window and Door Filler Foam insulation in shim spaces and crevices at perimeter of assembly to maintain continuity of thermal barrier.

I. Set thresholds in bed of sealant and secure.

J. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.3 TOLERANCES

A. Maximum Variation from Plumb: 0.06 inch per 3 feet non-cumulative or 0.06 inch per 10 feet, whichever is less.

B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

3.4 FIELD QUALITY CONTROL

A. Provide services of storefront manufacturer's field representative to observe for proper installation of system and submit report.

B. Water-Spray Test: Provide water spray quality test of installed storefront components in accordance with AAMA 501.2 during construction process and before installation of interior finishes.

1. Perform a minimum of two tests in each designated area as indicated on drawings.
2. Conduct tests in each area prior to 10 percent and 50 percent completion of this work.

C. Repair or replace storefront components that have failed designated field testing, and retest to verify performance complies with specified requirements.

3.5 ADJUSTING

A. Adjust operating hardware for smooth operation.

3.6 CLEANING

A. Remove protective material from pre-finished aluminum surfaces.

B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, and take care to remove dirt from corners and to wipe surfaces clean.

C. Upon completion of installation, thoroughly clean aluminum surfaces in accordance with AAMA 609 & 610.

3.7 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

END OF SECTION

SECTION 08 4413 - GLAZED ALUMINUM CURTAIN WALLS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Aluminum-framed curtain wall, with vision glazing and glass infill panels.

1.2 RELATED REQUIREMENTS

A. Section 08 4313 - Aluminum-Framed Storefronts: Entrance framing and doors.

B. Section 08 8000 - Glazing.

1.3 REFERENCE STANDARDS

A. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site.

B. AAMA 501.2 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems.

C. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document).

D. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.

E. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.

F. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures.

G. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.

H. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

I. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

J. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric).

K. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

L. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric).

M. ASTM C794 - Standard Test Method for Adhesion-In-Peel of Elastomeric Joint Sealants.

N. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

O. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.

P. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic).

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordinate with installation of other components that comprise the exterior enclosure.

B. Preinstallation Meeting: Conduct a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, internal drainage details, and infill.

C. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, expansion and contraction joint location and details, and field welding required.

D. Shop Drawings: Provide details of proposed structural sealant glazing (SSG) and weather sealant joints indicating dimensions, materials, bite, thicknesses, profile, and support framing.

E. Samples: Submit two samples 8 by 8 inches in size illustrating finished aluminum surface.

F. Design Data: Provide framing member structural and physical characteristics and engineering calculations, and identify dimensional limitations; include load calculations at points of attachment to building structure.

G. Test Reports: Submit results of full-size mock-up testing. Reports of tests previously performed on the same design are acceptable.

H. Field Quality Control Submittals: Report of field testing for water penetration.

I. Designer's Qualification Statement.

J. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.6 QUALITY ASSURANCE

A. Designer Qualifications: Design curtain wall and its structural support framing components under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed at the State in which the Project is located.

B. Full-Size Mock-up Testing: Have a specimen representative of project conditions tested by an independent testing agency for compliance with specified thermal, structural, air infiltration, water penetration, and sound attenuation criteria.

C. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with not less than five years of documented experience.

D. Installer Qualifications: Company specializing in performing work of type specified and with at least five years of documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Handle products of this section in accordance with AAMA CW-10.

B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

1.8 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.

1.9 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective Work within a ten year period after Date of Substantial Completion.

C. Provide 20 year warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Glazed Aluminum Curtain Walls:

1. Kawneer North America: www.kawneer.com.

2. Tubelite, Inc: www.tubeliteinc.com.
3. Trulite Glass & Aluminum Solutions, LLC: www.trulite.com.
4. Wausau Window and Wall Systems: www.wausauwindow.com.

2.2 CURTAIN WALL

A. Aluminum-Framed Curtain Wall: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.

1. Outside glazed, with pressure plate and mullion cover, where indicated on drawings.
2. Fabrication Method: Either shop/factory or field fabricated system.
3. Glazing Method: Field glazed system.
4. Vertical Mullion Dimensions: 2-1/2 inches wide by 7-1/2 inches deep.
5. Finish: Class I natural anodized.
    a. Factory finish surfaces that will be exposed in completed assemblies.
    b. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous paint.
6. Provide flush joints and corners, weathersealed, accurately fitted and secured; prepared to receive anchors; fasteners and attachments concealed from view; reinforced as required for imposed loads.
7. Construction: Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.

B. Structural Performance Requirements: Design and size components to withstand the following load requirements without damage or permanent set.

1. Design Wind Loads: Comply with the requirements of ASCE 7.
2. Seismic Loads: Design and size components to withstand seismic loads and sway displacement in accordance with requirements of ASCE 7.
3. Movement: Accommodate the following movement without damage to components or deterioration of seals:
    a. Expansion and contraction caused by 180 degrees F surface temperature.
    b. Expansion and contraction caused by cycling temperature range of 170 degrees F over a 12 hour period.
    c. Movement of curtain wall relative to perimeter framing.
    d. Deflection of structural support framing, under permanent and dynamic loads.

C. Water Penetration Resistance on Manufactured Assembly: No uncontrolled water on indoor face when tested as follows:

1. Test Pressure Differential: 10 psf.
2. Test Method: ASTM E331.

D. Air Leakage Laboratory Test: Maximum of 0.06 cu ft/min sq ft of wall area, when tested in accordance with ASTM E283 at 6.27 psf pressure differential across assembly.

E. Thermal Performance Requirements:

1. Condensation Resistance Factor of Framing: 50, minimum, measured in accordance with AAMA 1503.

2. Overall U-value Including Glazing: 0.66 Btu/(hr sq ft deg F), maximum.

2.3 COMPONENTS

A. Aluminum Framing Members: Tubular aluminum sections, thermally broken with interior section insulated from exterior, drainage holes and internal weep drainage system.

1. Framing members for interior applications need not be thermally broken.

2. Cross-Section: As indicated on drawings.

3. Structurally Reinforced Members: Extruded aluminum with internal reinforcement of structural steel member.

B. Glazing: As specified in Section 08 8000.

2.4 MATERIALS

A. Extruded Aluminum: ASTM B221 (ASTM B221M).

B. Sheet Aluminum: ASTM B209 (ASTM B209M).

C. Structural Steel Sections: ASTM A36/A36M; galvanized in accordance with requirements of ASTM A123/A123M.

D. Fasteners: Stainless steel; type as required or recommended by curtain wall manufacturer.

E. Exposed Flashings: Aluminum sheet, 20 gage, 0.032 inch minimum thickness; finish to match framing members.

F. Concealed Flashings: Sheet aluminum, 26 gage, 0.017 inch minimum thickness.

G. Weatherseal Sealant: Silicone, with adhesion in compliance with ASTM C794; compatible with glazing accessories.

H. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.

I. Glazing Accessories: As specified in Section 08 8000.

J. Touch-Up Primer for Galvanized Steel Surfaces: SSPC-Paint 20, zinc rich.

2.5 FINISHES

A. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify dimensions, tolerances, and method of attachment with other related work.

B. Verify that curtain wall openings and adjoining air and vapor seal materials are ready to receive work of this section.

C. Verify that anchorage devices have been properly installed and located.

3.2 INSTALLATION

A. Install curtain wall system in accordance with manufacturer's instructions.

B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

C. Provide alignment attachments and shims to permanently fasten system to building structure.

D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.

E. Provide thermal isolation where components penetrate or disrupt building insulation.

F. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.

G. Install Window and Door Filler Foam insulation in shim spaces and crevices at perimeter of assembly to maintain continuity of thermal barrier.

H. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.3 TOLERANCES

A. Maximum Variation from Plumb: 0.06 inches every 3 ft non-cumulative or 0.5 inches per 100 ft, whichever is less.

B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

C. Sealant Space Between Curtain Wall Mullions and Adjacent Construction: Maximum of 3/4 inch and minimum of 1/4 inch.

3.4 FIELD QUALITY CONTROL

A. Provide services of curtain wall manufacturer's field representative to observe for proper installation of system and submit report.

B. Water-Spray Test: Provide water spray quality test of installed curtain wall components in accordance with AAMA 501.2 during construction process and before installation of interior finishes.

1. Perform a minimum of two tests in each designated area as indicated on drawings.
2. Conduct tests in each area prior to 10 percent and 50 percent completion of this work.

C. Repair or replace curtain wall components that have failed designated field testing, and retest to verify performance complies with specified requirements.

3.5 CLEANING

A. Remove protective material from pre-finished aluminum surfaces.

B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, take care to remove dirt from corners, and wipe surfaces clean.

C. Upon completion of installation, thoroughly clean aluminum surfaces in accordance with AAMA 609 & 610.

3.6 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

END OF SECTION

NMSU NMDA Office
Las Cruces, NM

SECTION 08 5673 – SOUND CONTROL WINDOW ASSEMBLIES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Sound control windows, frames, stops, glazing, sound absorbing material, and concealed fasteners
2. Supply and installation of sound control windows

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Excluding items specifically addressed herein, other Division 08 Specification Sections for finish paint, glass, and glazing apply to this Section.

1.3 REFERENCES

A. American Society of Testing and Materials (ASTM):

1. ASTM A653 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot Dipped Process.
2. ASTM A1008 – Standard Specification for Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.
3. ASTM A1011 – Standard Specification for Steel, Hot-Rolled Sheet and Strip, Commercial.
4. ASTM E90 – Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss in Building Partitions.
5. ASTM E336 – Standard Test Method for Measurement of Airborne Sound Insulation in Buildings.
6. ASTM E413 – Classification for Determination of Sound Transmission Class
7. ASTM E2964 – Standard Test Method for Measurement of the Normalized Insertion Loss of Doors.

B. Underwriter’s Laboratories (UL):

1. UL 9 – Fire Tests of Window Assemblies

C. National Fire Protection Association (NFPA):

1. NFPA 80 – Standard for Fire Doors and Fire Windows

D. National Association of Architectural Metal Manufacturers (NAAMM):

1. NAAMM/HMMA 840 – Installation and Storage of Hollow Metal Windows and Frames

1.4 SUBMITTALS

A. Product Data: Submit product data sheets for each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods and adjustment information.
4. Illustrations and descriptions of all frame details which will be exposed on window units

B. Shop Drawings: Manufacturer's specifications, catalog cuts, and other items needed to demonstrate compliance with the specified requirements.

1. Provide full size details of frames and sound gasket components.
2. Provide installation details applicable to the construction in which the sound control windows will be installed.
3. Indicate construction, sizes, thicknesses, reinforcing, anchoring, and finishes of all materials.

C. Test Reports: Submit test reports demonstrating compliance with the following:

1. Acoustical Performance: Provide certified laboratory test reports from a NVLAP certified acoustic laboratory showing that a fully operating installation of the specified window assembly proposed for the installation has been measured in accordance with ASTM E90 and ASTM E413 and has met or exceeded the scheduled STC ratings. Test reports shall include 1/3 octave band Transmission Loss (TL) test data from 100 Hz to 5,000 Hz and Sound Transmission Class (STC) ratings. The test results shall be representative of the performance of the proposed window assembly.
2. Fire Resistance: If applicable, provide certified test reports from a NVLAP certified fire testing laboratory showing that the window system has been measured in accordance with UL 9 of labeled fire windows and frames, and meet or exceed the applicable requirements of NFPA 80
3. Seismic Stability: If applicable, provide certified test reports and calculations demonstrating the window system's ability to withstand pertinent seismic forces.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: The manufacturer shall be a firm with a minimum of five years of successful experience in manufacture of products with similar requirements.

B. Installer Qualifications: The installer shall be a firm with a minimum of five years of successful experience in installation of products with similar requirements.

C. Acoustic Performance: Window assemblies shall meet the minimum Sound Transmission Class (STC) rating specified herein when tested in accordance with ASTM E90 and ASTM E413.

D. Installed Acoustic Performance: The field acoustical performance rating shall not be less than a Noise Isolation Class (NIC) 6 points lower than the minimum Sound Transmission Class (STC) rating specified herein when tested in accordance with ASTM E336 and ASTM E413.

E. Fire Rating Requirements: Window assemblies shall meet the minimum fire rating required and shall comply with UL 9. Test reports shall also demonstrate compliance with NFPA 80.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect pre-glazed window units during transit, handling, and storage to prevent damage, soiling and deterioration.

B. Deliver pre-glazed window units to the project site with complete installation drawings and instructions for installation.

C. Deliver pre-glazed window units to the project site only after the building has been closed in. Store door units in the building in a dry location and stack in accordance with the manufacturer's instructions.

D. Protect pre-glazed window units, especially sound gaskets, from damage before, during and after installation.

1.7 WARRANTY

A. The sound control window systems shall be guaranteed against defective materials and/or workmanship for a period of two (2) years from date of final acceptance of the installation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Noise Barriers, LLC

B. Industrial Acoustics (IAC)

C. Overly Window Company

D. Or approved equivalent

2.2 GENERAL REQUIREMENTS

A. Gasketing systems shall provide an airtight seal around the entire perimeter of the window.

B. Gasketing systems that have been damaged during construction must be replaced and readjusted.

C. Mark each window with project identification, window number, and location code that corresponds to approved Shop Drawings. Provide embossed label at window edge with STC and fire ratings as certified by governing agencies.

2.3 MATERIALS

A. Window Frames and Stops:

1. Interior window frames and stops shall be constructed of 14-gauge minimum thickness commercial quality cold-rolled steel formed sheet shapes of structural shapes and bars free of surface defects. Steel shapes shall comply with ASTM A366 and bars with ASTM A108, Grade 1018.
2. Exterior window frames shall have a zinc coating applied by the hot dip process conforming to ASTM A526 with a coating weight of not less than 1.25 oz/ft2 on both sides.
3. Frames shall be unitized welded units with integral trim in sizes and shapes shown on approved Shop Drawings. If field splices are required because of shipping limitations, such splices shall be field welded after installation. Welding shall be completed by certified welders per manufacturer's instructions and in accordance with AWS D1.1/D1.3.
4. Corner joints shall have all contact edges closed tight with trim faces mitered and continuously welded.
5. Dust cover boxes or mortar guards shall be 22-gauge minimum thickness steel and provided at all hardware mortises on frames to be set in masonry or wet plaster partitions.
6. Steel frames in masonry and concrete walls shall be filled solid with grout. Frames in drywall partitions shall be filled with mineral fiber.
7. Frames scheduled for new or existing cast-in-place concrete or masonry partitions shall be a butt type that abuts the partitions construction.
8. Frames scheduled for new or existing stud partitions shall be a wraparound type that slips over the partition allowing the gypsum board sheets to penetrate into the frame throat.
9. Frames for installation in new cast-in-place concrete or masonry partitions shall be provided with adjustable 14-gauge "t"-shaped frame anchors.
10. Frames for installation in previously places cast-in-place concrete or masonry partitions shall be provided with 3/8-inch diameter frame anchor bolts.
11. Frames for installation in stud partitions shall be provided with 14-gauge "z"-shaped anchors or continuous 16-gauge steel channels securely welded inside each frame that surrounds the studs.

B. Acoustic Seals:

1. Seals shall be vibration-isolating resilient closed-cell polyethylene foam glazing tape.
2. Seals must be designed to withstand environmental breakdown and maintain an effective seal.
3. Self-contained, sound-absorptive interior perimeter of not less than 22-gauge steel shall be perforated and prefinished black.

C. Vision Lites:

1. Factory-installed double-glazed windows in dimensions per the door schedule. All glazing shall be installed by skilled workmen at the manufacturer's facility.
2. Where noted on drawings, provide a 12" x 12", 4" x 30", 24" x 36", or 22" x 60" double glazed window with glazing thickness required to maintain the specified acoustical performance of the doors.
3. Glazing shall be fully captured at the perimeter edge with neoprene channels or other resilient material.

D. Hardware:

1. Coordinate all hardware with manufacturer to ensure compatibility with the operation and acoustic integrity of each door assembly.
2. Provide minimum two (2) factory-installed cam-lift type hinges for each door. Finish of hinges shall be US26D.
3. Locks, pull handles, push plates, and other door hardware as specified in the hardware schedule will be furnished and factory-installed by the sound door supplier. Door leaf and frame for each unit shall be prepared to receive security locks as specified in the hardware schedule.

2.4 FABRICATION

A. Assemble doors using all welded construction conforming to AWS D1.1 and AWS D1.3.

B. Assembly and adjustment of door, frame, acoustic seals, and hinges shall be performed at the factory. Each entire unit shall be shipped to the job site ready for installation and subsequent operation. No field assembly of doors or frames shall be permitted.

C. Reinforce as required to withstand operating loads.

D. Painting / Cleaning:

1. On surfaces that are inaccessible after assembly, apply protective coating of the manufacturer's standard rust inhibitive primer.
2. After assembly and prior to inspection, thoroughly clean all surfaces.
3. After inspection and completion of repairs and revisions required by the inspection, apply a shop coat of rust inhibitive primer to exposed surfaces.

2.5 PERFORMANCE REQUIREMENTS

A. Refer to Appendix A for sound control door assembly schedule.

PART 3 EXECUTION

3.1 EXAMINATION

A. Prior to installation, examine all openings to assure conformance to all dimensions and tolerances shown on the contract documents and Sound Control Door manufacturer's approved shop drawings.

B. Check that wall openings and adjoining air and vapor seal materials are ready to receive work of this Section.

C. Confirm that a structural steel tube or reinforced stud occurs at the framed opening of stud partitions.

D. Bring to the attention of the Project Manager any discrepancies between this Specification and the field conditions prior to installation.

E. Proceed with installation only after all unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General:

1. Installation of door frames, door perimeter seals, and final adjustments for door operation and for the design attenuation shall be performed by a factory trained personnel or under the supervision of the manufacturer.
2. Comply with manufacturer's recommended installation instructions and approved shop drawings.
3. Install the Sound Control Door items plumb, straight, square, level, and in their proper elevation, plane, and location.
4. All required field welding work must be performed by a certified welder in accordance with AWS D1.1 and AWS D1.3.

B. Panels:

1. Install door panels accurately in frames with clearances recommended by the manufacturer. Attach door panel edge to cam lift hinges using matching countersunk screws. Shim door panel as necessary to achieve uniform clearance at the perimeter.
2. At fire-rated openings, install with clearances specified in NFPA 80

C. Frames

1. At fire-rated openings, install frames according to NFPA 80.
2. At openings requiring smoke and draft control, install frames according to NFPA 105.

D. Thresholds:

1. Prior to placing sills, spread acoustical sealant on the bottom, at the center, and around the perimeter of each sill.
2. Place sills on floor and between the hinge and strike side of the jamb.
3. Adjust or shim sills to match floor surfaces and to provide level surface.

E. Acoustic Gaskets

1. Install gasket retainers, retainer covers, astragal “L”-shaped channel, head and jamb acoustical seals and door bottom acoustical seal in accordance with manufacturer’s instructions.
2. Adjust the position of acoustical seals to make contact with the door panel and the sill without binding but providing some resistance when opening and closing the door.
3. Apply a small bead of clear silicone sealant to close the gap between the jamb and head acoustical seal housings and the frame.

F. Hardware:

1. Refer to Division 08 Specification Section for door hardware installation.
2. Installation of other door hardware shall not result in openings or gaps around the perimeter of acoustical seals. Notify the Project Manager of any discrepancies in writing.

G. Finishing:

1. Immediately after erection, sand smooth all rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.

3.3 PROTECTION

A. Under no circumstances shall Sound Control Doors be propped open with a door stop or by wedging any materials underneath the door leaf. Any damages that result shall be the responsibility of the Contractor.

B. Provide protective plastic wrapping on Sound Control Door assemblies if additional work is to occur in the area. Remove wrapping prior to final acceptance.

3.4 ADJUSTING

A. Check and readjust operation finish hardware in work just prior to final inspection. Leave work in complete and proper operating condition. Remove and replace defective work.

B. Open and close each door assembly through at least ten (10) complete cycles of operation to verify that each component is properly installed and operating.

C. Contractor shall adjust door assembly installation until the following conditions are met:

1. No light is visible around the perimeter of the door when closed with the lights turned off on one side.
2. It is not possible to slide a piece of paper between the door leaf and the perimeter gaskets or between the bottom gasket and the threshold.

3.5 INSPECTION AND FINAL ACCEPTANCE

A. Upon installation, the manufacturer or qualified representative shall inspect each door assembly for proper installation and adjustment. Notice shall be made to the Project Manager in writing certifying that the doors have been installed properly.

B. Prior to acceptance of the installed Sound Control Window assembly, at the discretion of the Owner or Project Manager, acoustic performance testing of the installation may be requested. Testing shall be performed by an independent acoustic consultant.

C. The installations shall be deemed acceptable if the Sound Control Window meets or exceeds a Noise Isolation Class (NIC) that is not more than six (6) points below the specified STC rating.

D. Repair or replace components of the Sound Control Window

E. where test results indicate the STC rating does not meet requirements.

END OF SECTION

SECTION 08 7100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes commercial door hardware for the following:

1. Swinging doors.
2. Other doors to the extent indicated.

B. Door hardware includes, but is not necessarily limited to, the following:

1. Mechanical door hardware.
2. Electromechanical door hardware.
3. Cylinders specified for doors in other sections.

C. Related Sections:

1. Division 08 Section “Hollow Metal Doors and Frames”.
2. Division 08 Section “Flush Wood Doors”.
3. Division 08 Section “Aluminum-Framed Entrances and Storefronts”.

D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ICC/IBC - International Building Code.
3. NFPA 70 - National Electrical Code.
4. NFPA 80 - Fire Doors and Windows.
5. NFPA 101 - Life Safety Code.
6. NFPA 105 - Installation of Smoke Door Assemblies.
7. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:

1. ANSI/BHMA Certified Product Standards - A156 Series.
2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
3. ANSI/UL 294 - Access Control System Units.
4. UL 305 - Panic Hardware.
5. ANSI/UL 437- Key Locks.

1.3 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing, fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
3. Content: Include the following information:

    a. Type, style, function, size, label, hand, and finish of each door hardware item.
    b. Manufacturer of each item.
    c. Fastenings and other pertinent information.
    d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
    e. Explanation of abbreviations, symbols, and codes contained in schedule.
    f. Mounting locations for door hardware.
    g. Door and frame sizes and materials.
    h. Warranty information for each product.

4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Shop Drawings: Details of electrified access control hardware indicating the following:

1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:

    a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
    b. Complete (risers, point-to-point) access control system block wiring diagrams.
    c. Wiring instructions for each electronic component scheduled herein.

2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.

D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

E. Informational Submittals:

1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

1.4 CLOSEOUT SUBMITTALS

A. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1. Maintenance manual must be provided for tornado/hurricane storm shelter impact protective systems.

B. Project Record Documents: Provide record documentation of as-built door hardware sets in digital format (.pdf, .docx, .xlsx, .csv) and as required in Division 01, Project Record Documents.

C. Project Record Documents: Provide record documentation of as-built door hardware sets in digital format (.pdf, .docx, .xlsx, .csv) or acceptable integrated file format for updating of Openings Studio™ management software and as required in Division 01, Project Record Documents.

1.5 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during

the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.

1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

F. Each unit to bear third party permanent label indicating compliance with the referenced testing standards.

G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:

1. Function of building, purpose of each area and degree of security required.
2. Plans for existing and future key system expansion.
3. Requirements for key control storage and software.
4. Installation of permanent keys, cylinder cores and software.
5. Address and requirements for delivery of keys.

H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
3. Review sequence of operation narratives for each unique access controlled opening.
4. Review and finalize construction schedule and verify availability of materials.
5. Review the required inspecting, testing, commissioning, and demonstration procedures

I. At completion of installation, provide written documentation that components were applied according to manufacturer's instructions and recommendations and according to approved schedule.

1.6 DELIVERY, STORAGE AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.7 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.8 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.
2. Faulty operation of the hardware.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
4. Electrical component defects and failures within the systems operation.

C. Warranty Period: Unless otherwise indicated, warranty shall be one year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:

1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 BUTT HINGES

A. Hinges: ANSI/BHMA A156.1 butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity:

   a. Two Hinges: For doors with heights up to 60 inches.
   b. Three Hinges: For doors with heights 61 to 90 inches.
   c. Four Hinges: For doors with heights 91 to 120 inches.
   d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

   a. Widths up to 3’0”: 4-1/2” standard or heavy weight as specified.
   b. Sizes from 3’1” to 4’0”: 5” standard or heavy weight as specified.

3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:

   a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
   b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.

4. Hinge Options: Comply with the following:

   a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.

5. Manufacturers:

   a. McKinney (MK) - TA/T4A Series, 5-knuckle.

2.3 CONTINUOUS HINGES

A. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 continuous geared hinge. with minimum 0.120-inch thick extruded 6063-T6 aluminum alloy hinge leaves and a minimum

overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.

1. Manufacturers:.

    a. Pemko (PE).

2.4 POWER TRANSFER DEVICES

A. Electrified Quick Connect Transfer Hinges: Provide electrified transfer hinges with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets with a 1-year warranty. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.

1. Manufacturers:

    a. McKinney (MK) - QC (# wires) Option.

B. Electrified Quick Connect Continuous Geared Transfer Hinges: Provide electrified transfer continuous geared hinges with a removable service panel cutout accessible without de-mounting door from the frame. Furnish with Molex™ standardized plug connectors with sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.

1. Manufacturers:

C. Electric Door Wire Harnesses: Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.

1. Provide one each of the following tools as part of the base bid contract:

    a. McKinney (MK) - Electrical Connecting Kit: QC-R001.
    b. McKinney (MK) - Connector Hand Tool: QC-R003.

2. Manufacturers:

    a. McKinney (MK) - QC-C Series.

2.5 DOOR OPERATING TRIM

A. Flush Bolts and Surface Bolts: Provide products conforming to ANSI/BHMA A156.3 and A156.16, Grade 1.

1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
2. Furnish dust proof strikes for bottom bolts.
3. Surface bolts to be minimum 8” in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
5. Manufacturers:

    a. Rockwood (RO).

B. Coordinators: ANSI/BHMA A156.3 door coordinators consisting of active-leaf, hold-open lever and inactive-leaf release trigger. Model as indicated in hardware sets.

1. Manufacturers:

    a. Rockwood (RO).

C. Door Push Plates and Pulls: ANSI/BHMA A156.6 door pushes and pull units of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.

1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
4. Pulls, where applicable, shall be provided with a 10” clearance from the finished floor on the push side to accommodate wheelchair accessibility.
5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets. When through-bolt fasteners are in the same location as a push plate, countersink the fasteners flush with the door face allowing the push plate to sit flat against the door.
6. Manufacturers:

    a. Rockwood (RO).

2.6 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

1. Manufacturers:

    a. ASSA ABLOY ACCENTRA, formerly known as Yale (YA).

B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:

1. Threaded mortise cylinders with rings and cams to suit hardware application.

2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
4. Tubular deadlocks and other auxiliary locks.
5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
6. Keyway: Match Facility Standard.

C. Keying System: Each type of lock and cylinders to be factory keyed.

1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
3. Existing System: Field verify and key cylinders to match Owner's existing system.

D. Key Quantity: Provide the following minimum number of keys:

1. Change Keys per Cylinder: Two (2)
2. Master Keys (per Master Key Level/Group): Five (5).
3. Construction Keys (where required): Ten (10).

E. Construction Keying: Provide construction master keyed cylinders.

F. Key Registration List (Bitting List):

1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.

2.7 KEY CONTROL

A. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.

1. Manufacturers:

a. Lund Equipment (LU).
b. MMF Industries (MM).
c. Telkee (TK).

2.8 MORTISE LOCKS AND LATCHING DEVICES

A. Mortise Locksets, Grade 1 (Heavy Duty): Provide ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed mortise locksets. Listed manufacturers shall meet all functions and features as specified herein.

1. Manufacturers:

a. ASSA ABLOY ACCENTRA, formerly known as Yale (YA) - 8800FL Series.

2.9 CYLINDRICAL LOCKS AND LATCHING DEVICES

A. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Operational Grade 1 Certified Products Directory (CPD) listed cylindrical locksets. Listed manufacturers shall meet all functions and features as specified herein.

1. Provide locksets with functions and features as follows:

a. Meets ANSI/BHMA A156.41 for single motion egress.
b. Where required by code, provide knurling or abrasive coating on all levers leading to hazardous areas.
c. Meets UL and CUL Standard 10C Positive Pressure, Fire Test of Door Assemblies with levers that meet A117.1 Accessibility Code.
d. Exceeds ANSI/BHMA A156.2 requirements by 2.6 times for 3,100 in-lb. abusive locked lever torque with no entry while maintaining egress.
e. Exceeds ANSI/BHMA A156.2 requirements by 8 times for 1,600 lbs. offset lever pull with no entry for protection against attacks.
f. Exceeds ANSI/BHMA A156.3 requirements by 2 times for latch retraction with 100 lb. preload while maintaining operation in warped doors.
g. Exceeds ANSI/BHMA A156.3 requirements by 20 times for no access with minimum 100 vertical impacts for protection against vandalism attempts.
h. Independent return springs allow lock to exceed ANSI/BHMA A156.2 Grade 1 cycle requirements without lever sag.
i. Status indicators inside, outside, or on both sides of doors as specified with high visibility red/green or red/white icons to display locked or unlocked state in the rose.
j. Ten-year limited warranty for mechanical functions.

2. Electromechanical locksets shall have the following functions and features:

a. Universal Molex plug-in connectors that have standardized color-coded wiring and are field configurable in fail safe or fail secure and operate from 12vdc to 24vdc regulated.
b. EcoFlex or equivalent technology that reduces energy consumption up to 92% as certified by GreenCircle.
c. Options to be available for request-to-exit or enter signaling, latchbolt and deadbolt monitoring.
d. Two-year limited warranty on electrified functions.

3. Manufacturers:

a. ASSA ABLOY ACCENTRA, formerly known as Yale (YA) - 5400LN Series.

2.10 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.11 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

1. Exit devices shall have a five-year warranty.
2. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
3. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer’s catalog and template book for specific requirements.
4. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
5. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.

    a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
    b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.

7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2” wide stiles.
9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
10. Rail Sizing: Provide exit device rails factory sized for proper door width application.

11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed exit devices. Listed manufacturers shall meet all functions and features as specified herein.

1. Manufacturers:

a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
b. Von Duprin (VD) - 35A/98 XP Series.

2.12 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control.

1. Manufacturers:

a. LCN Closers (LC) - 4040XP Series.

C. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard..

1. Manufacturers:

    a. LCN Closers (LC) - 4040 Series.

2.13 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1” LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16” above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer’s catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 protection plates (kick, armor, or mop), fabricated from the following:

    a. Stainless Steel: 300 grade, 050-inch thick.

5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:

    a. Rockwood (RO).

2.14 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:

    a. Rockwood (RO).

2.15 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NFPA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Manufacturers:

1. Pemko (PE).

2.16 ELECTRONIC ACCESSORIES

A. Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into a 1" diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.

1. Manufacturers:

a. Securitron (SU) - DPS Series.

B. Switching Power Supplies: Provide power supplies with either single or dual voltage configurations at 12 or 24VDC. Power supplies shall have battery backup function with an integrated battery charging circuit and shall provide capability for power distribution, direct lock control and Fire Alarm Interface (FAI) through add on modules. Power supplies shall be expandable up to 16 individually protected outputs. Output modules shall provide individually protected, continuous outputs and/or individually protected, relay controlled outputs.

1. Manufacturers:

a. Securitron (SU) - AQD Series.

2.17 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.18 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Push Plates and Door Pulls: When through-bolt fasteners are in the same location as a push plate, countersink the fasteners flush with the door face allowing the push plate to sit flat against the door.

E. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

F. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Reference Division 01 Sections “Closeout Procedures”. Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.

1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

3.5 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

1. Quantities listed are for each pair of doors, or for each single door.
2. The supplier is responsible for handing and sizing all products.
3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.

B. Manufacturer’s Abbreviations:

1. MK - McKinney
2. PE - Pemko
3. RO - Rockwood
4. VO - Von Duprin
5. YA - ASSA ABLOY ACCENTRA
6. RF - Rixson
7. LC - LCN Closers
8. HO - Horton Automatics
9. SU - Securitron
10. OT - Other

Hardware Sets

Set: 1.0

Doors: H100A

2	Continuous Hinge	CFM__HD1 ACC		PE
1	Mullion	KR4954	.689	VO
1	Rim Exit Nightlatch	.QEL .RX 99.NL .990NL(Std)	.626	VO
1	Rim Exit Dummy	.RX 99.DT .990DT(Std)	.626	VO
1	Rim Cylinder	1109 CMK	626	YA
1	Mortise Cylinder (Mullion)	2153 CMK x Cam as required	626	YA
1	Drop Plate	As required	.689	LC
1	Surface Closer	4031 .SCUSH .TB	.689	LC
1	Auto Door Operator	7100 HD Series		HO
1	Rain Guard	346C		PE
1	Gasketing	5110BL		PE
2	Sweep	315CN		PE
1	Threshold	2727A (Or as detailed)		PE
2	Wire Harness (Door)	CON-12		
2	Wire Harness (Frame)	CON-192P		
2	AO Actuator	6R1(Hardware/Wireless as required)		HO
2	Door Position Switch	By Security Integrator		
1	Power Supply	By Security Integrator		
1	Card Reader	By Security Integrator		OT

Notes: All wiring, wiring diagrams, conduit, low voltage, and security by Div. 28.
Auto Operator order of operations:
During normal business hours, panic device latch is electronically dogged allowing ingress without the use of key. Activation of wall-plate actuator from outside will automatically open active leaf for ingress without needing to pull the door open manually. Egress always allowed via pushing door open or wall-plate actuator activation from inside the opening.
During off hours, doors are closed and locked. Ingress available by presenting proper credentials, or by mechanical key override.
Perimeter gasketing to be furnished by the storefront door supplier.

Set: 2.0

Doors: H160A, H164A

1	Continuous Hinge	CFM__HD1 ACC		PE
1	Rim Exit Nightlatch	.QEL .RX 99.NL .990NL(Std)	.626	VO
1	Rim Cylinder	1109 CMK	626	YA

1	Surface Closer	4031 .EDA .TB	.689	LC
1	Door Stop	466-RKW	Black	RO
1	Rain Guard	346C		PE
1	Sweep	315CN		PE
1	Threshold	2727A (Or as detailed)		PE
1	Wire Harness (Door)	CON-12		
1	Wire Harness (Frame)	CON-192P		
1	Door Position Switch	By Security Integrator		
1	Power Supply	By Security Integrator		
1	Card Reader	By Security Integrator		OT

Notes: All wiring, wiring diagrams, conduit, low voltage, and security by Div. 28.
Doors normally closed and locked. Presenting authorized credentials allows ingress. Egress always allowed. Key override available for ingress.
Perimeter gasketing to be furnished by the storefront door supplier.

Set: 3.0

Doors: 159

7	Hinge, Full Mortise	TA2314 NRP	US32D	MK
1	Hinge, Full Mortise	TA2314 QC	US32D	MK
1	Flush Bolt (Combo Hm)	2845	US26D	RO
1	Dust Proof Strike	570	US26D	RO
1	Fail Secure Lock	AU 5491LN REX CMK	626	YA
1	Coordinator	2600	Black	RO
2	Mounting Bracket	2601AB/C (As Required)	Black	RO
2	Surface Closer	4031 .SCUSH .TB	.689	LC
2	Kick Plate	K1050 10" x 1" LDW CSK BEV	US32D	RO
1	Astragal	357SP		PE
2	Gasketing	303AS		PE
1	Gasketing	S88BL		PE
1	Rain Guard	346C		PE
2	Sweep	315CN		PE
1	Threshold	158A (Or as detailed)		PE
1	ElectroLynx Harness (Door)	QC-CXXXP		MK
1	ElectroLynx Harness (Frame)	QC-CXXX		MK
2	Door Position Switch	By Security Integrator		
1	Power Supply	AQD_ (Amps as required)		SU
1	Card Reader	By Security Integrator		OT

Notes: All wiring, conduit, low voltage, wiring diagrams, and security by Div. 28
Doors normally closed and locked. Entering proper credentials allows ingress. Egress always allowed.
Key override available for ingress.
Mount smoke seals at head, rigid seals at jambs.

Set: 5.0

Doors: M190

4	Hinge, Full Mortise	TA2314 NRP	US32D	MK
1	Storeroom or Closet Lock	AU 5405LN CMK	626	YA
1	Surface Closer	4031 .RWPA .TB	.689	LC
1	Kick Plate	K1050 10" X 2" LDW CSK BEV	US32D	RO
1	Door Stop	466-RKW	Black	RO
1	Gasketing	303AS		PE
1	Rain Guard	346C		PE
1	Sweep	315CN		PE
1	Threshold	158A (Or as detailed)		PE

Set: 6.0

Doors: M180

4	Hinge, Full Mortise, Hvy Wt	T4A3386 NRP	US32D	MK
1	Rim Exit Device	99.L .996L(Std)	.626	VO
1	Rim Cylinder	1109 CMK	626	YA
1	Surface Closer	4031 .SCUSH .TB	.689	LC
1	Kick Plate	K1050 10" X 2" LDW CSK BEV	US32D	RO
1	Gasketing	303AS		PE
1	Rain Guard	346C		PE
1	Sweep	315CN		PE
1	Threshold	158A (Or as detailed)		PE

Set: 7.0

Doors: H100B

2	Continuous Hinge	CFM__HD1		PE
2	Push Bar & Pull	11147 (Mounting as required)	US32D	RO
2	Drop Plate	As required	.689	LC
2	Surface Closer	4031 .EDA .TB	.689	LC
1	Auto Door Operator	7100 HD Series		HO
2	AO Actuator	6R1(Hardware/Wireless as required)		HO

Notes: Auto Operator order of operations:
Activation of wall-plate actuator from the outside will automatically open active leaf for ingress without needing to pull the door open manually. Egress always allowed via pushing door open or wall-plate actuator activation from inside the opening.
Perimeter gasketing to be furnished by the storefront door supplier.

Set: 8.0

Doors: H160B, H164B

1	Continuous Hinge	CFM__HD1		PE
2	Offset Pull (BTB)	RM222 Mtg-Type 5HD	US32D	RO
1	Drop Plate	As required	.689	LC
1	Surface Closer	4031 .EDA .TB	.689	LC

Notes: Perimeter gasketing to be furnished by the storefront door supplier.

Set: 9.0

Doors: M180A

4	Hinge, Full Mortise, Hvy Wt	T4A3786 NRP	US26D	MK
1	Rim Exit Device	99.L .996L(Std)	.626	VO
1	Rim Cylinder	1109 CMK	626	YA
1	Surface Closer	4031 .EDA .TB	.689	LC
1	Kick Plate	K1050 10" X 2" LDW CSK BEV	US32D	RO
1	Wall Stop (Convex)	406	US26D	RO
3	Silencer	608-RKW		RO

Set: 10.0

Doors: 101A, 104F, 151, H150, T154, T156

3	Hinge, Full Mortise	TA2714	US26D	MK
1	Hinge, Full Mortise	TA2714 QC	US26D	MK
1	Fail Secure Lock	AU 5491LN REX CMK	626	YA
1	Surface Closer	4011 .REG .TB	.689	LC
1	Kick Plate	K1050 10" X 2" LDW CSK BEV	US32D	RO
1	Wall Stop (Convex)	406	US26D	RO
3	Silencer	608-RKW		RO
1	ElectroLynx Harness (Door)	QC-CXXXP		MK
1	ElectroLynx Harness (Frame)	QC-CXXX		MK

1	Door Position Switch	By Security Integrator		
1	Power Supply	AQD_ (Amps as required)		SU
1	Card Reader	By Security Integrator		OT

Notes: All wiring, conduit, low voltage, wiring diagrams, and security by Div. 28
Doors normally closed and locked. Entering proper credentials allows ingress. Egress always allowed.
Key override available for ingress.

Set: 11.0

Doors: 132, 134

3	Hinge, Full Mortise	TA2714	US26D	MK
1	Hinge, Full Mortise	TA2714 QC	US26D	MK
1	Fail Secure Lock	AU 5491LN REX CMK	626	YA
1	Surface Closer	4011 .REG .TB	.689	LC
1	Kick Plate	K1050 10" X 2" LDW CSK BEV	US32D	RO
1	Wall Stop (Convex)	406	US26D	RO
1	Gasketing	S773BL		PE
1	ElectroLynx Harness (Door)	QC-CXXXP		MK
1	ElectroLynx Harness (Frame)	QC-CXXX		MK
1	Door Position Switch	By Security Integrator		
1	Power Supply	AQD_ (Amps as required)		SU
1	Card Reader	By Security Integrator		OT

Notes: All wiring, conduit, low voltage, wiring diagrams, and security by Div. 28
Doors normally closed and locked. Entering proper credentials allows ingress. Egress always allowed.
Key override available for ingress.

Set: 12.0

Doors: 101B

3	Hinge, Full Mortise	TA2714 NRP	US26D	MK
1	Hinge, Full Mortise	TA2714 QC	US26D	MK
1	Fail Secure Lock	AU 5491LN REX CMK	626	YA
1	Surface Closer	4031 .EDA .TB	.689	LC
1	Kick Plate	K1050 10" X 2" LDW CSK BEV	US32D	RO
1	Wall Stop (Convex)	406	US26D	RO
3	Silencer	608-RKW		RO
1	ElectroLynx Harness (Door)	QC-CXXXP		MK
1	ElectroLynx Harness (Frame)	QC-CXXX		MK

1	Door Position Switch	By Security Integrator		
1	Power Supply	AQD_ (Amps as required)		SU
1	Card Reader	By Security Integrator		OT

Notes: All wiring, conduit, low voltage, wiring diagrams, and security by Div. 28
Doors normally closed and locked. Entering proper credentials allows ingress. Egress always allowed. Key override available for ingress.

Set: 13.0

Doors: 152

5	Hinge, Full Mortise	TA2714	US26D	MK
1	Hinge, Full Mortise	TA2714 QC	US26D	MK
1	Flush Bolt (Comb Wd)	2945	US26D	RO
1	Dust Proof Strike	570	US26D	RO
1	Fail Secure Lock	AU 5491LN REX CMK	626	YA
1	Surface Closer	4011 .REG .TB	.689	LC
2	Kick Plate	K1050 10" x 1" LDW CSK BEV	US32D	RO
2	Door Stop	441H/406/409 as required	US26D	RO
2	Silencer	608-RKW		RO
1	ElectroLynx Harness (Door)	QC-CXXXP		MK
1	ElectroLynx Harness (Frame)	QC-CXXX		MK
2	Door Position Switch	By Security Integrator		
1	Power Supply	AQD_ (Amps as required)		SU
1	Card Reader	By Security Integrator		OT

Notes: All wiring, wiring diagrams, conduit, low voltage, and security by Div. 28.
Doors normally closed and locked. Presenting authorized credentials allows ingress. Egress always allowed. Key override available for ingress.

Set: 14.0

Doors: 157

3	Hinge, Full Mortise, Hvy Wt	T4A3786	US26D	MK
1	Hinge, Full Mortise, Hvy Wt	T4A3786 QC	US26D	MK
1	Fail Secure Lock	AU 5491LN REX CMK	626	YA
1	Surface Closer	4011 .REG .TB	.689	LC
1	Kick Plate	K1050 10" X 2" LDW CSK BEV	US32D	RO
1	Wall Stop (Convex)	406	US26D	RO
3	Silencer	608-RKW		RO

1	ElectroLynx Harness (Door)	QC-CXXXP	MK
1	ElectroLynx Harness (Frame)	QC-CXXX	MK
1	Door Position Switch	By Security Integrator	
1	Power Supply	AQD_ (Amps as required)	SU
1	Card Reader	By Security Integrator	OT

Notes: All wiring, conduit, low voltage, wiring diagrams, and security by Div. 28
Doors normally closed and locked. Entering proper credentials allows ingress. Egress always allowed.
Key override available for ingress.

Set: 15.0

Doors: 129

8	Hinge, Full Mortise	TA2714	US26D	MK
1	Flush Bolt (Comb Wd)	2945	US26D	RO
1	Dust Proof Strike	570	US26D	RO
1	Storeroom or Closet Lock	AU 5405LN CMK	626	YA
1	Coordinator	2600	Black	RO
2	Surface Closer	4011 .REG .TB	.689	LC
2	Kick Plate	K1050 10" x 1" LDW CSK BEV	US32D	RO
2	Wall Stop (Convex)	406	US26D	RO
2	Silencer	608-RKW		RO

Set: 16.0

Doors: E121, E163

8	Hinge, Full Mortise	TA2714	US26D	MK
1	Flush Bolt	557 (Top only)	US26D	RO
1	Storeroom or Closet Lock	AU 5405LN CMK	626	YA
2	Surf Overhead Stop	10-336	630	RF
2	Silencer	608-RKW		RO

Set: 17.0

Doors: 134A

4	Hinge, Full Mortise	TA2714	US26D	MK
1	Storeroom or Closet Lock	AU 5405LN CMK	626	YA
1	Wall Stop (Convex)	406	US26D	RO
3	Silencer	608-RKW		RO

Set: 18.0

Doors: 121, 136, J153

4	Hinge, Full Mortise	TA2714	US26D	MK
1	Storeroom or Closet Lock	AU 5405LN CMK	626	YA
1	Surface Closer	4011 .REG .TB	.689	LC
1	Kick Plate	K1050 10" X 2" LDW CSK BEV	US32D	RO
1	Wall Stop (Convex)	406	US26D	RO
3	Silencer	608-RKW		RO

Set: 20.0

Doors: 104A, 104B, 104C, 104D, 104E, 112A, 112C, 112D, 112E, 112F, 112G, 168A, 168B, 168C, 168E, 168F, 168G, 168H, 168I, 168J, 168K, 168L

4	Hinge, Full Mortise	TA2714	US26D	MK
1	Entry Lock	AU 5404LN CMK	626	YA
1	Wall Stop (Concave)	409	US26D	RO
3	Silencer	608-RKW		RO
1	Coat Hook	RM802	US26D	RO

Set: 21.0

Doors: 104G

4	Hinge, Full Mortise	TA2714	US26D	MK
1	Entry Lock	AU 5404LN CMK	626	YA
1	Wall Stop (Concave)	409	US26D	RO
1	Gasketing	S773BL		PE
1	Coat Hook	RM802	US26D	RO

Set: 22.0

Doors: 102, 112B, 166, 168D

4	Hinge, Full Mortise	TA2714	US26D	MK
1	Entry Lock	AU 5404LN CMK	626	YA
1	Wall Stop (Concave)	409	US26D	RO
1	Gasketing	S773BL		PE

Set: 23.0

Doors: 157B

4	Hinge, Full Mortise	TA2714 NRP	US26D	MK

1	Classroom Lock	AU 5408LN CMK	626	YA
1	Wall Stop (Concave)	409	US26D	RO
3	Silencer	608-RKW		RO

Set: 24.0

Doors: 110

4	Hinge, Full Mortise	TA2714	US26D	MK
1	Classroom Lock	AU 5408LN CMK	626	YA
1	Surface Closer	4011 .REG .TB	.689	LC
1	Kick Plate	K1050 10" X 2" LDW CSK BEV	US32D	RO
1	Wall Stop (Convex)	406	US26D	RO
3	Silencer	608-RKW		RO

Set: 25.0

Doors: 123

4	Hinge, Full Mortise	TA2714	US26D	MK
1	Passage Latch	AU 5401LN	626	YA
1	Wall Stop (Convex)	406	US26D	RO
3	Silencer	608-RKW		RO

Set: 26.0

Doors: 125

4	Hinge, Full Mortise	TA2714	US26D	MK
1	Privacy Lock	AUR 8802FL V21	626	YA
1	Wall Stop (Convex)	406	US26D	RO
3	Silencer	608-RKW		RO
1	Coat Hook	RM802	US26D	RO

Set: 27.0

Doors: R138, R140, R141, R143, R155

4	Hinge, Full Mortise	TA2714	US26D	MK
1	Privacy Lock	AUR 8802FL V21	626	YA
1	Surface Closer	4011 .REG .TB	.689	LC
1	Kick Plate	K1050 10" X 2" LDW CSK BEV	US32D	RO
1	Mop Plate	K1050 4" X 1" LDW CSK BEV	US32D	RO
1	Wall Stop (Convex)	406	US26D	RO
1	Gasketing	S88BL		PE

1	Coat Hook	RM802	US26D	RO

Set: 28.0

Doors: 157A

3	Dual Swing Hinge	1001		MK
2	Push Plate	70F	US26D	RO
2	Armor Plate	K1050 34" x 2" LDW CSK BEV	US32D	RO
2	Door Stop	441H/406/409 as required	US26D	RO

Set: 29.0

Doors: R127A, R127B

4	Hinge, Full Mortise	TA2714	US26D	MK
1	Push Pull	111x73C/73CL	US32D	RO
1	Surface Closer	4011 .REG .TB	.689	LC
1	Kick Plate	K1050 10" X 2" LDW CSK BEV	US32D	RO
1	Mop Plate	K1050 4" X 1" LDW CSK BEV	US32D	RO
1	Wall Stop (Convex)	406	US26D	RO
1	Gasketing	S88BL		PE

Set: 30.0

Doors: 139C

1	All Materials	By Door Manufacturer		OT

Notes: Coiling Door.

Set: 31.0

Doors: 139B

1	All Materials	By Door Manufacturer		OT

Notes: NANNA WALL DOOR

END OF SECTION

SECTION 08 8000 - GLAZING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Insulating glass units.

B. Glazing units.

C. Glazing compounds and accessories.

1.2 RELATED REQUIREMENTS

A. Section 06 4100 - Architectural Wood Casework: Cabinets with requirements for glass shelves.

B. Section 08 4313 - Aluminum-Framed Storefronts: Glazing furnished as part of storefront assembly.

C. Section 08 4413 - Glazed Aluminum Curtain Walls: Glazing furnished as part of wall assembly.

D. Section 10 2800 - Toilet, Bath, and Laundry Accessories: Mirrors.

1.3 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.

B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.

C. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.

D. ASTM C1036 - Standard Specification for Flat Glass.

E. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.

F. ASTM C1193 - Standard Guide for Use of Joint Sealants.

G. ASTM C1376 - Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass.

H. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings.

I. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation.

J. GANA (SM) - GANA Sealant Manual.

K. NFRC 100 - Procedure for Determining Fenestration Product U-factors.

L. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.

M. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by each of the affected installers.

1.5 SUBMITTALS

A. Product Data on Insulating Glass Unit and Glazing Unit Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.

B. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.

C. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years documented experience.

C. Regulatory Requirements: Maintain NFRC labels applied by the manufacturer on glazing until inspected and approved by the authority having jurisdiction.

1.7 FIELD CONDITIONS

A. Do not install glazing when ambient temperature is less than 40 degrees F.

1.8 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Insulating Glass Units: Provide a ten (10) year warranty to include coverage for seal failure, coating failure, interpane dusting or misting, including providing products to replace failed units.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Float Glass Manufacturers:

1. Guardian Glass, LLC: www.guardianglass.com.
2. Pilkington North America Inc: www.pilkington.com/na/#sle.
3. Vitro Architectural Glass (formerly PPG Glass): www.vitroglazings.com/#sle.

2.2 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

A. Provide type and thickness of exterior glazing assemblies to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of glass.

1. Comply with ASTM E1300 for design load resistance of glass type, thickness, dimensions, and maximum lateral deflection of supported glass.
2. Provide glass edge support system sufficiently stiff to limit the lateral deflection of supported glass edges to less than 1/175 of their lengths under specified design load.
3. Glass thicknesses listed are minimum.

B. Vapor Retarder and Air Barrier Seals: Provide completed assemblies that maintain continuity of building enclosure vapor retarder and air barrier.

1. In conjunction with vapor retarder and joint sealer materials described in other sections.

C. Thermal and Optical Performance: Provide exterior glazing products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data as determined with the following procedures and/or test methods:

1. Center of Glass U-Value: Comply with NFRC 100 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
2. Center of Glass Solar Heat Gain Coefficient (SHGC): Comply with NFRC 200 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
3. Solar Optical Properties: Comply with NFRC 300 test method.

2.3 GLASS MATERIALS

A. Float Glass: Provide float glass based glazing unless otherwise indicated.

1. Annealed Type: ASTM C1036, Type I - Transparent Flat, Class 1 - Clear, Quality - Q3.
2. Kind HS - Heat-Strengthened Type: Complies with ASTM C1048.
3. Kind FT - Fully Tempered Type: Complies with ASTM C1048.
4. Fully Tempered Safety Glass: Complies with ANSI Z97.1 or 16 CFR 1201 criteria for safety glazing used in hazardous locations.

2.4 INSULATING GLASS UNITS

A. Manufacturers:

1. Any of the manufacturers specified for float glass.

B. Insulating Glass Units: Types as indicated.

1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
2. Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or magnetic sputter vapor deposition (soft-coat) type coatings on flat glass; coated vision glass, Kind CV; coated overhead glass, Kind CO; or coated spandrel glass, Kind CS.
3. Metal Edge Spacers: Aluminum, bent and soldered corners.
4. Spacer Color: Black.
5. Edge Seal:
    a. Dual-Sealed System: Provide polyisobutylene sealant as primary seal applied between spacer and glass panes, and silicone, polysulfide, or polyurethane sealant as secondary seal applied around perimeter.
6. Color: Black.
7. Purge interpane space with dry air, hermetically sealed.

C. Insulating Glass Units: Vision glass, double glazed.

1. Applications: Exterior glazing unless otherwise indicated.
2. Space between lites filled with air.
3. Outboard Lite: Annealed float glass, 1/4 inch thick, minimum.
    a. Tint: Clear.
    b. Coating: Low-E (passive type), on #2 surface.
4. Inboard Lite: Annealed float glass, 1/4 inch thick, minimum.
    a. Tint: Clear.
5. Total Thickness: 1 inch.

6. Thermal Transmittance (U-Value), Winter - Center of Glass: 0.28, nominal.
7. Visible Light Transmittance (VLT): 64 percent, nominal.
8. Solar Heat Gain Coefficient (SHGC): 0.27, nominal.
9. Visible Light Reflectance, Outside: 13 percent, nominal.

2.5 MONOLITHIC GLAZING UNITS

A. Monolithic Interior Vision Glazing:
   1. Applications: Interior glazing unless otherwise indicated.
   2. Glass Type: Annealed float glass.
   3. Tint: Clear.
   4. Thickness: 3/8 inch, nominal.

B. Monolithic Safety Glazing: Non-fire-rated.
   1. Applications:
      a. Glazed sidelights to doors, except in fire-rated walls and partitions.
      b. Other locations required by applicable federal, state, and local codes and regulations.
      c. Other locations indicated on drawings.
   2. Glass Type: Fully tempered safety glass as specified.
   3. Tint: Clear.
   4. Thickness: 3/8 inch, nominal.

2.6 ACCESSORIES

A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch by width of glazing rabbet space minus 1/16 inch by height to suit glazing method and pane weight and area.

B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness; ASTM C864 Option II. Minimum 3 inch long by one half the height of the glazing stop by thickness to suit application, self adhesive on one face.

C. Glazing Tape: Closed cell polyvinyl chloride (PVC) foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume of 2 percent, designed for compression of 25 percent to effect an air barrier and vapor retarder seal.

D. Glazing Splines: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option II; color black.

PART 3 EXECUTION

3.1 VERIFICATION OF CONDITIONS

A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.

B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.

3.2 INSTALLATION, GENERAL

A. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.

B. Install glazing sealants in accordance with ASTM C1193, GANA (SM), and manufacturer's instructions.

C. Do not exceed edge pressures around perimeter of glass lites as stipulated by glass manufacturer.

D. Set glass lites of system with uniform pattern, draw, bow, and similar characteristics.

E. Set glass lites in proper orientation so that coatings face exterior or interior as indicated.

F. Prevent glass from contact with any contaminating substances that may be the result of construction operations such as, and not limited to the following; weld splatter, fire-safing, plastering, mortar droppings, etc.

3.3 INSTALLATION - DRY GLAZING METHOD (GASKET GLAZING)

A. Application - Exterior and/or Interior Glazed: Set glazing infills from either the exterior or the interior of the building.

B. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.

C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.

D. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

3.4 CLEANING

A. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.

B. Remove non-permanent labels immediately after glazing installation is complete.

C. Clean glass and adjacent surfaces after sealants are fully cured.

D. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

3.5 PROTECTION

A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.

B. Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

END OF SECTION

SECTION 09 2116 - GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Performance criteria for gypsum board assemblies.

B. Metal stud wall framing.

C. Acoustic insulation.

D. Gypsum sheathing.

E. Cementitious backing board.

F. Gypsum wallboard.

G. Joint treatment and accessories.

H. Textured finish system.

I. Acoustic (sound-dampening) wall and ceiling board.

1.2 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Wood blocking product and execution requirements.

B. Section 07 2500 - Weather Barriers: Water-resistive barrier over sheathing.

C. Section 07 9200 - Joint Sealants: Sealing acoustical gaps in construction other than gypsum board or plaster work.

1.3 REFERENCE STANDARDS

A. AISI S220 - North American Standard for Cold-Formed Steel Nonstructural Framing.

B. AISI S240 - North American Standard for Cold-Formed Steel Structural Framing.

C. AISI S100-12 - North American Specification for the Design of Cold-Formed Steel Structural Members.

D. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units.

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

F. ASTM A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.

G. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.

H. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members.

I. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

J. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.

K. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board.

L. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.

M. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.

N. ASTM C1178/C1178M - Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel.

O. ASTM C1280 - Standard Specification for Application of Exterior Gypsum Panel Products for Use as Sheathing.

P. ASTM C1288 - Standard Specification for Fiber-Cement Interior Substrate Sheets.

Q. ASTM C1396/C1396M - Standard Specification for Gypsum Board.

R. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

S. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

T. ASTM E413 - Classification for Rating Sound Insulation.

U. GA-216 - Application and Finishing of Gypsum Panel Products.

1.4 SUBMITTALS

A. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

B. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

PART 2 PRODUCTS

2.1 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.

B. Interior Partitions, Indicated as Acoustic: Provide completed assemblies with the following characteristics:

1. Acoustic Attenuation: STC as indicated calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.

C. Fire Rated Assemblies: Provide completed assemblies as indicated.

1. UL Assembly Numbers: Provide construction equivalent to that listed for the particular assembly in the current UL (FRD).

2.2 METAL FRAMING MATERIALS

A. Steel Sheet: ASTM A1003/A1003M, subject to the ductility limitations indicated in AISI S220 or equivalent.

B. Manufacturers - Metal Framing, Connectors, and Accessories:

1. ClarkDietrich: www.clarkdietrich.com/#sle.
2. Marino: www.marinoware.com.
3. Phillips Manufacturing Co: www.phillipsmfg.com/#sle.
4. Steel Construction Systems: www.steelconsystems.com/#sle.

C. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf.

1. Studs: "C" shaped with flat or formed webs with knurled faces.
2. Runners: U shaped, sized to match studs.
3. Furring: Hat-shaped sections, minimum depth of 7/8 inch.

D. Area Separation Wall Studs and Accessories: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with specified performance requirements.

E. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection using slotted holes, screws and anti-friction bushings, preventing rotation of studs while maintaining structural performance of partition.

1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI S100-12.
2. Material: ASTM A653/A653M steel sheet, SS Grade 50/340, with G60/Z180 hot dipped galvanized coating.

2.3 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board:

1. American Gypsum Company: www.americangypsum.com.
2. CertainTeed Corporation: www.certainteed.com.
3. Georgia-Pacific Gypsum: www.gpgypsum.com.
4. National Gypsum Company: www.nationalgypsum.com/#sle.
5. PABCO Gypsum; _____: www.pabcogypsum.com.
6. USG Corporation: www.usg.com.

B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.

1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
3. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
4. Thickness:
    a. Vertical Surfaces: 5/8 inch, unless otherwise indicated.
    b. Ceilings: 5/8 inch, unless otherwise indicated.

C. Acoustically Enhanced Gypsum Board: ASTM C1396/C1396M. Multilayer products constructed of multiple layers of gypsum boards sandwiching a viscoelastic sound-absorbing polymer core tested in accordance with ASTM C1629/C1629M.

1. Basis of Design Product:
    a. PABCO Gypsum; QuietRock ES: www.pabcogypsum.com.
    b. Substitutions: See Section 01 6000 - Product Requirements.
2. Core: 5/8 inch, Type X.
3. Long Edges: Tapered.

D. Backing Board For Wet Areas: One of the following products:

1. Application: Surfaces behind tile in wet areas including toilet room walls.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.

3. ASTM Cement-Based Board: Non-gypsum-based, cementitious board complying with ASTM C1288.
    a. Thickness: 5/8 inch, unless otherwise indicated.
4. Glass Mat Faced Board: Coated glass mat water-resistant gypsum backing panel as defined in ASTM C1178/C1178M.
    a. Regular Type: Thickness 5/8 inch, unless otherwise indicated.

E. Exterior Sheathing Board: Sizes to minimize joints in place; ends square cut.
1. Application: Exterior sheathing, unless otherwise indicated.
2. Glass Mat Faced Sheathing: Glass mat faced gypsum substrate as defined in ASTM C1177/C1177M.
3. Type X Thickness: 5/8 inch, unless otherwise indicated.
4. Edges: Square.
5. Glass Mat Faced Products:
    a. Georgia-Pacific Gypsum; DensGlass Fireguard Sheathing.

2.4 GYPSUM WALLBOARD ACCESSORIES

A. Acoustic Insulation: ASTM C665; preformed glass fiber, friction fit type, unfaced. Thickness: 3-1/2 or 6 inch. At fire-resistance-rated assemblies, comply with mineral-fiber requirements of assembly.

B. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.
1. Products:
    a. Accumetric LLC; BOSS 826 Acoustical Sound Sealant: www.accumetricinc.com.
    b. Grabber Construction Products; Acoustical Sealant GSC: www.grabberman.com.
    c. Pecora Corporation; AC-20 FTR: www.pecora.com.
    d. Specified Technologies, Inc.; Smoke N Sound Acoustical Sealant: www.stifirestop.com.
    e. USG Corporation; Sheetrock Brand Acoustical Sealant: www.usg.com.

C. Water-Resistive Barrier: As specified in Section 07 2500.

D. Finishing Accessories: ASTM C1047, rigid plastic or vinyl, unless noted otherwise.
1. Types: As detailed or required for finished appearance.
2. Special Shapes: In addition to conventional corner bead and control joints, provide J-Bead at exposed panel edges.

E. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.

1. Fiberglass Tape: 2 inch wide, coated glass fiber tape for joints and corners use at backing board for wet areas.
2. Paper Tape: 2 inch wide, creased paper tape for joints and corners, except as otherwise indicated.
3. Joint Compound: Setting type, field-mixed.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.2 FRAMING INSTALLATION

A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.

B. Studs: Space studs at 16 inches on center.

1. Extend partition framing to structure in all locations.
2. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.

C. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.

D. Blocking: Install mechanically fastened steel sheet blocking for support of:

1. Wall mounted cabinets.
2. Toilet accessories.
3. Wall mounted door hardware.

3.3 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Acoustic Sealant: Install in accordance with manufacturer's instructions.

1. Seal around all penetrations by conduit, pipe, ducts, and rough-in boxes, except where firestopping is provided.

3.4 BOARD INSTALLATION

A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.

C. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.

D. Exposed Gypsum Board in Interior Wet Areas: Seal joints, cut edges, and holes with water-resistant sealant.

E. Exterior Sheathing: Comply with ASTM C1280. Install sheathing vertically, with edges butted tight and ends occurring over firm bearing.

1. Paper-Faced Sheathing: Immediately after installation, protect from weather by application of water-resistive barrier.

F. Cementitious Backing Board: Install over steel framing members and plywood substrate where indicated, in accordance with ANSI A108.11 and manufacturer's instructions.

G. Installation on Metal Framing: Use screws for attachment of gypsum board except face layer of non-rated double-layer assemblies, which may be installed by means of adhesive lamination.

3.5 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.

1. Not more than 30 feet apart on walls and ceilings over 50 feet long.
2. Above each jamb of every door opening at both sides of partition. Extend joint from door head to top of partition.
3. Above and below each jamb of every door opening at both sides of partition. Extend joint from opening sill to bottom of partition and from opening head to top of partition.

B. Corner Beads: Install at external corners, using longest practical lengths.

C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials.

3.6 JOINT TREATMENT

A. Glass Mat Faced Gypsum Board and Exterior Glass Mat Faced Sheathing: Use fiberglass joint tape, embed and finish with setting type joint compound.

B. Paper Faced Gypsum Board: Use paper joint tape, embed with drying type joint compound and finish with drying type joint compound.

C. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:

1. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated.
2. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
3. Level 3: Walls to receive textured wall finish.
4. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
5. Level 1: Wall areas above finished ceilings, whether or not accessible in the completed construction.

D. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.

1. Feather coats of joint compound so that camber is maximum 1/32 inch.

E. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

3.7 TEXTURE FINISH

A. Apply finish texture coating by means of spraying apparatus, over primer, in accordance with manufacturer's instructions.

B. Texture Required: Medium Orange Peel.

3.8 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION

SECTION 09 2400 - CEMENT PLASTERING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Cement plastering.

1.2 RELATED REQUIREMENTS

A. Section 01 2300 - Alternates: Alternate #7 - Stone Veneer.

B. Section 09 2236 - Lath: Lath, beads, screeds, and joint accessories for plaster base.

1.3 REFERENCE STANDARDS

A. ASTM C91/C91M - Standard Specification for Masonry Cement.

B. ASTM C150/C150M - Standard Specification for Portland Cement.

C. ASTM C206 - Standard Specification for Finishing Hydrated Lime.

D. ASTM C897 - Standard Specification for Aggregate for Job-Mixed Portland Cement-Based Plasters.

E. ASTM C926 - Standard Specification for Application of Portland Cement-Based Plaster.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittals procedures.

B. Product Data: Provide data on plaster materials and trim accessories.

C. Evaluation Service Reports: Show compliance with specified requirements.

D. Samples:

1. Submit two samples, 12 by 12 inch in size illustrating finish color and texture.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience.

1.6 MOCK-UP

A. Mock-Up Panel: Construct a 4 foot wide by 8 foot high sample panel of plaster work at the jobsite demonstrating installation procedures, finish texture, and color.

1.7 FIELD CONDITIONS

A. Exterior Plaster Work: Do not apply plaster when substrate or ambient air temperature is 40 degrees F or lower, or when temperature is expected to drop below 40 degrees F within 48 hours of application.

PART 2 PRODUCTS

2.1 CEMENT PLASTER APPLICATIONS

A. Lath Plaster Base: Metal lath.

1. Plaster Type: Jobsite mixed plaster.
2. Number of Coats: Three.
3. First Coat: Apply to a nominal thickness of 3/8 inch.
4. Second Coat: Apply to a nominal thickness of 3/8 inch.
5. Finish: Acrylic.

2.2 JOBSITE MIXED CEMENT PLASTER

A. Materials:

1. Portland Cement: ASTM C150/C150M, Type I.
    a. Finish Coat: Gray color.
2. Masonry Cement: ASTM C91/C91M, Type N.
3. Lime: ASTM C206, Type S.
4. Sand: Clean, well graded, and complying with ASTM C897.
5. Water: Clean, fresh, potable, and free of mineral or organic matter that could adversely affect plaster.

B. Plaster Mixes: Proportioned in accordance with ASTM C926; parts by volume.

1. First Coat Over Lath:
    a. Minimum 2-1/2 parts and maximum 4 parts sand, per total volume of cementitious materials.

2. Second Coat: Same mixture as first coat, without fiber reinforcement, except minimum 3 parts and maximum 5 parts sand.
3. Finish Coat:
    a. Minimum 1-1/2 parts and maximum 3 parts sand, per total volume of cementitious materials.

2.3 ACCESSORIES

A. Lath: As specified in Section 09 2236.

B. Beads, Screeds, and Joint Accessories: As specified in Section 09 2236.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions are acceptable prior to starting this work.

B. Verify masonry joints are flush and surfaces are ready to receive work of this section, and that there are no existing bituminous or water repellent coatings on masonry surfaces.

C. Verify lath is flat, secured to substrate, and joint and surface perimeter accessories are properly in place.

3.2 PREPARATION

A. Dampen masonry surfaces to reduce excessive suction.

3.3 MIXING

A. Mix only as much plaster as can be used prior to initial set.

B. Mix materials dry, to uniform color and consistency, before adding water.

C. Protect mixtures from frost or freezing temperatures, contamination, and excessive evaporation.

3.4 APPLICATION

A. Apply plaster in accordance with manufacturer's written instructions and comply with ASTM C926.

B. Base Coats:

1. Apply base coat(s) to fully embed lath and to specified thickness.

2. Follow guidelines in ASTM C926 and manufacturer's written installation instructions for moist curing base coats and application of subsequent coats.

C. Finish Coats:

1. Primer and Acrylic Coatings:

a. Remove surface contaminants such as dust and dirt without damaging substrate.

b. Apply primer in accordance with manufacturer's instructions.

c. Apply finish coating in number of coats and to thickness recommended by manufacturer.

3.5 TOLERANCES

A. Maximum Variation from True Flatness: 1/8 inch in 10 feet.

3.6 REPAIR

A. Patching: Remove loose, damaged or defective plaster and replace with plaster of same composition; finish to match surrounding area.

END OF SECTION

SECTION 09 3000 - TILING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Tile for floor applications.

B. Tile for wall applications.

C. Non-ceramic trim.

1.2 RELATED REQUIREMENTS

A. Section 07 9200 - Joint Sealants: Sealing joints between tile work and adjacent construction and fixtures.

B. Section 09 2116 - Gypsum Board Assemblies: Tile backer board.

1.3 REFERENCE STANDARDS

A. ANSI A108/A118/A136 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium).

B. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar.

C. ANSI A108.1b - American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar.

D. ANSI A108.1c - Specifications for Contractors Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Bed with Dry-Set or Latex-Portland Cement.

E. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive.

F. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar.

G. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy.

H. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout.

I. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout.

J. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework.

K. ANSI A108.12 - American National Standard for Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar.

L. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone.

M. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive.

N. ANSI A118.10 - American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes For Thin-Set Ceramic Tile And Dimension Stone Installation.

O. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-set Ceramic Tile and Dimension Stone Installation.

P. ANSI A118.15 - American National Standard Specifications for Improved Modified Dry-Set Cement Mortar.

Q. ANSI A137.1 - American National Standard Specifications for Ceramic Tile.

R. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold Finished.

S. ASTM C373 - Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products.

T. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.

U. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

V. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation.

1.4 DEFINITIONS

A. General: Definitions in the ASTM A108 series of tile installation standards and in ANSI A137.1 apply to Work of this Section unless otherwise specified.

B. ANSI A108/A118/A136 Series in the latest edition of “American National Standard Specifications for Installation of Ceramic Tile."

C. Module Size: Actual tile size (minor facial dimension as measured per ASTM C499) plus joint width indicated.

D. Face Size: Actual tile size, excluding spacer lugs.

1.5 PERFORMANCE REQUIREMENTS

A. Dynamic Coefficient of Friction: For tile installed on walkway surfaces, provide products to meet ANSI A137.1:

1. Level Surfaces: Minimum wet DCOF AcuTest value of .42

1.6 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all affected installers. Installer to layout full size movement joint locations for floor or wall on-site according to TCNA (HB). Layout to be approved by architect prior to installation. Conference to include submittal review of all products.

1.7 SUBMITTALS

A. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.

B. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, and setting details.

C. Samples for verification: Full-size units of each type and composition of tile and trim for each color and finish as indicated.

D. Master Grade Certificate: Submit for each type of tile, signed by the tile manufacturer and tile installer.

E. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.

F. Installer Qualification Data: For qualified Installer indicated below, documentation to be submitted prior to bid acceptance.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project. Furnish maintenance materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. See Section 01 6000 - Product Requirements, for additional provisions.

2. Extra Tile: 3 percent of each size, color, and surface finish combination, but not less than 1 box of each type.

3. Extra Grout: 3 percent of amount installed for each type, composition, and color indicated.
4. Trim Units: Furnish quantity of full-size units equal to three (3) percent of amount installed for each type, composition, color, pattern, and size indicated.

H. Material Test Reports: For each tile-setting and -grouting product.

1.8 QUALITY ASSURANCE

A. Maintain one copy of and ANSI A108/A118/A136 and TCNA (HB) on site.

B. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum five years of documented experience.

C. Installer Qualifications: Company specializing in performing tile installation, with minimum of five years of documented experience, have completed three (3) commercial projects of similar scope, square footage and complexity and submit one of the following:

1. Are trained and/or certified by the material manufacturer for installation of the product specified.
2. Installer is a five-star member of the National Tile Contractors Association or a Trowel of Excellence member of the Tile Contractors' Association of America.
3. Installer's supervisor for Project holds the International Masonry Institute's Foreman Certification.
4. Installer employs Ceramic Tile Education Foundation Certified Installers or installers recognized by the U.S. Department of Labor as Journeyman Tile Layers

D. The above qualified installer is required to be on-site during installation.

E. Source Limitations:

1. Tile: Obtain all tile from one source or producer. Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.
2. Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from one manufacturer and each aggregate from one source or producer.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.1 for labeling tile packages.

B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.

C. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided.

D. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

E. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

1.10 FIELD CONDITIONS

A. Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

B. Maintain ambient and substrate temperature of 50 degrees F during installation of mortar materials.

C. Concrete Curing: Do not install flooring material over concrete substrates unless substrates meet flooring, adhesive, or crack suppression membrane manufacturer’s current requirements for bond test, calcium chloride test, relative humidity test and pH test.

PART 2 PRODUCTS

2.1 TILE

A. Manufacturers: All products of each type by the same manufacturer.

1. See Finish Legend for acceptable manufacturers.

B. Ceramic Mosaic Tile: ANSI A137.1, standard grade.

1. Moisture Absorption: 0.5 to 3.0 percent as tested in accordance with ASTM C373.
2. Size: As Scheduled.
3. Scratch Hardness: 4.0 - 6.0.
4. Product, Color, Pattern and Size: As indicated in the Finish Legend of the drawings.

C. Ceramic Wall Tile: ANSI A137.1, standard grade.

1. Size: As scheduled.
2. Thickness: 3/8".
3. Edges: Rectified.
4. Finish: Matte.
5. Variation: V1.

6. Product, Color, Pattern and Size: As indicated in the Finish Legend of the drawings.

D. Glazed Wall Tile: ANSI A137.1, standard grade.

1. Moisture Absorption: 7.0 to 20.0 percent as tested in accordance with ASTM C373.
2. Size: As scheduled.
3. Face: Plain with eased edges.
4. Product, Color, Pattern and Size: As indicated in the Finish Legend of the drawings.

E. Glazed Raw Thin Brick, standard grade:

1. Size: As Scheduled.
2. Finish: Satin.
3. Color Variation: 4.
4. Crazing: Light.
5. Product, Color, Pattern and Size: As indicated in the Finish Legend of the drawings.

F. Porcelain Tile: ANSI A137.1, standard grade.

1. Size: As scheduled.
2. Product, Color, Pattern and Size: As specified in the Finish Legend of the drawings.

2.2 TRIM AND ACCESSORIES

A. Porcelain Trim - Cove Base:

1. Cove Base Size:As scheduled. .
2. Thickness: 8.5mm.
3. Finish: Matte.

B. Non-Ceramic Trim: Satin natural anodized extruded aluminum, style and dimensions to suit application, for setting using tile mortar or adhesive.

1. Applications:
   a. Reference drawings for profiles and locations.
   b. Open edges of floor tile.
   c. Transition between floor finishes of different heights.
   d. Thresholds at door openings.
2. Manufacturers:
   a. Schluter-Systems: www.schluter.com/#sle.
   b. Genesis APS International: www.genesis-aps.com/#sle.

2.3 SETTING MATERIALS

A. Improved Latex-Portland Cement Mortar Bond Coat: ANSI A118.15.

1. Applications: Use this type of bond coat where indicated and where no other type of bond coat is indicated.
2. Products:
    a. LATICRETE International, Inc; LATICRETE 254 Platinum: www.laticrete.com/#sle.

B. Epoxy Adhesive and Mortar Bond Coat: ANSI A118.3.

1. Products:
    a. LATICRETE International, Inc; LATICRETE LATAPOXY 300 Adhesive: www.laticrete.com/#sle.

C. Mortar Bed Materials: Pre-packaged mix of Portland cement, sand, latex additive, and water for any recessed slabs and shower pans.

1. Products:
    a. LATICRETE International, Inc; LATICRETE 3701 Fortified Mortar Bed: www.laticrete.com/#sle.

2.4 GROUTS

A. Epoxy Grout: ANSI A118.3 chemical resistant and water-cleanable epoxy grout.

1. Applications: Restrooms.
2. Color(s): As indicated on drawings.
3. Products:
    a. LATICRETE International, Inc; LATICRETE SPECTRALOCK PRO Premium Grout: www.laticrete.com/#sle.

2.5 MAINTENANCE MATERIALS

A. Tile Sealant: Gunnable, silicone, siliconized acrylic, or urethane sealant; moisture and mildew resistant type.

1. Applications: At all soft joints and between tile and plumbing fixtures and tile and another material.
2. Color(s): To match grout color.
3. Products:
    a. LATICRETE International, Inc; LATICRETE LATASIL: www.laticrete.com/#sle.

2.6 ACCESSORY MATERIALS

A. Waterproofing Membrane at Floors: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10 and ANSI A118.12.

1. Crack Resistance: No failure at 1/16 inch gap, minimum; comply with ANSI A118.12.
2. Fluid or Trowel Applied Type:
    a. Material: Synthetic rubber.
    b. Thickness: 25 mils, minimum, dry film thickness.
    c. Coverage: Cover 100% of floor under tile and 6" up wall (behind wall tile) in restrooms/kitchens (wet areas) only.
    d. Products:
        1) LATICRETE International, Inc; LATICRETE HYDRO BAN: www.laticrete.com/#sle.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.

C. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of setting materials to sub-floor surfaces.

D. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within the following limits:

1. Moisture Emission Rate: Not greater than 3 lb per 1000 sq ft per 24 hours, test in accordance with ASTM F1869.
2. Alkalinity (pH): Verify pH range of 5 to 9, test in accordance with ASTM F710.

3.2 PREPARATION

A. Protect surrounding work from damage.

B. Vacuum clean surfaces and damp clean.

C. Subsurface Tolerances for Mortar Bed Methods: for thick bed (mortar bed) ceramic and stone tile installations and self-leveling methods: maximum allowable variation in the installation substrate - ¼" in 10'

D. Subsurface Tolerances for Thin-Bed Methods: for thin bed ceramic tile installation when a Cementitious bonding material will be used, including medium bed mortar maximum allowable variation in the tile substrate - for tile with all edges shorter than 15", maximum allowable variation is ¼" in 10' from the required plane, with no more than 1/16" variation in 12" when measured form the high points in the surface. For tiles with at least one edge 15" in length or longer, maximum allowable variation is 1/8" in 10' from the required plane, with no more than 1/16" variation in 24" when measured from the high points in the surface. For modular substrates units such as plywood panels or adjacent concrete masonry units, adjacent edges cannot exceed 1/32" differences in height.

E. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

F. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

3.3 INSTALLATION - GENERAL

A. Factory Blending: For tile exhibiting color variations within ranges selected during Sample submittals, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.

B. Install tile and grout in accordance with applicable requirements of ANSI A108.1a through ANSI A108.13, manufacturer's instructions, and TCNA (HB) recommendations.

C. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.

1. Provide uniform joint widths, unless otherwise indicated. Use 1/3 offset joints to avoid lippage if using large format tile, check with manufacturer's recommendations.

D. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.

E. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.

F. Install faces of adjacent tiles in the same plane to be flush.

G. Form internal angles square and external angles bullnosed.

H. Install non-ceramic trim in accordance with manufacturer's instructions.

I. Sound tile after setting. Replace hollow sounding units.

J. Keep control and expansion joints free of mortar, grout, and adhesive.

K. Prior to grouting, allow installation to completely cure; minimum of 48 hours.

L. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.

M. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.4 INSTALLATION - FLOORS - THIN-SET METHODS

A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F113, dry-set or latex-Portland cement bond coat, with standard grout, unless otherwise indicated.

1. Where waterproofing/ antifracture membrane is indicated, install in accordance with TCNA (HB) Method F122, with latex-Portland cement grout and F125.

B. Install tile-to-tile floor movement joints in accordance with TCNA (HB) Method EJ171F.

3.5 INSTALLATION - FLOORS - MORTAR BED METHODS

A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F112, bonded, unless otherwise indicated.

1. Where waterproofing membrane is indicated, with standard grout or no mention of grout type, install in accordance with TCNA (HB) Method F121.

B. Waterproofing Membrane: Install as recommended by manufacturer .

C. Mortar Bed Thickness: coordinate with recess and tile product, unless otherwise indicated.

3.6 INSTALLATION - WALL TILE

A. Over cementitious backer units on studs, install in accordance with TCNA (HB) Method W244, using membrane at toilet rooms.

B. Over coated glass mat backer board on studs, install in accordance with TCNA (HB) Method W245.

3.7 CLEANING

A. Clean tile and grout surfaces.

3.8 PROTECTION

A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION

SECTION 09 5100 - ACOUSTICAL CEILINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Suspended metal grid ceiling system.

B. Acoustical units.

1.2 REFERENCE STANDARDS

A. ASTM C635/C635M - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.

B. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.

C. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions.

D. ASTM E1264 - Standard Classification for Acoustical Ceiling Products.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

B. Do not install acoustical units until after interior wet work is dry.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate grid layout and related dimensioning.

C. Product Data: Provide data on suspension system components.

D. Samples: Submit two samples 6 by 6 inch in size illustrating material and finish of acoustical units.

E. Samples: Submit two samples each, 6 inches long, of suspension system main runner.

F. Manufacturer's Installation Instructions: Indicate special procedures.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. See Section 01 6000 - Product Requirements, for additional provisions.
2. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

1.5 QUALITY ASSURANCE

A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.

B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.

1.6 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acoustic Tiles/Panels:

1. Armstrong World Industries, Inc: www.armstrongceilings.com.

B. Suspension Systems:

1. Armstrong World Industries, Inc: www.armstrong.com.
2. CertainTeed Corporation: www.certainteed.com.
3. Rockfon, LLC: www.rockfon.com.
4. USG: www.usg.com.

2.2 ACOUSTICAL UNITS

A. Acoustical Units - General: ASTM E1264, Class A.

B. Acoustical Panels: Mineral fiber with scrubbable finish, with the following characteristics:

1. Classification: ASTM E1264 Type IX.
2. See Finish Legend.
3. Thickness: 5/8 inch.
4. Acoustics: 33 CAC.

5. Panel Edge: Square.
6. Suspension System: Exposed grid.

C. Acoustical Panels: Painted mineral fiber, with the following characteristics:

1. As indicated on Finish Legend in drawings.
2. Edge: Square.
3. Suspension System: Exposed grid.

2.3 SUSPENSION SYSTEM(S)

A. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with stabilizer bars, clips, splices, perimeter moldings, and hold down clips as required.

B. Exposed Steel Suspension System: Formed steel, commercial quality cold rolled; heavy-duty.

1. Profile: Tee; 15/16 inch wide face.
2. Finish: As indicated.
3. Products:
   a. Armstrong; Prelude XL: www.armstrongceilings.com.

2.4 ACCESSORIES

A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.

B. Perimeter Moldings: Same material and finish as grid.

C. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that layout of hangers will not interfere with other work.

3.2 INSTALLATION - SUSPENSION SYSTEM

A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.

B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

C. Locate system on room axis according to reflected plan.

D. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.

E. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

F. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

G. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

H. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.

I. Do not eccentrically load system or induce rotation of runners.

J. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.

1. Use longest practical lengths.
2. Overlap and rivet corners.

3.3 INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.

B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

C. Fit border trim neatly against abutting surfaces.

D. Install units after above-ceiling work is complete.

E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

F. Cutting Acoustical Units:

1. Make field cut edges of same profile as factory edges.

3.4 TOLERANCES

A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.

B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION

SECTION 09 6500 - RESILIENT FLOORING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Resilient tile flooring.

B. Resilient base.

C. Installation accessories.

1.2 RELATED REQUIREMENTS

A. Section 26 0526 - Grounding and Bonding for Electrical Systems: Grounding and bonding of static control flooring to building grounding system.

1.3 REFERENCE STANDARDS

A. ASTM D2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine.

B. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.

C. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.

D. ASTM F970 - Standard Test Method for Static Load Limit.

E. ASTM F1700 - Standard Specification for Solid Vinyl Tile.

F. ASTM F1861 - Standard Specification for Resilient Wall Base.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

C. Shop Drawings: Indicate pattern, install method, and grain direction.

D. Verification Samples: Submit two samples, 6 by 6 inch in size illustrating color and pattern for each resilient flooring product specified.

E. Concrete Testing Standard: Submit a copy of ASTM F710.

F. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-finishing.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. Extra Wall Base: 10 linear feet for every of each 500 linear feet or fraction thereof, of each type and color installed.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing specified flooring with minimum ten years documented experience.

B. Installer Qualifications: Company specializing in installing specified flooring with minimum five years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Upon receipt, immediately remove any shrink-wrap and check materials for damage and the correct style, color, quantity and run numbers.

B. Store all materials off of the floor in an acclimatized, weather-tight space.

C. Maintain temperature in storage area between 55 degrees F and 90 degrees F.

D. Do not double stack pallets.

1.7 FIELD CONDITIONS

A. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

B. Spread unopened tile cartons no more than 6 cartons high and at least 4 inches apart.

C. Keep away from heating and cooling ducts and direct sunlight.

PART 2 PRODUCTS

2.1 TILE FLOORING

A. Vinyl Tile: Printed film type, with transparent or translucent wear layer.

1. Minimum Requirements: Comply with ASTM F1700, of Class corresponding to type specified.

2. Critical Radiant Flux (CRF): Class I when tested in accordance with ASTM E648.
3. Static Load: 1200 psi ASTM F970.
4. Slip Resistance: ASTM D2047 greater than .65.
5. Wear Layer Thickness: 0.020 inch.
6. Pattern and sizes: As shown on drawings.
7. Color: As indicated on drawings.

2.2 RESILIENT BASE

A. Resilient Base : ASTM F1861, Type TV, vinyl, thermoplastic; top set cove.
1. Manufacturers:
a. Johnsonite, a Tarkett Company: www.johnsonite.com.
2. Height: 4 inch.
3. Thickness: 0.125 inch.
4. Length: Roll.
5. Color: As indicated on drawings.
6. Accessories: Premolded external corners.

2.3 ACCESSORIES

A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.

B. Primers and Adhesives: Waterproof; types recommended by flooring manufacturer.

C. Moldings, Transition and Edge Strips: Metal and/or resilient per drawings.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.

C. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for resilient flooring installation by testing for moisture and pH.
1. Test in accordance with ASTM F710.

2. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

3.2 PREPARATION

A. Prepare substrates as recommended by base and adhesive manufacturers.

B. Clean substrate.

3.3 INSTALLATION - GENERAL

A. Starting installation constitutes acceptance of substrate conditions.

B. Install resilient products after other finishing operations, including painting, have been completed.

C. Install in accordance with manufacturer's written instructions.

D. Adhesive-Applied Installation:

1. Spread only enough adhesive to permit installation of materials before initial set.
2. Place copper grounding strip in conductive adhesive and apply additional adhesive to top side of strip before installing static control flooring. Allow strip to extend beyond flooring in accordance with static control flooring manufacturer's instructions. Refer to Section 26 0526 for grounding and bonding to building grounding system.
3. Fit joints and butt seams tightly.
4. Set flooring in place, press with heavy roller to attain full adhesion.

E. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.

F. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.

1. Metal Strips: Attach to substrate before installation of flooring using stainless steel screws.
2. Resilient Strips: Attach to substrate using adhesive.

G. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

H. Expansion Joints: Locate expansion, isolation, and other moving joints prior to installation.

1. Do not fill expansion, isolation, and other moving joints with patching compound or cover with resilient flooring.

3.4 INSTALLATION - TILE FLOORING

A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer's installation instructions.

3.5 INSTALLATION - RESILIENT BASE

A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.

B. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.

C. Install base on solid backing. Bond tightly to wall and floor surfaces.

D. Scribe and fit to door frames and other interruptions.

3.6 CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.

B. Clean in accordance with manufacturer's written instructions.

3.7 PROTECTION

A. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures until date of Substantial Completion.

END OF SECTION

SECTION 09 6700 - FLUID-APPLIED FLOORING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fluid-applied flooring and base.

B. Divider strips and accessories.

1.2 SUBMITTALS

A. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns and colors available.

B. Maintenance Data: Include maintenance procedures, recommended maintenance materials, procedures for stain removal, repairing surface, and suggested schedule for cleaning.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.

B. Applicator Qualifications: Company specializing in performing the work of this section.

1. Minimum five years of documented experience.
2. Approved by manufacturer.

C. Supervisor Qualifications: Trained by product manufacturer, under direct full time supervision of manufacturer's plant trained foreman.

1.4 MOCK-UPS

A. Construct mock-up(s) of fluid applied flooring to serve as basis for evaluation of texture and workmanship.

1. Number of Mock-Ups to be Prepared: One.
2. Use same materials and methods for use in the work.
3. Locate where directed.
4. Minimum Size: 48 inches by 48 inches.

B. Obtain approval of mock-up by Architect before proceeding with work.

C. Accepted mock-up may remain as part of the work.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store resin materials in a dry, secure area.

B. Store materials for three days prior to installation in area of installation to achieve temperature stability.

1.6 FIELD CONDITIONS

A. Maintain minimum temperature in storage area of 55 degrees F.

B. Store materials in area of installation for minimum period of 24 hours prior to installation.

C. Maintain ambient temperature required by manufacturer 72 hours prior to, during, and 24 hours after installation of materials.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Fluid-Applied Flooring:

1. See Finish Legend on drawings.

2.2 FLUID-APPLIED FLOORING SYSTEMS

A. Fluid-Applied Flooring Type FF-1: Water-based Polyurethane concrete slurry, no aggregate.

1. Texture: Smooth.
2. Thickness: 1/4".
3. Color: As scheduled.

B. Industrial Thin Set with Primer and Top Coat Type FF-2:

1. Product: As scheduled.
2. Color: As scheduled.
3. Abrasion Resistance: 30-50 mg loss.
4. Compressive Strength: 12000 psi.
5. Hardness: 70/65.
6. Impact resistance: Withstands 13.3 ft - lbs.

2.3 ACCESSORIES

A. Divider Strips: Zinc, 1/8 inch thick, height to match flooring thickness, with anchoring features; color as selected.

B. Base Caps: Zinc with projecting base of 1/8 inch; color as selected.

C. Cant Strips: Molded material compatible with flooring.

D. Subfloor Filler: Type recommended by fluid-applied flooring manufacturer.

E. Primer: Type recommended by fluid-applied flooring manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that subfloor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive flooring.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive flooring.

C. Verify that subfloor surfaces are dust-free and free of substances that could impair bonding of materials to subfloor surfaces.

D. Verify that required floor-mounted utilities are in correct location.

3.2 PREPARATION

A. Remove subfloor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with subfloor filler.

B. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Grind irregularities above the surface level. Prohibit traffic until filler is cured.

C. Vacuum clean substrate.

D. Apply primer to surfaces required by flooring manufacturer.

3.3 INSTALLATION - ACCESSORIES

A. Accurately saw cut substrate to install divider strips.

B. Install cant strips at base of walls where flooring is to be extended up wall as base.

C. Install terminating cap strip at top of base; attach securely to wall substrate.

D. Install base divider strips to match floor pattern. Install terminating cap strip at top of base; attach securely to wall substrate.

3.4 INSTALLATION - FLOORING

A. Apply in accordance with manufacturer's instructions.

B. Apply each coat to minimum thickness required by manufacturer.

C. Finish to smooth level surface.

D. Cove at vertical surfaces.

3.5 PROTECTION

A. Prohibit traffic on floor finish for 48 hours after installation.

B. Barricade area to protect flooring until fully cured.

END OF SECTION

SECTION 09 6813 - TILE CARPETING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Carpet tile, fully adhered.

1.2 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Restrictions on curing compounds for concrete slabs and floors.

1.3 REFERENCE STANDARDS

A. ASTM D2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials.

B. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.

C. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.

D. CRI 104 - Standard for Installation of Commercial Carpet.

E. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.

C. Shop Drawings: Indicate layout of joints and direction of carpet pile.

D. Samples: Submit two carpet tiles illustrating color and pattern design for each carpet color selected.

E. Submit two, six inch long samples of edge strip.

F. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. See Section 01 6000 - Product Requirements, for additional provisions.
2. Extra Carpet Tiles: Quantity equal to 5 percent of total installed of each color and pattern installed.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet tile with minimum five years documented experience.

B. Installer Qualifications: Company specializing in installing carpet tile with minimum five years documented experience.

1.6 MOCK-UP

A. Provide representative mock-up, illustrating installed pattern layout.

B. Locate where directed.

C. Accepted mock-up may remain as part of the Work.

1.7 FIELD CONDITIONS

A. Store materials in area of installation for minimum period of 24 hours prior to installation.

B. Maintain minimum 70 degrees F ambient temperature 24 hours prior to, during and 24 hours after installation.

C. Ventilate installation area during installation and for 72 hours after installation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Tile Carpeting:

1. See Finish Legend on drawings.

2.2 MATERIALS

A. Tile Carpeting, Type TCP-1, TCP-3 through TCP-8: Tufted, manufactured in one color dye lot.

1. Tile Size: As shown in Drawings.
2. Colors: As shown on Drawings.
3. Pattern: As shown on Drawings.

4. Critical Radiant Flux: Minimum of 0.22 watts/sq cm, when tested in accordance with ASTM E648 or NFPA 253.
5. Surface Flammability Ignition: Pass ASTM D2859 (the "pill test").
6. Dye Method: 100% Solution Dyed.
7. Construction: Tufted Textured Loop.
8. Pile Weight: 23 oz/sq yd.
9. Pile Desity: 8,716
10. Primary Backing Material: GlasBac.

B. Walk-off Carpet Tile, Type TCP-2:

1. Tile Size: As shown on Drawings.
2. Color: As shown on Drawings.
3. Pattern: As shown on Drawings.
4. Construction: Multi-level pattern loop.
5. Fiber Type: EcoSolution Q100 Nylon.
6. Dye Method: 100% Solution Dyed.
7. Gauge: 1/12 inches.
8. Primary Backing: Non-woven Synthetic.
9. Traffic Rating: Severe.

2.3 ACCESSORIES

A. Sub-Floor Filler: White premix latex; type recommended by flooring material manufacturer.

B. Edge Strips: As scheduled.

C. Carpet Tile Adhesive: Recommended by carpet tile manufacturer; releasable type.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that sub-floor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.

B. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to sub-floor surfaces.

C. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for flooring installation by testing for moisture and pH.

1. Test in accordance with ASTM F710.
2. Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.

3.2 PREPARATION

A. Prepare floor substrates as recommended by flooring and adhesive manufacturers.

B. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler.

C. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.

D. Vacuum clean substrate.

3.3 INSTALLATION

A. Starting installation constitutes acceptance of sub-floor conditions.

B. Install carpet tile in accordance with manufacturer's instructions and CRI 104 (Commercial).

C. Blend carpet from different cartons to ensure minimal variation in color match.

D. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.

E. Lay carpet tile in indicated pattern, with pile direction parallel to next unit, set parallel to building lines.

F. Fully adhere carpet tile to substrate.

G. Locate change of color or pattern between rooms under door centerline.

H. Trim carpet tile neatly at walls and around interruptions.

I. Complete installation of edge strips, concealing exposed edges.

3.4 CLEANING

A. Remove excess adhesive without damage, from floor, base, and wall surfaces.

B. Clean and vacuum carpet surfaces.

END OF SECTION

SECTION 09 7200 - WALL COVERINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Surface preparation and prime painting.

B. Wall covering and borders.

1.2 RELATED REQUIREMENTS

A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

B. Section 09 9123 - Interior Painting: Preparation and priming of substrate surfaces.

1.3 REFERENCE STANDARDS

A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Samples: Submit two samples of wall covering, 2 by 3 inch in size illustrating color, finish, and texture.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Inspect roll materials at arrival on site, to verify acceptability.

B. Protect packaged adhesive from temperature cycling and cold temperatures.

C. Do not store roll goods on end.

PART 2 PRODUCTS

2.1 WALL COVERINGS

A. General Requirements:

1. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84.

B. Wall Covering: Type WC-1, complying with the following:

1. Roll Width: See Finish Legend.

2. Color: See Finish Legend.

C. Adhesive: Type recommended by wall covering manufacturer to suit application to substrate.

D. Substrate Primer and Sealer: Alkyd enamel type.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate surfaces are prime painted and ready to receive work, and comply with requirements of wall covering manufacturer.

3.2 INSTALLATION

A. Apply adhesive and wall covering in accordance with manufacturer's instructions.

B. Apply wall covering smooth, without wrinkles, gaps or overlaps. Eliminate air pockets and ensure full bond to substrate surface.

C. Remove excess adhesive while wet from seam before proceeding to next wall covering sheet. Wipe clean with dry cloth.

3.3 CLEANING

A. Clean wall coverings of excess adhesive, dust, dirt, and other contaminants.

B. Reinstall wall plates and accessories removed prior to work of this section.

3.4 PROTECTION

A. Do not permit construction activities at or near finished wall covering areas.

END OF SECTION

SECTION 09 8410 – ACOUSTICAL TREATMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section includes sound absorptive wall and ceiling treatment.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 REFERENCES

A. American Society of Testing and Materials (ASTM):

1. ASTM C423 – Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
2. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
3. ASTM E795 – Standard Practices for Mounting Test Specimens During Sound Absorption Tests.

1.4 SUBMITTALS

A. Product Data: Submit product data sheets for each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation mounting methods.

B. Shop Drawings: Manufacturer's specifications, catalog cuts, and other items needed to demonstrate compliance with the specified requirements. Identify panel sizes, configurations, profiles, fabric selections by elevation, and corner details.

C. Samples: Submit two (2) samples 12" x 12" (300 mm x 300 mm) size, including frame, substrate, and fabric. Sample will be reviewed for color, texture, fabric tautness, alignment and pattern of weave, fabric translucency, and appearance at corners.

1.5 QUALITY ASSURANCE

A. Fabricators / Installers: Trained and certified by manufacturer.

B. Manufacturer's Technical Representative: Qualified representative, trained by the manufacturer and knowledgeable of the products and the manufacturer's installation methods. Representative has the manufacturer's authority to approve and reject materials and installation of workmanship.

C. The manufacturer's representative will be present to monitor the start of acoustical panel installation, establishing the standard of quality for the remainder of the installation.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until installation.

B. Follow manufacturer's instructions for acclimatizing fabrics, panels, or other associated components.

C. Protect fabric surfaces from damage.

1.7 WARRANTY

A. Submit manufacturer's written warranty covering the products supplied and installed against defects in materials and workmanship under normal operating conditions for a period of two years from the date of project acceptance.

B. Written warranty shall be executed by the manufacturer, showing warranty period by dates and agreeing to repair or replace acoustical panels that fail within the warranty period.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer or optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS (TBD)

2.1 1-INCH FABRIC WRAPPED PANELS

A. Description: Fabric-faced panel with a 1-inch-thick medium density fiberglass core and impact-resistant interlayer between fabric facing and fiberglass core.

B. Product must conform to the following:

1. Thickness: 1"-thick
2. Mounting: Type A (ASTM E795)
3. Noise Reduction Coefficient: Min. 0.80 when tested with Type F5 mounting (ASTM E795)

4. Basis of Design: Conwed Fabric A or approved equal.

2.2 2-INCH FABRIC WRAPPED PANELS

A. Description: Fabric-faced panel with a 2-inch-thick medium density fiberglass core and impact-resistant interlayer between fabric facing and fiberglass core.

B. Product must conform to the following:

1. Thickness: 2”-thick
2. Mounting: Type A (ASTM E795)
3. Noise Reduction Coefficient: Min. 0.95 when tested with Type F5 mounting (ASTM E795)
4. Basis of Design: Conwed Fabric A or approved equal.

PART 3 EXECUTION

3.1 EXAMINATION

A. Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation with manufacturer’s instructions.

B. Measure each ceiling area for conformance with the approved shop drawings. Notify the General Contractor and the Manufacturer’s Technical Representative of discrepancies and conditions.

C. Notify the Contracting Officer should the solutions require changes to the Construction Documents’ details and/or the Shop Drawings.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Ensure substrate surface is clean and dry. Maintain temperature and humidity at conditions approximately those of occupancy prior to, during, and after installation.

D. Ensure substrate surface is smooth, flat, and taped and sealed (if drywall) prior to installation. Directly adjoining work must be complete and dry.

E. Field measure areas to receive sound absorbing wall units; establish exact layout of units.

3.3 INSTALLATION

A. Install products in accordance with manufacturer's written instructions and in proper relationship with adjacent construction.

3.4 PROTECTION

A. Protect installed products until completion of the project.

B. Touch-up, repair or replace damaged products before substantial completion.

C. The following defects shall also be cause for rejection or replacement at the Contractor's expense:

1. Uneven joints or unaligned surfaces
2. Soiled surfaces not cleaned to original condition
3. Color variation
4. Unsound mounting system
5. Warping, buckling, or sagging of panels

END OF SECTION

NMSU NMDA Office
Las Cruces, NM

SECTION 09 8430 - SOUND-ABSORBING WALL AND CEILING UNITS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Sound-absorbing ceiling baffles.

B. Sound-absorbing wall panels.

1.2 REFERENCE STANDARDS

A. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

B. ASTM E795 - Standard Practices for Mounting Test Specimens During Sound Absorption Tests.

1.3 SUBMITTALS

A. Product Data: Manufacturer's printed data sheets for products specified.

B. Shop Drawings: Fabrication and installation details, baffle layout, and orientation.

C. Verification Samples: Fabricated samples of each type of baffle and panel specified; 6 by 12 inch for baffles and 12 by 12 inch for panels, showing construction, edge details, and fabric covering.

D. Test Reports: Certified test data from an independent test agency verifying that panels meet specified requirements for acoustical and fire performance.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company with not less than five years of experience in manufacturing acoustical products similar to those specified.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect acoustical units from moisture during shipment, storage, and handling. Deliver in factory-wrapped bundles; do not open bundles until units are needed for installation.

B. Maintain minimum room temperature and humidity levels approximately that of occupancy for a period of two days prior to delivery of materials to installation space, during installation, and after installation.

C. Store units flat, in dry, well-ventilated space; do not stand on end.

D. Store materials to acclimatize in area of installation for minimum period of 24 hours at temperatrue and humidity levels approximately that of occupancy prior to installation.

E. Protect edges from damage.

PART 2 PRODUCTS

2.1 SOUND-ABSORBING CEILING BAFFLES

A. Basis of Design Manufacturer:

1. See Finish Legend.
2. Substitutions: See Section 01 6000 - Product Requirements.

B. Sound Absorbing Ceiling Baffles:

1. Noise Reduction Coefficient (NRC): minimum of .75 when tested in accordance with ASTM C423 for Type ceiling mounting, per ASTM E795.
2. Fin Width: As indicated on Drawings.
3. Fin Depth: As indicated on Drawings.
4. Fin Length: As indicated on Drawings.
5. Material: PET Felt.
6. Color: As indicated.
7. Mounting: Horizontally suspended from ceiling or structure from cables or from cables to rail.

2.2 SOUND-ABSORBING WALL PANELS

A. Basis of Design Manufacturer:

1. See Finish Legend.
2. Substitutions: See Section 01 6000 - Product Requirements.

B. Sound Absorbing Wall Panels:

1. Noise Reduction Coefficient (NRC): minimum of .75 when tested in accordance with ASTM C423 for Type wall mounting, per ASTM E795.
2. Fin Width: As indicated on Drawings.
3. Fin Depth: As indicated on Drawings.
4. Fin Length: As indicated on Drawings.
5. Material: PET Felt.

6. Color: See Finish Legend.
7. Mounting: See Finish Legend.

2.3 FABRICATION

A. Tolerances: Fabricate to finished tolerance of plus or minus 1/16 inch for thickness, overall length and width, and squareness from corner to corner.

2.4 ACCESSORIES

A. Ceiling-Suspended Accessories: Manufacturer's standard accessories at locations as indicated on each acoustical unit, sized appropriately for weight of acoustical unit.
   1. Provide galvanized wire for suspension from ceiling at heights as indicated.

B. Fixing Clips: Manufacturers standard for application as indicated.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates for conditions detrimental to installation of acoustical units. Proceed with installation only after unsatisfactory conditions have been corrected.

B. Coordinate all mechanical, electrical and fire suppression items that interfere with panel locations.

3.2 INSTALLATION

A. Install acoustical units in locations as indicated, following manufacturer's installation instructions.

B. Install mounting accessories and supports in accordance with shop drawings.

C. Align panels accurately, with edges plumb and top edges level. Scribe to fit accurately at adjoining work and penetrations.

D. Install acoustical units to construction tolerances of plus or minus 1/16 inch for the following:
   1. Plumb and level.
   2. Flatness.
   3. Width of joints.

3.3 CLEANING

A. Clean sound-absorptive panels upon completion of installation from dust and other foreign materials, following manufacturer's instructions.

B. Clean facing upon completion of installation from dust and other foreign materials, following manufacturer's instructions.

C. Vacuum occasionally to remove any particulate matter and air-borne debris or dust. Compressed air may be used to dust the material in difficult to reach areas or for large assemblies.

3.4 PROTECTION

A. Provide protection of installed acoustical panels until Date of Substantial Completion.

B. Replace panels that cannot be cleaned and repaired to satisfaction of the Architect.

END OF SECTION

SECTION 09 9113 - EXTERIOR PAINTING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints.

C. Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.

D. Do Not Paint or Finish the Following Items:

1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
2. Items indicated to receive other finishes.
3. Items indicated to remain unfinished.
4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
5. Non-metallic roofing and flashing.
6. Stainless steel, anodized aluminum, bronze, terne-coated stainless steel, zinc, and lead.
7. Floors, unless specifically indicated.
8. Glass.
9. Concealed pipes, ducts, and conduits.

1.2 RELATED REQUIREMENTS

A. Section 05 5000 - Metal Fabrications: Shop-primed items.

B. Section 09 9123 - Interior Painting.

1.3 REFERENCE STANDARDS

A. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials.

B. SSPC V1 (PM1) - Good Painting Practice: Painting Manual, Volume 1.

C. SSPC-SP 1 - Solvent Cleaning.

D. SSPC-SP 2 - Hand Tool Cleaning.

E. SSPC-SP 6 - Commercial Blast Cleaning.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:

1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
2. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
3. Manufacturer's installation instructions.

C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.

1. Where sheen is specified, submit samples in only that sheen.

D. Manufacturer's Instructions: Indicate special surface preparation procedures.

E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. See Section 01 6000 - Product Requirements, for additional provisions.
2. Extra Paint and Finish Materials: 1 gallon of each color; from the same product run, store where directed.
3. Label each container with color in addition to the manufacturer's label.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.6 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply exterior paint and finishes during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

D. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.

B. Paints:

1. Benjamin Moore & Co: www.benjaminmoore.com.
2. Dunn-Edwards: www.dunnedwards.com.
3. Sherwin-Williams Company: www.sherwin-williams.com/#sle.

C. Primer Sealers: Same manufacturer as top coats.

D. Substitutions: See Section 01 6000 - Product Requirements.

2.2 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready mixed, unless required to be a field-catalyzed paint.

1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
3. Supply each paint material in quantity required to complete entire project's work from a single production run.
4. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

B. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.

C. Colors: As indicated on drawings.

2.3 PAINT SYSTEMS - EXTERIOR

A. Exterior Surfaces to be Painted, Unless Otherwise Indicated: Including primed metal.

1. Two top coats and one coat primer.
2. Top Coat(s): Exterior High Build Alkyd Enamel.
    a. Products:
        1) Sherwin-Williams DTM Alkyd Enamel.
        2) Substitutions: See Section 01 6000 - Product Requirements
3. Top Coat Sheen:
    a. Semi-Gloss: MPI gloss level 5; use this sheen at all locations.
4. Primer: As recommended by top coat manufacturer for specific substrate.

B. Wood, Opaque, Alkyd, 2 Coat:

1. One coat of alkyd primer sealer.
2. Semi-gloss: One coat of alkyd enamel.

C. Exterior Gypsum Board and Exterior Plaster, Opaque, Latex, 3 Coat:

1. One coat of of latex primer sealer.
2. Flat: Two coats of latex.

D. Ferrous Metals, Unprimed, Alkyd, 3 Coat:

1. One coat of alkyd primer.
2. Semi-gloss: Two coats of alkyd enamel.

2.4 PRIMERS

A. Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.

1. Rust-Inhibitive Phenolic Alkyd Resin Primer.
    a. Products:
        1) Sherwin-Williams Kem Kromic Universal Metal Primer.
        2) Substitutions: See Section 01 6000 - Product Requirements
2. Latex Primer for Exterior Wood.
    a. Products:
        1) Sherwin-Williams Exterior Latex Primer, B42W8041. (MPI #6)
        2) Substitutions: See Section 01 6000 - Product Requirements

2.5 ACCESSORY MATERIALS

A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

B. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.

C. Test shop-applied primer for compatibility with subsequent cover materials.

D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:

1. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

3.2 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for finishing.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

F. Exterior Gypsum Board: Fill minor defects with exterior filler compound. Spot prime defects after repair.

G. Ferrous Metal:

1. Solvent clean according to SSPC-SP 1.

2. Remove rust, loose mill scale, and other foreign substances using using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.

H. Exterior Wood Surfaces to Receive Opaque Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior calking compound after prime coat has been applied. Back prime concealed surfaces before installation.

3.3 APPLICATION

A. Exterior Wood to Receive Opaque Finish: If final painting must be delayed more than 2 weeks after installation of woodwork, apply primer within 2 weeks and final coating within 4 weeks.

B. Apply products in accordance with manufacturer's written instructions.

C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

D. Apply each coat to uniform appearance.

E. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply additional coats until complete hide is achieved.

F. Sand wood and metal surfaces lightly between coats to achieve required finish.

G. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

H. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.4 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.5 SCHEDULE - PAINT SYSTEMS

A. The following Painting Schedule shall be used for the work. If not identified within this schedule, refer to Finish Schedule on Drawings to locate specific surfaces to receive finishes specified.

B. For surfaces not indicated above, submit for approval, paint schedules of the products of the above manufacturers, or other manufacturers for the various substrates as indicated on the drawings, or described in the specifications.

3.6 EXTERIOR PAINT SCHEDULE

A. Ferrous Metals: Semi-Gloss.

1. First Coat: Red Oxide Primer (unless shop primed).
2. Two Coats: Alkyd semi-gloss enamel, 50%-60% on a 60 degree gloss meter.

B. Galvanized Metal: Semi-Gloss.

1. Etching: Etch galvanized metals if required by the selected manufacturer's written instructions.
2. First Coat: Alkyd or Vinyl Primer.
3. Two Coats: Alkyd Semi-Gloss.

END OF SECTION

SECTION 09 9123 - INTERIOR PAINTING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints.

C. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:

1. Elevator pit ladders.

D. Do Not Paint or Finish the Following Items:

1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
2. Items indicated to receive other finishes.
3. Items indicated to remain unfinished.
4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
5. Floors, unless specifically indicated.
6. Ceramic and other tiles.
7. Glass.
8. Concealed pipes, ducts, and conduits.

1.2 RELATED REQUIREMENTS

A. Section 05 5000 - Metal Fabrications: Shop-primed items.

B. Section 09 2116 - Gypsum Board Assemblies: Joint treatment and finish level requirements. Primer requirements prior to texture finish material application.

C. Section 09 9113 - Exterior Painting.

1.3 DEFINITIONS

A. Comply with ASTM D16 for interpretation of terms used in this section.

1. Flat refers to lusterless or matte finish with a gloss range below 15% when measured at an 85-degree meter.

2. Low-sheen Eggshell refers to low-sheen finish with a gloss range between 9% and 15% when measured at a 60-degree meter.
3. Semi-Gloss refers to medium-sheen finish with a gloss range between 35% and 70% when measured at a 60-degree meter.
4. Full-Gloss refers to high-sheen finish with a gloss range more than 70% when measured at a 60-degree meter.

1.4 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency.

B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications.

C. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual.

D. SSPC-SP 1 - Solvent Cleaning.

E. SSPC-SP 6 - Commercial Blast Cleaning.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:

1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
2. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
3. Manufacturer's installation instructions and instructions for reducing, if applicable.
4. If proposal of substitutions is allowed under submittal procedures, explanation of substitutions proposed.

C. Samples: Submit two paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.

1. Where sheen is specified, submit samples in only that sheen.
2. Where sheen is not specified, submit each color in each sheen available.

D. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.

E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. Extra Paint and Finish Materials: 5 percent, but not less than 1 gallon or 1 case, as appropriate, of each material, finish and color applied; from the same product run, store where directed.
2. Label each container with color in addition to the manufacturer's label.
3. Deliver extra materials to Owner on, or before, Date of Substantial Completion.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum five years documented experience.

B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum five years experience and approved by manufacturer.

1.7 MOCK-UP

A. See Section 01 4000 - Quality Requirements, for general requirements for mock-up.

B. Provide panel, 10 feet long by 10 feet wide, illustrating paint color, texture, and finish.

C. Accepted mock-up may remain as part of the work.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

D. Maintain containers in clean condition, free of foreign materials and residue.

E. Remove rags and waste from storage areas daily.

1.9 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply materials when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F above the dew point; or to damp or wet surfaces.

D. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.

B. Paints:

1. Benjamin Moore & Co: www.benjaminmoore.com.
2. Dunn-Edwards: www.dunnedwards.com.
3. PPG Paints: www.ppgpaints.com/#sle.
4. Sherwin-Williams Company: www.sherwin-williams.com/#sle.

C. Primer Sealers: Same manufacturer as top coats.

D. Substitutions: See Section 01 6000 - Product Requirements.

2.2 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready mixed, unless intended to be a field-catalyzed paint.

1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
3. Supply each paint material in quantity required to complete entire project's work from a single production run.
4. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

B. Volatile Organic Compound (VOC) Content:

1. Provide paints and finishes that comply with the most stringent requirements specified in the following:

a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.

2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

C. Flammability: Comply with applicable code for surface burning characteristics.

D. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.

E. Colors: To be selected from manufacturer's full range of available colors.

1. Selection to be made by Architect after award of contract.

2.3 PAINT SYSTEMS - INTERIOR

A. Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board and shop primed steel.

1. Two top coats and one coat primer.

2. Top Coat(s): High Performance Architectural Interior Latex; Epoxy.

a. Products:
1) Benjamin Moore; Interior Semi-Gloss Finish .
2) Dunn Edwards; Enduracat, Interior, pre-catalyzed, single component water based acrylic epoxy, ENPX50.
3) Sherwin-Williams Pre-Catalyzed Waterbased Epoxy, Semi-Gloss.

3. Top Coat(s): Institutional Low Odor/VOC Interior Latex.

a. Products:
1) Benjamin Moore; Ultra Spec 500 Interior Eggshell Finish N538.
2) Dunn Edwards; Spartazero 30, Interior Latex, SZRO30.
3) PPG Paints Pure Performance Interior Latex, 9-300XI Series, Eggshell.
4) Sherwin-Williams ProMar 200 Zero VOC Interior Latex, Eg-Shel B20-2600 series.

B. Medium Duty Door/Trim: For surfaces subject to frequent contact by occupants, including metals:

1. Medium duty applications include doors, door frames, railings, handrails, and guardrails.

2. Two top coats and one coat primer.

3. Top Coat(s): High Performance Architectural Interior Latex.

a. Products:
1) Benjamin Moore; Corotech Pre-Catalyzed Waterborne Epoxy Semi-Gloss V341.
2) Dunn Edwards; Rust-Oleum S60 WaterBase Epoxy.

3) PPG Paints Pitt-Glaze WB1 Pre-Catalyzed Water-Borne Acrylic Epoxy, 16-510 Series, Semi-Gloss.
4) Sherwin-Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy, Semi-Gloss (K46 series).

4. Top Coat(s): Interior Light Industrial Coating, Water Based.

a. Products:
1) Benjamin Moore; UltraSpec HP DTM Acrylic Semi-Gloss HP29.
2) Dunn Edwards; UltraShield Acrylic DTM SemiGloss, ULDM50.
3) PPG Paints Pitt-Tech Plus WB DTM Industrial Enamel, 90-1210 Series, Semi-Gloss.
4) Sherwin-Williams Pro Industrial Acrylic Coating, Semi-Gloss, B66-650 series.

C. Medium Duty Vertical and Overhead: Including gypsum board, plaster, concrete, concrete masonry units, uncoated steel, shop primed steel, galvanized steel, and aluminum.

1. Two top coats and one coat primer.

2. Top Coat(s): High Performance Architectural Interior Latex.

a. Products:
1) Benjamin Moore; Corotech Pre-Catalyzed Waterborne Epoxy Semi-Gloss V341.
2) Dunn Edwards; Rust-Oleum S60/62 WaterBase Epoxy
3) PPG Paints Pitt-Glaze WB1 Pre-Catalyzed Water-Borne Acrylic Epoxy, 16-510 Series, Semi-Gloss.
4) Sherwin-Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy, Semi-Gloss, K46-150 series.

3. Top Coat(s): Institutional Low Odor/VOC Interior Latex.

a. Products:
1) Benjamin Moore; UltraSpec 500 Interior Semi-Gloss Finish N539.
2) Dunn Edwards; Suprema 50-1.
3) PPG Paints Pure Performance Interior Latex, 9-500XI Series, Semi-Gloss.
4) Sherwin-Williams ProMar 200 Zero VOC Interior Latex, Semi-Gloss.

D. Concrete Floors to be Painted.

1. Two top coats and one coat primer.

2. Top Coat(s): Epoxy Floor Paint, Super Heavy Duty.

a. Products:
1) Tennant Coatings; Eco-Shield High Wear Epoxy: www.tennantcoatings.com.

3. Top Coat(s): Epoxy Floor Paint, Standard Duty.

a. Products:
1) Diamond Vogel; Flor-Cote Durable Gloss Polyurethane Enamel: www.diamondvogel.com

E. Transparent Finish on Concrete Floors.

1. 2 coats sealer.

2. Sealer: Water Based Sealer for Concrete Floors.
    a. Products:
        1) Curecrete Concrete Solutions; Ashford Formula: www.ashfordformula.com.
        2) Laticrete International, Inc.; L&M Seal Hard: www.laticrete.com.
3. Sealer Sheen:
    a. Eggshell: MPI gloss level 3; use this sheen at all locations.

F. Ferrous Metals, Primed, Alkyd, 2 Coat:
1. Touch-up with alkyd primer.
2. Semi-gloss: Two coats of alkyd enamel.

2.4 PRIMERS

A. Primers: As recommended by manufacturer of top coats.
1. Interior/Exterior Latex Block Filler.
    a. Products:
        1) Benjamin Moore; Ultra Spec 500 Latex Primer / Sealer N534.
        2) Approved substantial equivalent product by top coat manufacturer.

2.5 ACCESSORY MATERIALS

A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.

C. Test shop-applied primer for compatibility with subsequent cover materials.

3.2 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or repair existing paints or finishes that exhibit surface defects.

D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

E. Seal surfaces that might cause bleed through or staining of topcoat.

F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

G. Concrete:

1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.

H. Masonry:

1. Remove efflorescence and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.
2. Prepare surface as recommended by top coat manufacturer.

I. Concrete Floors and Traffic Surfaces: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.

J. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.

K. Plaster: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.

L. Aluminum: Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.

M. Galvanized Surfaces:

N. Ferrous Metal:

1. Solvent clean according to SSPC-SP 1.
2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
3. Remove rust, loose mill scale, and other foreign substances using using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.

O. Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.

P. Wood Doors to be Field-Finished: Seal wood door top and bottom edge surfaces with tinted primer.

3.3 APPLICATION

A. Apply products in accordance with manufacturer's written instructions.

B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

C. Apply each coat to uniform appearance in thicknesses specified by manufacturer.

D. Sand wood and metal surfaces lightly between coats to achieve required finish.

E. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

F. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.4 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection.

B. Request Architect review and approval of first finished room for color, texture and workmanship.

C. Use first acceptable room as project standard for each successive room or space.

D. Obtain approval of each paint coat before application of successive coats. Failure to obtain approval between coats shall result in loss of credit for additional coats applied.

E. At any time the Architect may obtain samples from the products in use at the work sites for analysis and verification of product compliance with the specifications.

F. Corrective Measures: As required by the Architect at no cost to the Owner.

3.5 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.6 PROTECTION

A. Protect finishes until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

3.7 SCHEDULE - PAINT SYSTEMS

A. The following Painting Schedule shall be used for the work. Unless otherwise specified, all finishes shall be four (4) coat systems, consisting of one (1) sealer or prime coat before gypsum texture, one (1) coat sealer or prime coat after gypsum texture, and two (2) finish coats. Select same manufacturer's primer and finish-coats product for each finish specified. If not identified within this schedule, refer to Finish Schedule on Drawings to locate specific surfaces to receive finishes specified.

B. For surfaces not indicated above, submit for approval, paint schedules of the products of the above manufacturers, or other manufacturers for the various substrates as indicated on the drawings, or described in the specifications.

3.8 INTERIOR PAINTING SCHEDULE

A. Gypsum Board: Satin.

1. Location: All gypsum board walls and ceilings except those noted below
2. Two Coats: Vinyl Acrylic Latex Primer. One coat prior to gypsum texture, and one coat following gypsum texture.
3. Two Coats: Satin Acrylic Enamel.

B. Gypsum Board: Semi-Gloss.

1. Location: Janitor Rooms, [_____].
2. Two Coats: Vinyl Acrylic Latex Primer, or waterborne Epoxy Primer. One coat prior to gypsum texture, and one coat following gypsum texture.
3. Two Coats: Interior Semi-Gloss Acrylic Enamel.

C. Gypsum Board: Whiteboard finish on Satin.

1. Location: Refer to Drawings for locations.
2. Two Coats: Vinyl Acrylic Latex Primer. One coat prior to gypsum texture, and one coat following gypsum texture.
3. Two Coats: Satin Acrylic Enamel
4. Two Coats: Whiteboard finish

D. Ferrous Metals: Gloss.

1. First Coat: Red Oxide Primer, or Latex Metal Primer (unless shop primed).
2. Two Coats: Latex or Alkyd gloss enamel, 50%-60% on a 60 degree gloss meter.

E. Galvanized Metals: Semi-Gloss.

1. Etching: Etch galvanized metals if required by the selected manufacturer's written instructions.
2. First Coat: Acrylic Primer.
3. Two Coats: Latex or Alkyd Semi-Gloss Enamel.

F. Plumbing, Heating, Ventilating and Electrical Items: Semi-Gloss.

1. Location: Exposed unpainted, prime coat painted, and insulated items, hangers, straps, junction boxes, ducts, etc., of plumbing, heating, air conditioning, and ventilating and electrical work shall be painted in finished spaces where exposed.
2. Insulated or Wrapped Work:
   a. First Coat: Aluminum size to shrink canvas.
   b. Two Coats: Semi-Gloss Latex Enamel.
3. Non-Insulated Work:
   a. Two Coats: Semi-Gloss Latex Enamel.

G. Concrete Floor Slab Sealer.

1. Two Coats of Sealer: Penetrating liquid floor treatment of waterborne solution of inorganic silicate or siliconate materials and proprietary components; odorless; colorless; that penetrates; hardens and densifies concrete surfaces.

END OF SECTION

SECTION 10 1400 - SIGNAGE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Room and door signs.

B. Interior directional and informational signs.

C. Applied vinyl lettering and graphics.

D. Emergency evacuation maps.

E. Layered Panel Signage

F. Plaque.

G. Dimensional Letter Signage.

1.2 RELATED REQUIREMENTS

A. Section 08 8000 - Glazing: Substrate for room and door signage.

B. Section 09 2116 - Gypsum Board Assemblies: Substrate for room and door signage.

1.3 REFERENCE STANDARDS

A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines.

B. ADA Standards - 2010 ADA Standards for Accessible Design.

C. ICC A117.1 - Accessible and Usable Buildings and Facilities.

1.4 SUBMITTALS

A. Product Data: Manufacturer's printed product literature for each type of sign, indicating sign styles, font, foreground and background colors, locations, overall dimensions of each sign.

B. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, sign and letter sizes, fonts, and colors.

1. When room numbers to appear on signs differ from those on drawings, include the drawing room number on schedule.

2. When content of signs is indicated to be determined later, request such information from Owner through Architect at least 2 months prior to start of fabrication; upon request, submit preliminary schedule.
3. Submit for approval by Owner through Architect prior to fabrication.

C. Selection Samples: Where colors are not specified, submit two sets of color selection charts or chips.

D. Manufacturer's Qualification Statement.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years of documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Package signs as required to prevent damage before installation.

B. Package room and door signs in sequential order of installation, labeled by floor or building.

C. Store tape adhesive at normal room temperature.

1.7 FIELD CONDITIONS

A. Do not install tape adhesive when ambient temperature is lower than recommended by manufacturer.

B. Maintain this minimum temperature during and after installation of signs.

PART 2 PRODUCTS

2.1 SIGNAGE APPLICATIONS

A. Accessibility Compliance: Signs are required to comply with ADA Standards and ICC A117.1 and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most comprehensive and specific requirements.

B. **Refer to latest New Mexico State University Campus Wayfinding and Signage Policy from the Office of the University Architect for signage standards. 2019 edition or newer.**

C. Room and Door Signs: Provide a sign for every doorway, whether it has a door or not, not including corridors, lobbies, and similar open areas.

1. Sign Type: Flat signs with applied character panel media as specified. Match NMSU's ST A1/00
2. Provide "tactile" signage, with letters raised minimum 1/32 inch and Grade II braille.
3. Sign Height: 6x6 inches, unless otherwise indicated.
4. Rest Room Signs: Identify with pictograms, the names "MEN", "WOMEN", or "ALL GENDER", and braille.
    a. Sign Type: Flat signs with applied character panel media as specified. Match NMSU's ST A7 and A8 /00 signs.
5. Exit Doors and Stairs: Identify doors at exit passagways, exit discharge and exit stairways with flat tactile signs.
    a. Sign Type: Flat signs with applied character panel media as specified. Match NMSU's ST A30/00.

D. Interior Directional and Informational Signs:

1. Sign Type: NMSU ST A16/00.

E. Emergency Evacuation Maps:

1. Allow for one map per lobby.
2. Sign Type: NMSU ST A10/00.

2.2 SIGN TYPE DETAILS

A. Flat Signs: Signage media without frame.

1. Edges: Square.
2. Corners: Square.
3. Wall Mounting of One-Sided Signs: Tape adhesive.

B. Color and Font: Unless otherwise indicated:

1. Character Font: Rotis Semi Sans New Bold.
2. Character Case: Upper case only per NMSU.
3. Background Color: Per NMSU standards.
4. Character Color: Contrasting per NMSU standard color.

2.3 LAYERED PANEL SIGNS

A. Substrate: 1/4" MDF. Routed top and bottom to arc shape.

B. Images: All images and text to be provided by Owner.

C. Mounting: French cleats and adhesive as required.

D. Coordinate final location, size, layout and overall design with Owner prior to fabrication. Basis of Design is the NM Farm and Ranch Heritage Museum Displays.

2.4 PLAQUES

A. Metal Plaques:

1. Metal: Aluminum casting.
2. Metal Thickness: 1/4 inch, minimum.
3. Size: 24 inches by 24 inches.
4. Background Texture: Ripple.
5. Surface Finish: Brushed, satin.
6. Protective Coating: Manufacturer's standard clear coating.
7. Reference attached sketch and coordinate final design with NMSU standards.

2.5 DIMENSIONAL LETTERS

A. Metal Letters:

1. Metal: Steel.
2. Metal Thickness: 1/8 inch minimum.
3. Finish: Corten Steel.
4. Mounting: Stud and Spacer.
5. Size: As indicated on Drawings.

2.6 APPLIED VINYL LETTERING AND GRAPHICS

A. Applied to glazing per drawings.

B. Die-cut characters from high performace cast vinyl graphic film products such as 3M Scotchal or equal with a 5 year or greater warranty. Film of nominal thickness of 3 mils with pressure-sensetive adhesive backing, suitable for exterior applications.

C. Sign Type: NMSU ST X3/00, 2 locations per drawings

D. Verbiage: to be finalized by Owner

1. "NMDA logo, All visitors are required to check-in at Building 330, building under 24-hour surveillance"

2.7 ACCESSORIES

A. Tape Adhesive: Double sided tape, permanent adhesive.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install neatly, with horizontal edges level.

C. Locate signs and mount at heights indicated on drawings and in accordance with ADA Standards and ICC A117.1.

D. Where sign placement requires attachment to glass, attach a blank sign panel of the same color and size to the opposite side of the glass to conceal tape adhesive.

E. Protect from damage until Date of Substantial Completion; repair or replace damaged items.

END OF SECTION

SECTION 10 2113.13 - METAL TOILET COMPARTMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Metal toilet compartments.

B. Urinal screens.

1.2 REFERENCE STANDARDS

A. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate the work with placement of support framing and anchors in walls and ceilings.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate partition plan, elevation views, dimensions, details of wall and floor supports, door swings.

C. Product Data: Provide data on panel construction, hardware, and accessories.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Metal Toilet Compartments:

1. All American Metal Corp - AAMCO: www.allamericanmetal.com/#sle.
2. General Partitions Mfg. Corp: www.generalpartitions.com.
3. Global Steel Products Corp: www.globalpartitions.com.
4. Metpar Corp: www.metpar.com.
5. Substitutions: Section 01 6000 - Product Requirements.

2.2 MATERIALS

A. Stainless Steel Sheet: ASTM A666, Type 304.

2.3 COMPONENTS

A. Toilet Compartments: Powder coated steel, floor-mounted headrail-braced.

B. Doors, Panels, and Pilasters: Sheet steel faces, pressure bonded to sound deadening core, formed and closed edges; corners made with corner clips or mitered, welded, and ground smooth.

1. Panel Faces: 20 gage, 0.0359 inch.
2. Door Faces: 22 gage, 0.0299 inch.
3. Pilaster Faces: 20 gage, 0.0359 inch.
4. Reinforcement: 12 gage, 0.1046 inch.
5. Internal Reinforcement: Provide in areas of attached hardware and fittings. Mark locations of reinforcement for partition mounted washroom accessories.

C. Door and Panel Dimensions:

1. Thickness: 1 inch.
2. Door Width: 24 inch.
3. Door Width for ambulatory stall: 32 inch, out-swinging.
4. Door Width for accessible stall: 36 inch, out-swinging.
5. Height: 58 inch.

D. Pilasters: 1-1/4 inch thick, of sizes required to suit compartment width and spacing.

E. Urinal Screens: Wall mounted with two panel brackets, and floor-to-ceiling vertical upright consisting of pilaster anchored to floor and ceiling.

2.4 ACCESSORIES

A. Pilaster Shoes: Formed ASTM A666, Type 304 stainless steel with No. 4 finish, 3 inch high, concealing floor fastenings.

1. Provide adjustment for floor variations with screw jack through steel saddles integral with pilaster.

B. Head Rails: Hollow stainless steel tube, 1 by 1-5/8 inch size, with anti-grip strips and cast socket wall brackets.

C. Wall and Pilaster Brackets: Satin stainless steel; continuous type.

D. Attachments, Screws, and Bolts: Stainless steel, tamper proof type.

1. For attaching panels and pilasters to brackets: Through-bolts and nuts; tamper proof.

E. Hardware: Polished stainless steel:

1. Pivot hinges, gravity type, adjustable for door close positioning; two per door.
2. Nylon bearings.
3. Sliding door latch with exterior emergency access feature.
4. Door strike and keeper with rubber bumper; mounted on pilaster in alignment with door latch.
5. Coat hook with rubber bumper; one per compartment, mounted on door.
6. Provide door pull for outswinging doors.

2.5 FINISHING

A. Color: Single color as selected.

B. Stainless Steel Compartments: No. 4 finish.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that field measurements are as indicated.

C. Verify correct spacing of and between plumbing fixtures.

D. Verify correct location of built-in framing, anchorage, and bracing.

3.2 INSTALLATION

A. Install partitions secure, rigid, plumb, and level in accordance with manufacturer's instructions.

B. Maintain 3/8 to 1/2 inch space between wall and panels and between wall and end pilasters.

C. Attach panel brackets securely to walls using anchor devices.

D. Attach panels and pilasters to brackets. Locate head rail joints at pilaster center lines.

3.3 TOLERANCES

A. Maximum Variation From True Position: 1/4 inch.

B. Maximum Variation From Plumb: 1/8 inch.

3.4 ADJUSTING

A. Adjust and align hardware to uniform clearance at vertical edge of doors, not exceeding 3/16 inch.

B. Adjust hinges to position doors in partial opening position when unlatched. Return out swinging doors to closed position.

C. Adjust adjacent components for consistency of line or plane.

END OF SECTION

SECTION 10 2600 - WALL AND DOOR PROTECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Corner guards.

1.2 REFERENCE STANDARDS

A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. Product Data: Indicate physical dimensions, features, anchorage details, and rough-in measurements.

B. Samples: Submit samples illustrating component design, configurations, joinery, color and finish.

1. Submit two sections of corner guards, 24 inches long.

C. Manufacturer's Instructions: Indicate special procedures, perimeter conditions requiring special attention.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver wall and door protection items in original, undamaged protective packaging. Label items to designate installation locations.

B. Store products in either horizontal or vertical position, in compliance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Corner Guards:

1. Construction Specialties, Inc: www.c-sgroup.com/#sle.

2.2 PRODUCT TYPES

A. Corner Guards - Surface Mounted:

1. Material: Type 304 stainless steel, No. 4 finish, 16 gage, 0.0625 inch thick.
2. Surface Burning Characteristics: Provide assemblies with flame spread index of 25 or less and smoke developed index of 450 or less, when tested in accordance with ASTM E84.
3. Width of Wings: As indicated on Finish Legend.
4. Corner: Radiused, 1/4 inch, minimum.
5. Color: As indicated.
6. Length: One piece, as indicated on Finish Legend.

B. Adhesives and Primers: As recommended by manufacturer.

1. Use adhesives and sealants that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
   a. Gypsum Board and Panel Adhesives: 50 g/L.
   b. Multipurpose Construction Adhesives: 70 g/L.
   c. Contact Adhesive: 80 g/L.

2.3 FABRICATION

A. Fabricate components with tight joints, corners and seams.

2.4 SOURCE QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Provide wall and door protection systems of each type from a single source and manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that rough openings, concealed blocking, and anchors are correctly sized and located.

3.2 INSTALLATION

A. Install components in accordance with manufacturer's instructions, level and plumb, secured rigidly in position to supporting construction.

B. Position corner guards as indicated.

3.3 TOLERANCES

A. Maximum Variation From Required Height: 1/4 inch.

B. Maximum Variation From Level or Plane For Visible Length: 1/4 inch.

3.4 CLEANING

A. Clean wall and door protection items of excess adhesive, dust, dirt, and other contaminants.

END OF SECTION

SECTION 10 2800 - TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Commercial toilet accessories.

B. Electric hand dryers.

C. Utility room accessories.

D. Grab bars.

1.2 RELATED REQUIREMENTS

A. Section 10 2113.13 - Metal Toilet Compartments.

1.3 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design.

B. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

C. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.

D. ASTM C1036 - Standard Specification for Flat Glass.

E. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with the placement of internal wall reinforcement, concealed ceiling supports, and reinforcement of toilet partitions to receive anchor attachments.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Toilet Accessories:

1. American Specialties, Inc: www.americanspecialties.com.
2. Bobrick Washroom Equipment, Inc.: www.bobrick.com.
3. Bradley Corporation: www.bradleycorp.com.

B. Electric Hand/Hair Dryers:

1. Basis of Design: VERDEdri, World Dryer Corporation: www.worlddryer.com.

2.2 MATERIALS

A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.

1. Grind welded joints smooth.

B. Keys: Provide two keys for each accessory to Owner; master key lockable accessories.

C. Stainless Steel Sheet: ASTM A666, Type 304.

D. Stainless Steel Tubing: ASTM A269/A269M, Grade TP304 or TP316.

E. Mirror Glass: Annealed float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.

F. Fasteners, Screws, and Bolts: Hot dip galvanized; tamper-proof; security type.

G. Expansion Shields: Fiber, lead, or rubber as recommended by accessory manufacturer for component and substrate.

2.3 FINISHES

A. Stainless Steel: Satin finish, unless otherwise noted.

2.4 COMMERCIAL TOILET ACCESSORIES

A. Waste Receptacle: Recessed, stainless steel, seamless lower door for access to container, with tumbler lock, reinforced panel full height of door, push-in self-closing top door, continuously welded bottom pan and seamless exposed flanges.

1. Liner: Removable seamless stainless steel receptacle.

2. Minimum capacity: 4 gallons.

3. Products:

   a. Georgia-Pacific Professional; GP Stainless Steel Recessed Trash Receptacle for 16 Inch Cavities: www.blue-connect.com/#sle.

B. Mirrors: Stainless steel framed, 1/4 inch thick annealed float glass; ASTM C1036.

1. Annealed Float Glass: Silvering, protective and physical characteristics in compliance with ASTM C1503.

2. Size: As indicated on Drawings.

3. Products:

   a. Bobrick Washroom Equipment, Inc.; B-165 Series: www.bobrick.com.

C. Grab Bars: Stainless steel, smooth surface.

1. Standard Duty Grab Bars:

   a. Push/Pull Point Load: 250 pound-force, minimum.

   b. Dimensions: 1-1/4 inch outside diameter, minimum 0.05 inch wall thickness, exposed flange mounting, 1-1/2 inch clearance between wall and inside of grab bar.

   c. Length and Configuration: As indicated on drawings.

   d. Products:
      1) Bobrick Washroom Equipment, Inc.; B-6806 Series: www.bobrick.com.

D. Sanitary Napkin Disposal Unit: Stainless steel, surface-mounted, self-closing door, locking bottom panel with full-length stainless steel piano-type hinge, removable receptacle.

2.5 UTILITY ROOM ACCESSORIES

A. Combination Utility Shelf/Mop and Broom Holder: 0.05 inch thick stainless steel, Type 304, with 1/2 inch returned edges, 0.06 inch steel wall brackets.

1. Hooks: Three, 0.06 inch stainless steel rag hooks at shelf front.

2. Mop/broom holders: Three spring-loaded rubber cam holders at shelf front.

3. Length: Manufacturer's standard length for number of holders/hooks.

4. Products:

   a. American Specialties, Inc; 1308-3: www.americanspecialties.com.

2.6 OTHER ACCESSORIES

A. Coat Hooks: Type 304 stainless steel, satin finish. Verify widths with locations noted in the Drawings.

1. Hook strip

a. Hook Size: 1" wide, 6-1/2" high.

b. Mounting strip size: 4" high.

2. Individual hooks

a. Hook size: 1" wide, 6-1/2" high.

b. Flange size: 2" x 2".

c. Mounting: Concealed wall plate.

3. Products:

a. Bobrick Washroom Equipment, Inc.; B-232 x 24 and B-6827: www.bobrick.com.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify exact location of accessories for installation.

3.2 INSTALLATION

A. Install accessories in accordance with manufacturers' instructions in locations indicated on drawings.

B. Install plumb and level, securely and rigidly anchored to substrate.

C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.

3.3 PROTECTION

A. Protect installed accessories from damage due to subsequent construction operations.

END OF SECTION

SECTION 10 4400 - FIRE PROTECTION SPECIALTIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fire extinguishers.

B. Fire extinguisher cabinets.

C. Accessories.

D. Rapid Entry Box.

1.2 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Wood blocking product and execution requirements.

1.3 REFERENCE STANDARDS

A. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems.

B. NFPA 10 - Standard for Portable Fire Extinguishers.

C. UL (DIR) - Online Certifications Directory.

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide extinguisher operational features and color and finish.

C. Shop Drawings: Indicate cabinet physical dimensions and rough-in measurements for recessed cabinets.

D. Maintenance Data: Include test, refill or recharge schedules and re-certification requirements.

1.5 FIELD CONDITIONS

A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Fire Extinguishers:

1. Ansul, a Tyco Business: www.ansul.com.
2. Larsen's Manufacturing Co: www.larsensmfg.com.
3. Nystrom, Inc: www.nystrom.com/sle.
4. Pyro-Chem, a Tyco Business: www.pyrochem.com.

B. Fire Extinguisher Cabinets and Accessories:

1. Activar Construction Products Group - JL Industries: www.activarcpg.com/#sle.
2. Ansul, a Tyco Business: www.ansul.com.
3. Larsen's Manufacturing Co: www.larsensmfg.com.
4. Nystrom, Inc: www.nystrom.com/sle.

2.2 FIRE EXTINGUISHERS

A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.

1. Provide extinguishers labeled by UL (DIR) for purpose specified and as indicated.

B. Multipurpose Dry Chemical Type Fire Extinguishers: Carbon steel tank, with pressure gauge.

1. Class: A:B:C type.
2. Size: 10 pound.
3. Finish: Baked polyester powder coat, color as selected.
4. Temperature range: Minus 40 degrees F to 120 degrees F.

C. Wet Chemical Type Fire Extinguishers: Stainless steel tank, with pressure gage.

1. Class: K type.
2. Size: 1.6 gallons.
3. Finish: Polished stainless steel.
4. Temperature range: Minus 20 degrees F to 120 degrees F.

2.3 FIRE EXTINGUISHER CABINETS

A. Fire Rating: Listed and labeled in accordance with ASTM E814 requirements for fire resistance rating of walls where being installed.

B. Cabinet Construction: Non-fire rated.

1. Formed galvanized steel sheet; 0.036 inch thick base metal.

C. Fire Rated Cabinet Construction: One-hour fire rated.

1. Steel; double wall or outer and inner boxes with 5/8 inch thick fire barrier material.

D. Cabinet Configuration: Semi-recessed type.

1. Size to accommodate accessories.

E. Door: 0.036 inch metal thickness, reinforced for flatness and rigidity with nylon catch. Hinge doors for 180 degree opening with continuous piano hinge.

F. Door Glazing: Tempered glass, clear, 1/8 inch thick, and set in resilient channel glazing gasket.

G. Finish of Cabinet Exterior Trim and Door: Baked enamel, color as selected.

H. Finish of Cabinet Interior: White colored enamel.

2.4 ACCESSORIES

A. Extinguisher Brackets: Formed steel, chrome-plated.

B. Cabinet Signage: FIRE EXTINGUISHER.

2.5 RAPID ENTRY BOX

A. Description: Provide a Rapid Entry Box from a single source manufacturer near the front entry. Locate per authority having jurisdiction, or by Architect.

B. Basis-of-design: Knox Company; Rapid Entry Box, Model 4400 series with hinged door: www.knoxbox.com.

1. Body Size: 7 inch high x 7 inch wide x 4-1/2 inch deep.
2. Mounting: Recessed Mounting with Flange: 9-1/2" X 9-1/2".
3. Lock: Double-action rotating tumblers and hardened steel pins accessed by biased cut key.
4. Finish: Aluminum.

5. Description: 1/4 inch solid steel housing, 1/2 inch steel door with interior gasket seal and stainless steel door hinge. U.L. Listed box and lock. 1/8 inch stainless steel dust cover over lock with tamper seal mounting capability.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify rough openings for cabinet are correctly sized and located.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Secure rigidly in place.

C. Place extinguishers in cabinets and on wall brackets.

END OF SECTION

SECTION 10 5723 - CLOSET AND UTILITY SHELVING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Wall mounted wire closet shelving.

B. Laminated shelves associated with wire shelving.

C. Accessories.

1.2 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, with installation instructions.

C. Selection Samples: For each color selection required, submit color chips representing manufacturer's full range of available colors and finish.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store products under cover and elevated above grade.

C. Store flat to prevent warpage and bending.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Wire Storage Shelving:

1. ClosetMaid Corporation : www.closetmaid.com/#sle.
2. RubberMaid Closet and Organization Products : www.rubbermaidcloset.com/#sle.

2.2 SHELVING APPLICATIONS

A. Shelf Depth: 12 inches, unless otherwise indicated.

B. Coat Closets:

1. Wall-to-wall shelf with integral hanger rod.

C. Storage Closets:

1. Wall-to-wall storage shelves, close-mesh cross wire spacing, stacked at 13 inch vertically, not less than 12 inch deep.

D. Kitchen Shelving (WSH): Shelving and support brackets supplied and installed by owner. Provide wall backing per manufacturer's requirements.

1. Basis of Design: Elfa, prefinished steel ventilated adjustable shelving system.
2. Accessories: Wall mounted brackets.
3. Finish: Platinum Finish

2.3 MATERIALS

A. Wire Shelving: Factory-assembled coated wire mesh shelf assemblies for wall-mounting, with all components and connections required to produce a rigid structure that is free of buckling and warping.

1. Construction: Cold-drawn steel wire with average tensile strength of 100,000 psi resistance welded into uniform mesh units, square, rigid, flat, and free of dents or other distortions, with wires trimmed smooth.
2. Coating: PVC or epoxy, applied after fabrication, covering all surfaces.
3. PVC Coating: 9 to 11 mils thick.
4. Epoxy Coating: Non-toxic epoxy-polyester powder coating baked-on finish, 3 to 5 mils thick.
5. Standard Mesh Shelves: Cross deck wires spaced at 1 inch.
6. Close-Mesh Shelves: Cross deck wires spaced at 1/2 inch.
7. Shelf and Rod Units: Integral hanging rod at front edge of shelf.

B. Laminated Shelves: Particleboard with thermal-fused melamine surface on top and bottom.

1. Edge Finish: Hot-melt PVC edge banding, matching color.
2. Substrate Thickness: 3/4 inch, nominal.
3. Color: White.

C. Mounting Hardware: Provide manufacturer's standard mounting hardware; include support braces, wall brackets, back clips, end clips, poles, and other accessories as required for complete and secure installation; factory finished to match shelving.

D. Fasteners: As recommended by manufacturer for mounting substrates.

PART 3 EXECUTION

3.1 EXAMINATION

A. Inspect areas to receive shelving, to verify that spaces are properly prepared to receive shelf units, and are of dimensions indicated on shop drawings.

B. Verify appropriate fastening hardware.

C. Do not begin installation until substrates have been properly prepared.

D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions, with shelf surfaces level.

B. Cap exposed ends of cut wires.

C. Install back clips, end clips at side walls, and support braces at open ends. Install intermediate support braces as recommended by manufacturer.

D. Mounting Heights:

1. Single Hanging Rod Units: Install shelf at 68 inches above floor.

3.4 PROTECTION

A. Protect installed work from damage.

B. Touch-up, repair, or replace damaged products before Substantial Completion in a manner that eliminates evidence of replacement.

END OF SECTION

SECTION 10 7316.13 - METAL CANOPIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Freestanding shop fabricated extruded aluminum canopies.

1.2 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Concrete footings.

1.3 REFERENCE STANDARDS

A. The Aluminum Association – Aluminum Design Manual 2010

B. American Welding Society- AWS D1.2/D1.2M: 2008

C. ASTM B 209 Aluminum & Aluminum Alloy Sheet and Plate

D. ASTM B 221 Aluminum & Aluminum Ally Extruded Bars, Rods, Wire, Shapes, and Tubes

1.4 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Submit product data sheets, including material descriptions and finishes, and preparation instructions and recommendations.

C. Shop Drawings: Prior to commencement of fabrication, submit detailed shop drawings, showing profiles, sections of components, finishes, and fastening details.

1. Includes the complete layout, sections, details, components, finishes, sizing, spacing, fasteners, and structural foundations specific to the project. The site-specific shop drawings shall show reactions at surface attachment points and bear the seal of a Registered Structural Engineer.
2. General Contractor shall submit shop drawings for approval by the Architect prior to fabrication of any materials.
3. General Contractor to verify all dimensions and elevations prior to submittal to Architect.
4. Manufacturer shall field verify dimensions prior to fabrication

D. Design Data: Submit comprehensive structural analysis of design for the specified loads and for the structural foundations. Stamp and sign calculations by professional engineer.

E. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.5 QUALITY ASSURANCE

A. Designer Qualifications: Perform design under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

1. Comply with applicable code for submission of design calculations as required for acquiring permits.

B. Manufacturer Qualifications: Company specializing in the manufacture of products similar to those required for this project.

1. Not less than ten years of documented experience.

C. The installation of the canopy shall be performed by the manufacturer to assure single source responsibility

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to project site ready for erection.

B. Package using methods that prevent damage during shipping and storage on site.

C. Store materials under cover and elevated above grade.

1.7 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Metal Canopies: Correct defective work within a two year period after Date of Substantial Completion.

C. Finish Warranty: Provide manufacturer's one year warranty on factory finish against cracking, peeling, and blistering.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Metal Canopies Basis-of-Design; Avadek Walkway Cover Systems & Canopies 6" x 6" Deck to match existing. : www.avadek.com.

2.2 MATERIALS

A. Components: all components shall be 6063, 6061, or 6005 alloy extruded aluminum.

B. Design Criteria: All components shall be sized to comply with live load and wind load requirements of the project and shall not be less than the dimensions shown on the plan.

2.3 COMPONENTS

A. Configuration: as shown on the drawings

B. CANOPY BID LOTS:

1. BASE BID: Canopy 1.
2. BASE BID: Canopy 2.
3. BID LOT NO. 6: Canopy 3.
4. BID LOT NO. 7: Canopy 4.

C. Sizes: minimum sizing as shown on the drawings

D. Columns: all columns shall have radius corners

E. Beams: beams are open at top to drain canopy system internally into columns

F. Deck: deck thickness shall be at least .080” thick

G. Flashing: flashing thickness shall be at least .040” thick

H. Fasteners, Connections, and Fittings

1. Bolted Connections: All bolts, nuts, washers, and screws used in joining the members shall be stainless steel up to 3/8” diameter. Over 3/8” diameter may be Hot Dipped Galvanized.
2. General Contractor shall provide structural attachment points flush with the outside surface of the building.

I. Concrete Footings: Refer to Section 03 3000 for additional requirements.

2.4 FINISHES

A. Satin etched Clear Anodized – Aluminum Association Specification AA-M10-C22-A31

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and site area for conditions that might prevent satisfactory installation.

B. Do not proceed with installation until all conditions are satisfactory.

3.2 INSTALLATION

A. The components and accessories are to be supplied and installed by the manufacturer.

B. Install canopy in strict accordance to manufacturer’s recommendations.

C. Erect canopy after concrete and masonry work in the vicinity is completed and washed down

3.3 CLEANING

A. Clean surfaces of dust and debris; follow manufacturer's cleaning instructions for the finish used.

3.4 PROTECTION

A. Protect canopy after installation to prevent damage due to other work until Date of Substantial Completion.

END OF SECTION

SECTION 11 4000 - FOOD SERVICE EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. SECTION INCLUDES:

1. The food service equipment indicated on the FS drawings and Schedules. And as specified in this Section of the Project Specifications:
2. Work, in general, shall include furnishing, fabricating, delivering, erecting, setting-in-place and securing all of the food service equipment at locations shown on the Drawings.
3. Owner-Furnished Equipment: Where indicated on Equipment Schedule(s). Owner will furnish, and install equipment items.
4. Vendor-Furnished Equipment: Where indicated on Equipment Schedule(s). Vendor will furnish equipment items as close as possible to specified. If vendor requires utilities other than specified, Owner must inform General Contractor with copy to Architect prior to rough-ins.

B. RELATED SECTIONS:

1. Division 22 - Plumbing services and hook-up, including grease interceptors, shut-off valves, trim, traps and related fittings except as specified under individual equipment items in PART 3.
2. Division 23 - Mechanical services and hook-up including ventilator duct work upstream from ceiling and welded connections to ventilators and vent ducts.
3. Division 26 - Electrical services and hook-up, including wiring, line switches, safety cut-outs, control panels, contractors, fuse boxes or other related electrical controls and fittings except as specified under individual equipment items in PART 3.

1.2 SUBMITTALS

A. SHOP DRAWINGS:

1. Plumbing, Mechanical and Electrical Rough-In Drawings detailed and fully dimensioned to a minimum scale of 1/4” = 1’-0”. Drawings shall show exact location and requirements of all floor and wall stubs and sleeves for plumbing, electrical, refrigeration lines, beverage lines and ventilation ducts.
2. Depression Plans for drain troughs and insulated floor areas detailed and fully dimensioned to a minimum scale of 1/4” = 1’-0”.
3. Drawings of all equipment specified for fabrication detailed and fully dimensioned to a minimum scale of 3/4” = 1’-0”. Show all dimensions, details of construction, installation and relation to adjoining work, reinforcing, anchorage and other work required for the complete food service equipment installation.
4. Manufacturer’s Shop Drawings for hoods, ventilators, walk-in coolers and other specialized or customized equipment items not covered by standard Specification Sheets.
5. Submit one reproducible transparency and two direct prints of each shop drawing.

B. MANUFACTURER’S SPECIFICATION SHEETS:

1. Equipment Specification Sheets for all items of standard manufacture which show the manufacturer’s name, size, descriptive data, capacities, utility requirements, approval labels, etc. Bind in brochure form in numerical sequence in its entirety and submit six copies for review and approval.

C. EQUIPMENT SERVICE MANUALS:
1. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under Contract which shall include equipment specification sheets, operating instructions, parts lists, service instructions, maintenance instructions, etc. Bind in brochure form in numerical sequence in its entirety and submit three copies for review and approval.

1.3 QUALITY ASSURANCE
A. CODES AND REGULATIONS:
1. All work under this section shall be installed in strict conformance with all federal, state and local codes, laws, regulations and rules that govern food service facilities and operations.
2. All work under this section shall comply, as applicable, with:

a. National Sanitation Foundation and bear NSF label.
b. Underwriters Laboratories and bear UL label.
c. American Gas Association and bear AGA label.
d. American Society of Mechanical Engineers and bear ASME label.
e. National Fire Protection Association Standard NFPA-96

B. FIELD MEASUREMENTS:
1. Take field measurements prior to fabrication of custom equipment items. All equipment must conform to the finished building conditions. Where obstructions occur, the equipment must be scribed, fitted to and around same, resulting in a sanitary homogeneous fixture.

1.4 DELIVERY, STORAGE AND HANDLING
A. DELIVERY: Deliver standard manufactured equipment items to the site ready for use in the manufacturer's original and unopened containers and packaging except those items incorporated in the custom fabrication work. Containers to bear labels stating manufacturer's name, model number and project item number.
B. STORAGE: Store all products and materials under cover in a dry and clean location, off the ground.
C. HANDLING: Protect finishes from damage during handling and construction of other work in the same space. Wrap and crate each item of equipment as necessary for protection from damage. Remove all products and materials which are damaged or otherwise not suitable for installation from the job site and replace with suitable products and materials.

1.5 PROJECT CONDITIONS
A. EXISTING AND PROPOSED: Verify all conditions at job site including utilities, door openings, passage sizes and elevator sizes to assure ingress of equipment.

1.6 WARRANTY
A. STANDARD: Compile Warranties executed and issued by respective manufacturers and suppliers. Bind in brochure form in numerical sequence in its entirety.
B. SPECIAL: All compressors supplied for refrigerated units, either remote connected or as an integral part, shall be supplied with the manufacturer's four year extended warranty to provide a total of five years protection from the date of signed final acceptance. Include in same binders as described above for Standard Warranties.

C. SERVICE CONTRACT: In addition to warranties stated above, provide Service Contract to include labor, materials and parts necessary to replace, repair or restore work of this section that fails or does not operate properly for a period of one year from date of signed final acceptance.

PART 2 - PRODUCTS

2.1 MATERIALS

A. STAINLESS STEEL (S/S): Shall be AISI Type 302 extra low carbon, non-magnetic, Austenitic 18% chrome, 8% nickel corrosion resistant alloy steel (ASTM A 240).

B. GALVANIZED IRON (G.I.): Shall be a commercial quality steel - ASTM A 526 or ASTM A 527 for extensive forming. G90 zinc coated by the hot dip process.

C. GAUGES: Gauges for sheet iron and steel shall be U.S. Standard Gauges and finished equipment gauge thickness shall not vary more than 5% plus or minus from thickness indicated below:

1.

GAUGE	THICKNESS
#10	0.1406 (3.50mm)
#12	0.1094 (2.75mm)
#14	0.0781 (2.00mm)
#16	0.0625 (1.50mm)
#18	0.0500 (1.25mm)
#20	0.0375 (1.00mm)

D. STAINLESS STEEL PIPE AND TUBING: Shall be seamless or welded of gauge specified. Seamless tubing shall be thoroughly and correctly annealed, pickled and ground smooth. Welded tubing shall be thoroughly heat treated and properly quenched to eliminate precipitation, drawn true to size and polished to match stainless steel sheets.

E. STRUCTURAL STEEL: Framing members consisting of angles, bars, channels, etc. shall be ductile in quality, free of hard spots, runs, checks, cracks and other defects. They shall be smooth galvanized by the hot dip process with all surplus removed and be free of runs, blisters, excess spelter and uncoated spots or patches.

F. PLASTIC LAMINATE: Laminated plastic materials shall be Formica, Nevamar or as selected complying with NEMA LD 1 and NSF Standard 35 when applicable.

2.2 MANUFACTURED UNITS

A. STANDARD CATALOG ITEMS: Provide as listed and described in the SCHEDULE portion of PART 3 and Equipment Schedules shown on the Drawings.

B. ELECTRICAL REQUIREMENTS:

1. All portable equipment and items, which plug-in for normal use are to be furnished with an approved cord set to mate with receptacles furnished in the project.
2. In the event that any item of equipment to be included in the work is not available in the electrical characteristics furnished on the project, provide a suitable transformer to make the item work properly on the available power supply.

2.3 SHEET METAL FABRICATION

A. STRENGTH:

1. Include all necessary reinforcing, bracing, welding and the proper number and spacing of uprights and cross members.

2. Wherever size permits, equipment shall be fabricated of a single sheet of metal.
3. Equipment not braced in a rigid manner and which is subject to rattle or wobble will be unacceptable.

B. FINISH:
1. Stainless steel where exposed shall be polished to a #4 commercial finish. Where unexposed, finish may be #2B. The grain of polishing shall run in the same direction on all horizontal and vertical surfaces of each item.
2. Exterior galvanized parts, exposed members of framework and wrought steel pipe where specified to be painted shall be cleaned, properly primed with rust inhibiting primer, degreased and finished with two coats epoxy-based gray Hammertone paint.

C. WELDING:
1. All welding shall be done by the Heliarc method.
2. Where filler rods are used, they should be of the same grade composition as the materials to be joined and contain a flux to minimize carbide precipitation.
3. Welds shall be complete, strong and ductile, sound, non-porous, free of pits, cracks and other mechanical imperfections. Excess metal shall be ground off and polished smooth creating one homogeneous color and finish.
4. Unexposed welds shall be pacified and suitably coated to prevent corrosion.
5. In no case shall soldering be considered as a replacement for welding.
6. Where galvanizing has been burned off, touch up weld with high grade aluminum paint.

D. FIXTURES:
1. All custom fixtures shall be fabricated by one manufacturer.
2. In general, fixtures shall be shop fabricated of one-piece construction and shipped to the job site completely assembled ready to install. Equipment too large to transport or enter the building as one piece shall be constructed so that welded field joints can be made at the job site.
3. Exposed surfaces shall be free from bolt, screw and rivet heads. When bolts are required they shall be of concealed type and be of similar composition as the metal to which they are applied. Where bolts, screws or studs on the interior of fixtures are visible or may come in contact with hands or wiping cloths, they must be capped with an acorn nut with lock washer.
4. Suitable pipe slots shall be provided through all undershelves to accommodate necessary service lines. These slots shall be proper size and neatly made with turned up edges on all four sides to eliminate cutting or defacing equipment on the job site. Cabinet bases shall be provided with an inner panel duct at ends or rear of cabinet to allow for concealed pipe space.
5. Ends of all back splashes and hollow sections to be closed during fabrication of the fixture.

E. SOUND DEADENING:
1. Provide 1/2” wide rope sealant continuously between frame members and underside of table tops, drainboards, overshelves and undershelves. Tighten stud nuts for maximum compression of sealant.

F. PAINTING:
1. Provide the types of painting and coating materials which after drying or curing, are suitable for use in conjunction with food service, and which are durable, non-toxic, non-dusting, not-flaking, mildew resistant and comply with governing regulations for food service use
2. Finish fixtures, except stainless steel fixtures, in gray hammertone air dried enamel, glossy and without blemish.
3. Baked Enamel Finish. Oven bake for minimum of 1-1/2 hours at minimum temperature of 300 degrees F.

G. TRIM AND SEALING:
1. Trim is not an acceptable substitute for accuracy and neatness.
2. Equipment that butts walls shall be scribed and sealed to the walls with a silicone rubber sealant (Dow Corning 780, General Electric Series SE1200, or accepted substitute).
3. Where two or more pieces of equipment join, the seam shall be sealed with a silicone rubber sealant as above.
4. Hi-Temp silicone sealant shall be used at joints adjacent to or between pieces of heat producing equipment.

H. FABRICATION ELECTRICAL REQUIREMENTS:
1. All components and assemblies incorporated in the work shall bear the U.L. label.
2. Wiring shall be make in accordance with prevailing building codes and regulations.
3. Wiring and components shall be waterproof.
4. All fabricated equipment shall be completely wired internally where electrical services are required. All outlets, receptacles, switches, controls, electrical devices and equipment built into or forming an integral part of the fixture shall be furnished, installed and pre-wired to junction boxes. All wiring terminating in junction boxes shall be tagged showing item number, voltage, characteristics and load information.
5. Electrically heated equipment shall be internally wired to a thermostatic control and an "on/off" red neon pilot light both to be mounted in a terminal box on a removable control panel.
6. Rigid steel conduit shall be used for this work, zinc coated where unexposed and chrome plated where exposed.
7. Fluorescent light fixtures shall be complete with ballast and warm white lamps.
8. Receptacles for evaporator coils shall be twist lock type.

I. FABRICATION PLUMBING REQUIREMENTS:
1. All necessary faucets and drains shall be furnished with the food service equipment.
2. Water inlets shall be located above the positive water level to prevent siphoning of liquids into the water system. When submerged inlets are required, suitable check valves and vacuum breakers shall be furnished and installed on the fixture. Where exposed, the piping shall be chrome plated.
3. Cabinet type and closed fixtures shall have indirect wastes pre-piped within fixture to point of discharge above floor sinks. Piping to be chrome plated or stainless steel when exposed.

J. FABRICATION REFRIGERATION REQUIREMENTS:
1. Provide air-cooled condensing units mounted on friction slides in compressor housings with adequate air supply and exhaust for proper operation.
2. All refrigeration systems to be furnished with compressor, expansion valve, isolating valve, sight glass, strainer, dehydrator, relief valve, charging valve, lines and all necessary components to make a completely operable self-contained system.
3. Normal operating temperatures to be:
   a. Refrigerators +35 degrees F.
   b. Freezers -10 degrees F.
   c. Cold Pans +10 degrees F.
4. All refrigerated pans and cabinets shall be fitted with breaker strips where adjoining top or cabinet face materials.

K. CHANNEL FRAME CONSTRUCTION:
1. All equipment of channel frame construction shall be supported by 1" X 5" X 1" X 14 Ga. galvanized channels secured to underside of tops with welded concealed studs, lock washers and acorn cap nuts (S/S when exposed).
2. Where channels intersect each other, they shall be fully welded.
3. Spacing of channels shall be on approximate 30" centers but so located to accommodate

drawer enclosures, sinks, enclosed bases, etc.

4. All channels exposed to view shall be 14 Ga. S/S with ends closed.

L. LEGS, FEET & CROSSRAILS:

1. Equipment shall be supported on legs of 1-5/8" O.D. 16 Ga. seamless S/S fitted with S/S bullet-type feet. Standard-Keil Series 1044, or equal. Feet shall have a minimum vertical adjustment of 1-1/2" without showing any evidence of threading. Height to the equipment shall be as specified with the feet exposed to a 2" vertical dimension so as to allow a maximum adjustment of 3/4" above and below that height.
2. Legs shall be attached by means of sanitary type fully enclosed conical gussets of 16 Ga. S/S. Standard-Keil 1018-0206-1283, or equal. Gussets shall be fully welded to channels or gusset plates.
3. All legs shall be braced with crossrails of 1-5/8" 16 Ga. S/S tubing coved and fully welded to legs at 10" above the floor unless specified otherwise. Where crossrails join cabinet bodies, provide Standard-Keil 1016-0206-1283 Leg Socket welded to body.
4. Legs shall not be spaced more that 5'-0" apart.
5. Cabinet bodies supported by legs to have minimum of 6" clearance between floor and bottom of cabinet

M. WORK TOPS:

1. All table tops, counter tops and drainboards shall be 14 Ga. S/S unless specified otherwise.
2. Tops shall have Flat Edge as specified under "Edge Types" on all exposed sides.
3. Where top overhangs body, a minimum gap of 3/4" shall be provided between bottom edge of top and cabinet body.
4. Where back splash or end splash is specified, an angled splash shall be formed by turning up top 90 degrees for 4", breaking back 2" on a 45 degree angle, and turning up 1". Close both ends.
5. Where flat splash or flat turn-up is specified, turn edge of top up 90 degrees with "Hug Edge" ground smooth.

N. UNDERSHELVES - OPEN CONSTRUCTION:

1. Undershelves in open base fixtures shall be constructed of 16 Ga. S/S notched at corners and fully welded to legs from the back side. Shelves shall be reinforced longitudinally with 1" X 5" X 1" channels.
2. Front edges of undershelves shall be formed with a Flat Edge as specified under "Edge Types". Ends & rear to be turned up 2" flat unless specified otherwise.
3. Height of bottom shelf shall be 10" above the floor unless otherwise specified.

O. EDGE TYPES:

1. Rolled Edge shall be formed by the top being rolled down 180 degrees on a 1-1/2" diameter.
2. Bullnose Edge shall be formed by the top being rolled down 120 degrees on a 1-3/4" diameter.
3. Flat Edge shall be formed by turning down the edge of the top 1-1/2" and then back 1/2" at 30 degree angle.
4. Inverted "V" Edge (Marine Edge) shall be formed by raising the edge of the top 1/2" high on a 45 degree angle, then turning down 1-1/2" and back 1/2" at 30 degree angle.
5. Raised Curb or Raised Rolled Edge shall be formed by the top being turned up 3" high and rolled in a 1-1/2" diameter to form a 190 degree closure with corners fully ground. All horizontal and vertical corners to be fully coved.

P. COMPARTMENT TYPE SINKS:

1. Sinks shall be fabricated of 14 Ga. S/S with all interior corners rounded to a 3/4" radius both horizontally and vertically. Front edge of sinks shall be Raised Rolled Edge. Back, bottom and front of all sinks shall be one continuous piece. Bottom of each compartment

to be creased to a center waste outlet.

2. Drainboards shall be of 14 Ga. S/S, integral with the sinks, pitched 1/4" per foot to the sinks and with the same backsplash and rolled edge forming one continuous horizontal plane. Polish all backsplashes and tops to have metal grain running in one direction.
3. Partitions between compartments to be 1" wide X full depth double wall construction.
4. Multiple sink compartments shall be provided with continuous and seamless front without applied trim strips, panels or full width facing piece.
5. Back splashes and end splashes for sinks to be as specified above in Paragraph 2.3.M except turned up 8" in lieu of 4" before the 45 degree break.
6. Freestanding sinks to have rear of backsplash fully enclosed with 16 Ga. S/S.
7. Bottom of each sink to be fitted with a cast brass 2" rotary handle operated waste valve complete with S/S flat strainer, S/S handle assembly and connected overflow. Fisher Mfg. Co. Model 24090, or 24112 with overflow where shown in plans or equal.
8. One Compartment Sinks to be complete with (1) Fisher Mfg. Co. No.13269 Faucet. Two Compartment Sinks to be complete with (1) Fisher Mfg. Co. No. 13277 Faucet. Three Compartment Sinks to be complete with (2) Fisher Mfg. Co. No. 13277 Faucets.

Q. COUNTER SINKS:

1. Sinks shall be fabricated of 14 Ga. S/S with all interior corners rounded to a 3/4" radius both horizontally and vertically. Bottom of sink to be creased to a center waste outlet.
2. Sinks shall be set into table tops with top perimeter fully welded to edge of opening in table top to create one integral unit.
3. Bottom of each sink to be fitted with a cast brass 2" rotary handle operated waste valve complete with S/S strainer and S/S handle assembly. Fisher Mfg. Co. Model 10758, or equal.
4. Each sink to be complete with (1) Fisher 13269 Faucet (Splash mount) or (1) Fisher 3312 Faucet (Deck mount) as applicable.

R. ENCLOSED CABINET TYPE BASE:

1. Cabinet type bodies shall be formed of 18 Ga. S/S reinforced with 14 Ga. formed hat sections to create a rigid structure.
2. Ends of cabinet bodies to close to wall.
3. Base shall be welded construction with front rails, aprons, mullions and other components welded and polished to appear as one-piece construction.
4. Vertical mullions shall be 1-1/2" wide X 3/4" deep with the inside completely closed with a S/S channel that has top & bottom closed.
5. Interior shelves shall be 16 Ga. S/S all welded, suitably reinforced and formed with 1-1/2" Flat Edge on front. Rear and ends of shelves to be turned-up 2" and feathered slightly to insure tight fit to cabinet ends and/or partitions and be welded in place. Bottom shelves shall have front edge flush to and integral with front face of vertical mullions and to have rear and ends turned up as specified above.
6. Legs and feet shall be as specified in Paragraph 2.3.L above

S. HINGED DOORS

1. Hinged Doors to be double pan construction with 16 Ga. S/S exterior pan, 18 Ga. magnetic type 430 S/S interior pan and full size core of 1" thick urethane.
2. Doors to be flush mounted.
3. Hinges to be S/S lift-off slip-joint type with body side flush mounted in mullion and door side flush mounted in door edge. Standard-Keil 2874 Series, or equal.
4. Pulls to be S/S recessed-type tack welded in place. Standard-Keil 1260-1014-1283, or equal.
5. Magnetic catches to be heavy duty floating magnet type. Standard-Keil Number 2932-1010-3000, or equal.

6. Doors at compressor housings to be single pan 16 Ga. S/S construction with 3" X 1" 18 Ga. magnetic type 430 S/S channel full perimeter inside frame. Weld all corners. Provide small diamond mesh expanded metal inset. Milcor "Small Mesh", or equal (11,000 meshes per square yard). Spray mesh with aluminum paint.

T. DRAWERS
1. Drawer faces to be double pan construction with 16 Ga. S/S exterior pan, 18 Ga. S/S interior pan and full size core of 1" thick urethane.
2. Provide full perimeter rubber bumper with mitered corners on inside pan of drawer face. Standard-Keil 2740-1212-3000, or equal.
3. Drawers to be provided with heavy duty ball-bearing extension roller slides spot welded to pan frame. Standard-Keil 1415-1022-1000, or equal. Drawers to be make self-closing by pitching slides 3/4" back to front.
4. Pan Frame shall be 16 Ga. S/S. Sides and rear of 3/4" X 2" angles and front of 1" X 4" angle. Weld front to inner pan of drawer face.
5. Drawer to be enclosed in 16 Ga. S/S housing secured to underside of table with studs, lock washers and cap nuts.
6. Pulls shall be S/S recessed- type tack welded in place. Standard-Keil 1260-1410-1283, or equal.
7. Locks when specified shall be Standard-Keil 1230-3216-3000, or equal.
8. Provide each drawer complete with 20" X 20" X 5" S/S coved corner drawer pan. Standard-Keil 1481-2020-3282, or equal.

U. CASTERS:
1. Medium duty ball bearing casters with capacity of 300 pounds each.
2. Tires to be 5" diameter X 1-1/8" wide of non-marking red polyurethane.
3. Each mobile unit shall be provided with (2) brake casters (Standard-Keil 1123-3445 3000) and (2) non-brake casters (Standard-Keil 1123-3446-3000), or equal. Mount brake casters diagonally.

V. OVERSHELVES:
1. Wall Hung Shelves shall be 16 Ga. S/S with 1-1/2" Rolled Edge on front, 1-1/2" Flat Edge on ends and 2" high integral back risers.
2. Wall Hung Shelves to be supported on 14 Ga. S/S cantilevered triangular brackets of all welded construction. Top, bottom & back flanges of brackets shall be 1-1/2" wide and secured to wall with S/S bolts with toggles or expansion shields. Secure brackets to studs welded on bottom of shelves with lock washers and S/S cap nuts. Height of wall bracket shall be 6/10 of shelf width. Brackets shall have maximum longitudinal spacing of 5'-0".
3. Install shelves 60" A.F.F. to top surface of shelf unless specified otherwise.
4. Fixture Overshelves shall be 16 Ga. S/S with 1-1/2" Rolled Edge on front, 1-1/2" Flat Edge on ends and 2" high integral back risers.
5. Fixture Overshelves to be supported on 1-1/4" O.D. 16 Ga. S/S tube supports thru top of splash and welded to top framing extended back thickness of splash. Tube supports to be fitted with 14 Ga. S/S brackets welded to supports and sized as indicated above for wall shelves. Weld tube supports full perimeter at penetrations of back splash, grind and polish.
6. Install shelves 60" A.F.F. to top surface of shelf unless specified otherwise.

2.4 PRODUCT REFRIGERATION

A. SYSTEMS:
1. Provide all equipment refrigeration work indicated on the drawings, equipment schedules and specifications including but not limited to: condensing units, evaporator units, controls, piping and all accessories and components as required to provide complete and

operable systems in accordance with approved refrigeration practice.

2. Manufacturer's directions shall be followed in all cases where the manufacturer furnishes directions covering points not shown on the drawings and specifications.

B. PIPING:

1. Routing must be coordinated with other trades to avoid conflict of space use.
2. All horizontal and vertical runs of tubing shall be securely supported and/or fastened to prevent sagging. No sharp bends or kinks will be permitted. Piping and manifolds to be kept high as practicable to avoid trapping suction lines.
3. After lines have been run, all sleeves including sleeves through refrigerator bodies shall be, caulked and made water-tight using Permagum, Pecora or equivalent material.
4. Connections in piping shall be accomplished using sweat fittings except at easily accessible valves and controls where flared fittings may be used.
5. Cap all piping until final connections are made.
6. Refrigerant pipe shall be type "L" all hard drawn seamless copper tubing with silver soldered joints.
7. Piping within walk-in compartments shall be finished with Chromotone paint.
8. All lines outside of refrigerated compartments shall be insulated the entire length from evaporator to the condensing unit with 3/8" thick Armstrong "Armaflex", or accepted substitute. Group insulation of lines is not permitted.
9. Provide drain line heaters wired for evaporator line voltage in all freezer compartments.

C. SYSTEM COMPONENTS:

1. Each system shall consist of refrigerant, Type "L" piping, liquid & suction line stop valves, evaporator, thermostatic expansion valve, heat exchanger, liquid line solenoid valve, filter-drier, liquid indicator, vibration eliminator and condensing unit.
2. Temperature of refrigerated compartments shall be controlled by means of a thermostat wired to actuate a solenoid valve in the liquid line.
3. Provide and install all hangers for evaporator coils as required.
4. Refrigerant shut-off valves in the refrigerant piping shall be Henry, or accepted substitute, for line sizes 7/8" O.D. and larger and packless diaphragm type for smaller sizes.
5. Expansion valves shall be Sporran, or accepted substitute, and placed in the liquid line at the point where line enters the evaporator.
6. Filter-Drier shall be Sporran, or accepted substitute.
7. Sight-glass shall be Sporran, or accepted substitute, and placed in the liquid line.
8. Solenoid valves shall be Sporran type with manual lift stem, or accepted substitute, and placed in the liquid line with room thermostat.

D. TESTING:

1. Lines shall be blown out with dry nitrogen prior to making final connections.
2. Accomplish pressure test to 150 pounds (or higher if required by code).
3. Evacuate system with a vacuum pump for a period of 24 hours. Break vacuum with refrigerant to 0 PSIG, re-establish vacuum and charge with refrigerant for operation. Run operational check for 3 days.

2.5 PRE-FABRICATED WALK-IN COOLERS & FREEZERS

A. PANELS:

1. Pre-fabricated modularized sectional-constructed panels with a 4" thick core of rigid urethane "foamed in place" insulation. Urethane to bind tenaciously to interior and exterior metal pans to form a rigid structurally sound wall without the use of any wood support members. Slab urethane, polystyrene, high-density rails or wood shall not be acceptable in any panel including doors, walls and ceilings. "U" Factor shall not exceed .035. Finish to be 20-gauge stainless steel exposed exterior. Interior walls shall be 0.35

stucco embossed aluminum, interior ceiling shall be 0.35 aluminum with white acrylic finish, and non-exposed exterior shall be 26 ga. Galvanized steel. Overall height to be 8'-6-1/4" high.

2. Panel joints shall be tongue and groove with flexible double bubble vinyl gasket foamed attachment to the flange of the metal skins along inside and outside at the abutting interface of each panel joint.
3. Panels shall be joined with cam action hooked locking arms engaging steel rods in adjacent panel with a minimum of three locks on each vertical joint.
4. Ceiling panels to be 5" thick core of rigid urethane "foamed in place" insulation with a U factor of .028.

B. INTERIOR PARTITIONS:
1. When required, shall be of same construction as the perimeter panels.

C. FLOORS:
1. Pre-fabricated Floor: When required, to be constructed of insulated modularized panels made to withstand loads up to 700 pounds per square foot and with .100 aluminum foamed-in-place treadplate wearing surface. .100 aluminum treadplate reinforced ramps at each door.
2. Built-in insulated floors: Provide floor screeds with gaskets when the building floor at walk-in locations has been properly insulated and fitted with redwood breakers. Floor Screeds to be furnished for all wall panels and be secured and sealed to the building floor. Provide for depressed subfloor membrane and insulation assembly as per detail drawing including the following:

Apply to clean, smooth an level subfloor asphalt emulsion (ASTM D1187 claytype). Cover with Alumiseal Zero Perm vapor barrier (0.00 perm as determined by ASTM E96-80) joints lapped 6 inches minimum, and flashed up sides of recess.

Install 2 layers of 2" thick rigid urethane boardform same density and conductivity as panel insulation, joints shall be staggered.

Apply 15 pound protective felt strip over insulation, flashed up the sides of the wall panels the height of the cove base, with joints lapped 6 inches minimum.

D. COVED BASE:
1. When Pre-fabricated floors are specified, provide 18 gauge S/S Coved Base at all exterior walls.
2. When Walk-ins are erected on built-in insulated building floors, provide 18 gauge S/S Coved Base at all interior walls and exposed exterior walls when quarry tile coved base is not provided as part of the building floor.

E. LISTINGS: Walk-Ins shall be listed with U.L. and NSF and bear their labels. Additional each compartment shall bear a label indicating "Class 1-Insulated panel as certified by an independent testing laboratory" to have surface burn spread25 or less determined by ASTM E-84.

F. DOORS:
1. Doors are to be in-fitting flush-type with:
   a. Clear Opening of 36" X 78".
   b. 15" X 20" Tri-Pane glass vision panel with heater wire full perimeter.
   c. Replaceable dual-blade adjustable rubber wiper gasket.
   d. Kason model 58 (padlock hole) keyed latch with inside release.

e. Kason No. 1256 cam-lift chrome plated hinges. (three per door)
f. Bellows type gasket with vulcanized corners and continuous magnetic core.
g. Heater wires in perimeter of door. Pre-wire to electric splice box. Non exposed electrical in both cooler and freezer doors.
h. 36" high kickplate of 1/8" diamond treadplate on interior and exterior door and jamb.
i. Adjustable hydraulic arm door closer, with hold open feature.\
j. Front, back and edges of door(s) shall be clad with 20 gauge #304 stainless steel. Sheet metal joints of door shall be heliarc welded, ground smooth and polished.
k. All hardware shall be mounted with reinforced 1/8" steel tapping plates.
l. Interior door bumper bar shall be ¼" x 2" aluminum channel, 3'-0" above finished floor.

G. DOOR FRAME:
1. Door frame to match finish and construction of wall panels and be fitted with:
a) Kason No. 1830 two-way heated pressure relief ventilator port (In freezers only).
b) Kason four foot fluorescent fixture No. 1810F00048.
c) Factory install and wire interior and exterior companion 3-way and or 4-way AC press-switches, where indicated, mounted in "FS" boxes adjacent to latch side of door opening. Switch covers shall be neoprene, weatherproof press-switch with embedded red plastic pilot light. Interior red light shall be constant burning and exterior indicating lights are on. Rigid UL listed conduit and wiring shall be run within insulated wall panel. Conduit shall be terminated with "EI" seal off at exterior of roof panel. Only conduit and wiring within wall panel. Including boxes, light fixture, switches and cover plates, shall be furnished as part of this section .
d) Exterior flush dial thermometer 2 ½".
e) Extruded Aluminum threshold and heater wire channel with 12 gauge stainless steel threshold.
f) All hardware shall be 3/16" stainless steel machine screws with nyloc, drilled and tapped.
g) Door casing raised ¼" an 4 inches wide at sides and head, clad with 18 gauge stainless steel.

H. CLOSURE PANELS: When open spaces occur between top of walk-in and building finished ceiling, and/or between walk-in walls and building walls, close openings with 20 gauge stainless steel closure panels or trim to match exterior walls of walk-ins.

2.6 MILLWORK FABRICATION

A. STANDARDS
1. Construction and installation of all millwork shall be as indicated on the drawings and shall conform to the requirements of all Architectural Woodwork Institute Standards of "custom grade" work.

B. MATERIALS
1. Millwork and materials shall conform in all respects to codes for fire retardant treatments.
2. Unexposed wood shall be Grade B Red Gum, Yellow Poplar, Birch or other suitable hardwood standard with the mill shop. Plywood shall be Douglas Fir or Birch of the thickness indicated on the drawings or as required, good one or both sides as conditions require. Exposed faces shall be surfaced with a medium density phenolic overlay. Hardwood, plywood, particleboard core, good one or both sides as required. Shall have face veneers of the species and match indicated on the drawings. Moldings, trim, solid hardwood exposed to view, etc. shall be of the shapes and sizes indicated on the

drawings. Birch shall be plain sawn and oak shall be plain sawn "Red Oak" unless otherwise indicated. Plastic laminate for cabinetwork shall be Formica, Nevamar, or as approved. All materials shall be laminated to close-grained plywood such as birch or douglas fir of selected smooth sanded stock to insure a ripple free surface. Top sheet shall be placed on and over finished edge. Millwork that abuts exterior walls shall be back primed.

2.7 EXISTING EQUIPMENT

A. UTILITY CONNECTIONS:

1. Work of this Section does not include disconnecting or reconnecting of plumbing, electrical or mechanical services from and/or to the existing food service equipment.
2. Disconnecting and reconnecting Work is to be performed by the respective trades per Paragraph 1.1B or the Food Service Equipment Specifications.

B. REMOVAL & STORAGE:

1. Remove and store at a location as directed, for the duration of the Construction Phase, all equipment scheduled for re-use.

C. EQUIPMENT CONDITION:

1. Existing Equipment scheduled for re-use has been inspected and found to be in good working order. If this Contractor finds any concealed damage or other conditions detrimental to re-use during the process of removing and reconditioning, he shall notify the Owner and/or General Contractor of his findings.

D. RECONDITIONING:

1. Steam clean all grease coated or food encrusted items of equipment.
2. Perform minor surface repairs, reweld, grind & polish broken welds, replace broken or missing small parts such as knobs and repaint all damaged painted surfaces with paint matching original.

PART 3 - EXECUTION

3.1 EXAMINATION

A. INSPECTION:

1. Study the contract drawings and specifications with regard to the work as shown and required under this Section so as to insure its completeness.
2. Examine surfaces and conditions to which this work is to be attached, or applied, or occupy . Starting on the work shall imply acceptance of the surfaces and conditions to perform the work as specified.
3. Verify by measurements taken at the job site, those dimensions affecting the work. Bring field dimensions which are at variance with those on the approved shop drawings to the attention of the Architect. Obtain decision regarding corrective measures before the start of fabrication or installation.
4. Coordinate equipment provided and all utility requirements with respective drawings and specifications to assure proper rough-in, utility services and conformance to applicable code requirements.
5. Cooperate in the coordination and scheduling of the work of this Section with the work of other sections so as not to delay job progress.

3.2 INSTALLATION

A. GENERAL:

1. Install all equipment in strict accordance with manufacturer's directions and recommendations by skilled mechanics of trades generally associated with individual items. Secure and seal all items in place as shown on the drawings.

2. Provide competent field representative to be present to advise the respective trades (Such as utility rough-in work and hook-up), and verify size and location of all concealed utility work before it is covered.

3.3 PROTECTION AND CLEANING

A. PROTECTION:

1. Protect the installed work using adequate and suitable means, during and after installation and until accepted by Owner.
2. Perform all final adjustments just prior to final inspection.

B. REPAIR:

1. Surfaces which become damaged, marred, scratched, abraded or are not sound shall be repaired or removed and replaced, as determined by the Owner.

C. CLEANING:

1. Clean surfaces of grime, dust and general construction dirt and polish all equipment prior to final inspection and acceptance.

3.4 TESTING AND REGULATING

A. GENERAL:

1. Test, regulate and prove to the Owner or his representative that all equipment is operating properly.

B. START-UP:

1. During testing and start-up, the Manufacturer's Representative for each item of standard manufacture shall be present and shall instruct the Owner's personnel in proper operation, maintenance and safety procedures.

3.5 SCHEDULE OF EQUIPMENT

A. ITEM SPECIFICATIONS:

1. Refer to Equipment Schedule on Drawings.
2. Item Equipment Numbers correspond to equipment item numbers on the drawing plans, elevations and details. Item Specifications describe equipment desired and required for this project.
3. Requests submitted in accordance with requirements for Substitutions or Prior Approvals will be governed equal by comparison to standard specified manufacturer's published specifications in regard to sizes, capacities, function, finish and project compatibility of utility sizes and characteristics.

ITEM 1 - REACH-IN FREEZER (1 REQ'D)

True Mfg. - General Foodservice Model STG2F-2S-HC
SPEC SERIES® Freezer, reach-in, two-section, -10°F, (2) stainless steel doors with locks, cam-lift hinges, digital temperature control, (6) gray shelves, LED interior lights, stainless steel front, aluminum sides, aluminum interior, 5" castors, R290 Hydrocarbon refrigerant, 1-1/4 HP, , cULus, UL EPH Classified, Made in USA, ENERGY STAR®

Accessories:

1 ea	7 year compressor warranty, 6 years parts warranty, 5 year labor warranty
1 ea	Left door hinged left, right door hinged right
1 ea	(3) vinyl shelves & shelf supports standard per section
1 st	5" castors (set of 4)

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet

utility requirements listed on rough-in plans.

ITEM 2 - WORK TABLE, STAINLESS STEEL TOP (1 REQ'D)
Advance Tabco Model KSS-305
Work Table, 60"W x 30"D, 14 gauge 304 stainless steel top with 5"H backsplash, 18 gauge stainless steel adjustable undershelf, stainless steel legs with stainless steel bullet feet, NSF

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 3 - COFFEE BREWER (1 REQ'D)
FETCO Model CBS-2242-NG
Extractor NG™ Series Coffee Brewer, twin, 1.0 gallon capacity, LED touchscreen interface, brew status indicator light, ECO mode, USB plug-in feature, manual hot water service, stainless steel brew basket, 2 x heater, 2+G wires, 25.5 max amp draw, NO CORD, 15 gallons per hour, cULus, NSF

Accessories:
1 ea Circuit board: 3 year parts & 1 year labor warranty
1 ea Electro-mechanical parts: 2 year parts & 1 year labor warranty
1 ea All other parts: 1 year parts & 1 year labor warranty
4 ea Model D448 L4D-10 LUXUS® Thermal Dispenser, 1.0 gallon, Freshness Timer®, Volume Indicator™, vacuum insulated, flip & hide fill-through lid, base with built-in handles and drip tray
1 ea 1 year parts warranty

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 4 - COFFEE TEA BREWER (1 REQ'D)
FETCO Model TBS-1221-S
Extractor® Plus Series Single Station Tea Brewer, 2.66 gallon tank, 18 gallons per hour, high-volume batch brewing, pre-programmed, digital touch pad operation, USB, fits iced tea dispensers (Not included), heater, , cULus, NSF

Accessories:
1 ea Circuit board: 3 year parts & 1 year labor warranty
1 ea Electro-mechanical parts: 2 year parts & 1 year labor warranty
1 ea All other parts: 1 year parts & 1 year labor warranty
2 ea Model D082 ITD-1235 Iced Tea Dispenser, 3.5 gallon, full coverage lid, large welded handle with flat surface, slim body design, drip resistant faucet, built-in carry handle, stainless steel finish

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 5 - ICE MAKER, CUBE-STYLE (1 REQ'D)
Manitowoc Model IYT0620A
Indigo NXT™ Series Ice Maker, cube-style, air-cooled, self-contained condenser, 22"W x 24-1/2"D x 21-1/2"H, production capacity up to 575 lb/24 hours at 70°/50° (465 lb AHRI certified at 90°/70°), easyTouch display with 13 different language options, date/time stamp display, automatic reminder/alert icon, one touch asset information, automatic detection of accessories, continuous operating status, programmable

production options (time, weight, day or night), one touch cleaning with displayed instructions, Alpha-San anti-microbial protection, acoustical ice sensing probe, self-diagnostic technology, DuraTech™ exterior, half-dice size cubes, R410 refrigerant, NSF, cULus, CE, ENERGY STAR®

AccessoireS:
1 ea 3 year parts & labor (Machine), 5 year parts & labor (Evaporator), 5 year parts & 3 years labor (Compressor)

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 6 - ICE BIN FOR ICE MACHINES (1 REQ'D)
Follett Products, LLC (Middleby) Model 425-30
Ice bin, slope front, 30" wide, 430 lb. bin storage, stainless steel front and sides, bin interior includes polyethylene-lined walls & stainless steel bottom, stainless top is custom cut for ice machine(s), includes 6.00" (15.24 cm) plastic adjustable legs

Accessories:
1 ea 3 years parts and labor for corrosion repair for useful life of the product; 2 years parts and labor on all other integral components

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 7 - WATER FILTRATION SYSTEM, FOR ICE MACHINES (1 REQ'D)
3M Purification Model ICE145-S
(5616204) 3M™ Water Filtration Products Water Filter System, with gauge, 14-7/8"H x 5-1/16"D, valve-in-head, high turbidity water, single vessel, 1/4-turn shut off valve, max pressure of 125 psi at 100°F, 3 micron, 2.1 gpm flow rate, 25,000 gallons capacity, for sediment, chlorine taste & odor, scale, includes: (1) integral mounting bracket and (1) o-ring seal cartridge filter, 3/8" FNPT connections, NSF certified

Accessories:
1 ea Model HF45-S (5613309) 3M™ Water Filtration Products Replacement Cartridge, large diameter, 3 micron, 2.1 gpm flow rate, 25,000 gallons capacity, reduces sediment, chlorine taste & odor, scale inhibitor for ICE145-S (5616204), NSF certified

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 8 - WALK-IN COOLER (1 REQ'D)
American Panel Corporation Model Custom Pre-Fabricated Unit
Provide per plans with all labor, material, equipment, and tools required for the complete installation of modular foamed panel pre-fabricated cold storage rooms of size and shape as shown on plan and specified herein and in full compliance with NSF-7 2004. Size and shape per plan and field verified conditions.

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 9 - COOLER EVAP COIL (1 REQ'D)
American Panel Corporation Model BEL0060BS6AM
Low profile blower coil to maintain 35 degree operation with EC motors. See refrigeration shop drawing for specification and detail.

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 10 - COOLER CONDENSER (1 REQ'D)
American Panel Corporation Model FFAM-A08Z-CFV-075
Roof mounted air cooled unit with weather proof housing. Provide with line sets, timers, valves and components for a complete and operable system. See walk-in submittal drawing for specification and detail.

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 11 - WIRE SHELVING UNIT (4 REQ'D)
Metro Model EPOXY
Super Adjustable Super Erecta® Starter Shelving Unit, (4) posts, Metroseal 3™ epoxy-coated corrosion-resistant finish with Microban® antimicrobial protection, KD, NSF. See FS Plan for size and configuration.

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 12 - BUN / SHEET PAN RACK (2 REQ'D)
New Age Model 1331
Bun Pan Rack, mobile, full height, end loading, open sides, accommodates (20) 18" x 26" pans, slides on 3" centers, all welded aluminum construction, (4) 5" platform casters, NSF, Made in USA

Accessories:
2 ea Lifetime warranty against rust & corrosion, 5 year workmanship and material defects warranty
2 ea 5" platform type casters

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 13 - WIRE SHELVING UNIT (3 REQ'D)
Metro Model CHROME
Super Adjustable Super Erecta® Starter Shelving Unit, (4) posts, chrome plated finish, KD, NSF. See FS Plan for size and configuration.

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 14 - MICROWAVE OVEN, SHELF (1 REQ'D)
Advance Tabco Model MS-18-24
Microwave Shelf, wall-mounted, 24"W x 18"D, stainless steel, NSF

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 15 - MICROWAVE OVEN (1 REQ'D)
ACP Model RCS10TS
Amana® Commercial Microwave Oven, 1.2 cu. ft. capacity, medium volume, 4-stage cooking, (5) power levels, (100) memory settings, braille touch pads, non-removable air filter, side hinged door with tempered glass, accommodates 14" plate, stainless steel interior & exterior, 15 MCA, (total), , cETLus, ETL-Sanitation

Accessories:
1 ea 3-year limited warranty (1 year full)

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 16 - HEATED CABINET (1 REQ'D)
Alto-Shaam Model 750-S
Halo Heat® Low Temp Holding Cabinet, on/off simple controller with adjustable thermostat, indicator light, capacity (10) 12" x 20" pans, (2) chrome plated side racks, (3) wire shelves, stainless steel exterior, 2-1/2" casters; 2 rigid, 2 swivel with brakes, EcoSmart®, cULus, UL EPH ANSI/NSF 4, CE, IPX3, TUV-NORD, EAC, N11942

Accessories:
1 ea NOTE: Subject to Manufacturer’s Terms & Conditions. See Documents Section
1 ea 5 ft. cord
1 ea Solid door, hinged on right
1 st Model 5027133 Casters, 3-1/2" (89mm), plate, (2) rigid, (2) swivel with brakes

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 17 - SPARE NUMBER

ITEM 18 - PREP TABLE W/SINK (1 REQ'D)
Custom Fabricated Stainless Steel
14 gauge 304 stainless steel top with (1) 20” x 20” x 14” fully welded sink bowl, 18 gauge adjustable stainless steel undershelf, stainless steel legs & adjustable bullet feet, NSF. Provide with splash mount faucet and leverwaste with support bracket. Provide with ¼” S/S cutting board supports welded to sink bowl for 1” thick white poly cutting board inserts to sit flush when in use. Provide with S/S cutting board storage brackets, S/S legs and undershelves per plans and elevations.

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans

ITEM 19 - SHELVING, WALL MOUNTED (2 REQ'D)
Advance Tabco Model WS-12-108-16
Shelf, wall-mounted, 108"W x 12"D, 1-5/8" bullnose front edge, 1-1/2"H rear up-turn, 16/304 satin finish stainless steel, NSF (units 84" & longer have (3) support brackets)

Accessories:
2 ea Model TA-60 Modification to reduce length and/or width of shelf

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 20 - BLENDER, BAR (1 REQ'D)
Vitamix Model 036019-ABAB
The Quiet One® Twist Lock Blender (VM0145), countertop, 48 oz. (1.4 liter) capacity, clear Tritan™ BPA free Advance® container, 24-1/2"H with lid open, stackable, removable compact twist lock cover, (6) touch control buttons with (34) program options, includes: Advance® blade assembly & lid, 3-peak HP, , RoHs compliant, CE, cULus, NSF

Accessories:
1 ea 3 years warranty on motor base parts & 1 year warranty on labor

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 21 - FOOD PROCESSOR, BENCHTOP / COUNTERTOP (1 REQ'D)
Robot Coupe Model R301UDICE
D Series Combination Food Processor, 3.7 liter stainless steel bowl with handle, continuous feed kit with kidney shaped & cylindrical shaped hoppers, includes: (1) "S" blade (27286), (1) 2mm grating disc (27577), (1) 4mm slicing disc (27566), (1) 10mm dicing kit (27114), on/off & pulse switch, single speed, 1725 RPM, 2 HP, , cETLus, ETL-Sanitation

Accessories:
1 ea 1 year parts & labor warranty
1 st Model SP5DISC SP5Disc, (5) disc package includes: (1) 1/4" grating disc, (1) 1/4" x 1/4" julienne disc, (1) 5/64" julienne disc, (1) 1/32" slicing disc, (1) 1/4" slicing disc
1 ea Model 107812 Disc Holder, wall mount, (4) stainless steel hooks, holds (16) small discs or (8) large discs

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 22 - INGREDIENT BIN (2 REQ'D)
Cambro Model IBS20148
Ingredient Bin, mobile, 21 gallon capacity, molded polyethylene with sliding cover, scoop holder included (scoop sold separately), (4) 3" heavy duty casters (2 front swivel, 2 fixed), with bin securely attached to base plate, white with clear cover, NSF

Accessories:
2 ea Model SCP12CW135 Camwear® Scoop, 12 oz., polycarbonate, clear, NSF

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 23 - PLANETARY MIXER (1 REQ'D)
Globe (Middleby) Model SP08
Planetary Mixer, 8 qt., countertop model, 3-speed (fixed), gear-driven transmission, front-mounted touchpad controls with 15-minute digital timer, safety interlocked bowl lift, thermal overload protection, includes: polycarbonate bowl guard with chute, stainless steel bowl & whip, aluminum beater & spiral dough hook, cast aluminum body, 1/4 HP, cord, , NSF, cETLus (Ships within 1-2 days)

Accessories:
1 ea 2 year parts & labor warranty (1 year parts only warranty on agitator and hub accessories, no labor provided) (excludes wear items)

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 24 - HAND SINK (2 REQ'D)
Advance Tabco Model 7-PS-58
Hand Sink, wall mounted with skirt, 9" wide x 9" front-to-back x 5" deep bowl, Deep Drawn™ sink bowl, 20 gauge 304 stainless steel, welded 7-3/4" H side splashes, heavy duty splash mounted faucet, knee valve, 1-1/2" flat-top strainer, keyhole wall mount bracket, NSF, cCSAus

Accessories:
2 ea Model K-08 Low-flow aerator 0.5gpm
2 ea Model K-425 Thermostatic Mixing Valve
2 ea Model 7-PS-10 P-trap, heavy duty, 1-1/2", 17 gauge

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 25 - SPARE NUMBER

ITEM 26 - WORK TABLE, STAINLESS STEEL TOP (1 REQ'D)
Advance Tabco Model TKSS-363
Work Table, 36"W x 36"D, 14 gauge 304 stainless steel top with 5"H backsplash, stainless steel legs with side & rear crossrails, adjustable stainless steel bullet feet, NSF

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 27 - SPARE NUMBER

ITEM 28 - SPARE NUMBER

ITEM 29 - SOILED DISHTABLE W/SCRAP SINK, (1 REQ'D)
Custom Fabricated Stainless Steel, 304 14 ga S/S construction, straight design with 20" x 20" x 7" fully welded sink bowl with perforated scrap basket and rack glides. S/S legs and cross rail support base, 10" back splash.

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 30 - DISHTABLE SORTING SHELF (1 REQ'D)
Advance Tabco Model DT-6R-11
Sorting Shelf, wall mounted, traditional design, 22"W, accommodates (1) full size dish rack, solid end brackets, stainless steel, NSF

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 31 - TRASH RECEPTACLE, INDOOR (1 REQ'D)
Rubbermaid Commercial Products Model FG354060GRAY
Slim Jim® Container, 23 gallon, 22"W x 11"D x 30"H, with venting channels, molded-in handles, general purpose waste, open type without lid, high-impact plastic construction, gray, Made in USA

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 32 - PRE-RINSE FAUCET ASSEMBLY (1 REQ'D)
Fisher Model 22100
Pre-Rinse Assembly, 8" adjustable centers, wall-mounted mixing valve, with spring action flexible gooseneck, with Ultra-Spray™/PLUS spray valve (1.15 gallons per minute @ 60 PSI), with wall bracket

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 33 - DISPOSER (1 REQ'D)
Salvajor Model 200-SA-6-ARSS
Disposer, Sink Assembly, 6-1/2" sink collar, 2 Hp motor, start/stop push button, drain/flush/time delay, automatic reversing & water saving ARSS control, includes fixed nozzle, chrome plated vacuum breaker, solenoid valve, sink stopper & flow control, heat treated aluminum alloy housing, UL, CSA, CE

Accessories:
1 ea Model 980105 Mounting bracket for ARSS-2, ARSS, ARSS-LD & WSP
1 ea Model LSA8 Disposer support leg, for 3/4 HP - 2 HP disposers
1 ea Model DP Stainless steel dejamming prong

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 34 - DISHWASHER, DOOR TYPE, VENTLESS (1 REQ'D)
Hobart Model AM16VLT
Ventless Dishwashing Machine, tall chamber (27”), door type, energy recovery, high temp sanitizing, (field convertible to single phase), internal condensing system, 40 racks/hour, straight-thru or corner installation, user-friendly smart touchscreen controls, Wi-Fi connectivity with SmartConnect app,Sense-A-Temp™ booster, electric tank heat, X-shaped wash arms, scrap screen and basket, door actuated start, door lock, stainless steel tank, tank shelf, chamber, trim panels, frame & feet, cULus, NSF, ENERGY STAR®. Factory Startup - Free for installations within 100 miles of a Hobart Service Office during normal business hours with appropriate notice; installation beyond 100 miles will be quoted by Service.

Accessories:
1 ea 1-Year parts, labor & travel time during normal working hours within the USA
1 ea Model DWT2-AM16 Drain water tempering (dual valve) kit with Pumped Drain Air Gap
1 ea Model ACC-INSTALL-HOB Accessory Installation
1 ea Model WTRHAMARREST-AM16 Water Hammer Arrestor – Assembly includes ¾” brass pressure regulator, pressure gauge, shock arrestor and garden hose adapter

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 35 - S/S WALL FLASHING (1 LOT REQ'D)
Custom Fabricated Stainless Steel
304 18 ga S/S construction from cove base to ceiling with "T" trim strip moldings.

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 36 - CLEAN DISH TABLE W/ 3 COMP SINK (1 REQ'D)
Custom Fabricated Stainless Steel
Fabricated Sink, 3-compartment, 24" right & left drainboards, bowl size 18" x 24" x 14" deep, 14 gauge 304 stainless steel, 3" sanitary rolled edge, 10" back splash, 8" OC faucet holes, stainless steel legs with 1" adjustable stainless steel bullet feet. Provide with faucet and lever waste with overflow and support brackets, NSF.

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 37 - SPARE NUMBER

ITEM 38 - SPARE NUMBER

ITEM 39 - POT RACK (1 REQ'D)
Advance Tabco Model SW-84
Pot Rack, wall-mounted, double bar design, 84"W x 12"D, constructed of 1/4" x 2" stainless steel, includes: (18) plated double pot hooks, NSF

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 40 - WIRE SHELVING UNIT (1 REQ'D)
Metro Model CHROME
Super Erecta® Starter Shelving Unit, (4) posts, chrome plated finish, KD, NSF. Provide with casters (2 locking). See FS Plan for size & configuration.

Accessories:
2 ea Model 5M Quick Ship - Super Erecta® Stem Caster, swivel, 5" dia., 1-1/4" face, 200 lb. capacity, resilient rubber flat wheel tread, includes bumper
2 ea Model 5MB Quick Ship - Super Erecta® Stem Caster, swivel (with foot operated brake), 5" dia., 1-1/4" face, 200 lb. capacity, resilient rubber flat wheel tread, includes bumper

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 41 - SPARE NUMBER

ITEM 42 - SPARE NUMBER

ITEM 43 - SPARE NUMBER

ITEM 44 - EXHAUST HOOD (1 REQ'D)
Captive-Aire Model 6030ND-2-PSP-F
Exhaust only canopy hood rated for all types of cooking equipment with eyebrow perforated make-up air plenum. Hood shall be wall type with a minimum of four connections for hanger rods. Corner hanging angles have a 5/8" x 1-1/2" slot pre-punched at the factory, allowing hanging rods to be used for quick and safe installation. Exhaust duct collar to be 4" high with 1" flange sized per manufacturer shop drawings with the equipment plans. A double wall insulated front to eliminate condensation and increase rigidity. The insulation shall have a flexural modulus of 475 EI, meet UL 181 requirements and be in accordance with NFPA 90A and 90B. A built-in wiring chase provided for outlets and electrical controls on the hood face and shall not penetrate the capture area or require an external chaseway. See manufacturer shop drawing for specification & detail.

1. Construction shall be type 430 stainless steel with a #3 or #4 polish where exposed. Construction shall be dependent on the structural application to minimize distortion.
2. All seams, joints and penetrations of the hood enclosure to the lower outermost perimeter that directs and captures grease-laden vapor and exhaust gases shall have a liquid-tight continuous external weld in accordance with NFPA 96.
3. The hood shall be ETL Listed as "Exhaust Hood Without Exhaust Damper", ETL Sanitation Listed and built in accordance with NFPA 96.
3. Stainless steel Captrate Solo type baffle filters.
4. Provide stainless steel closure panels from top of hood to building ceiling
5. U.L. incandescent light fixtures and globes shall be installed and pre-wired to a junction box. The light fixtures shall be installed with a maximum of 4’0" spacing on center. Provide with LED light bulb fixture.
6. Mount unit to overhead building structure w/ bottom of hood at 78” above finished floor
7. Removable grease cup for easy cleaning.

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 45 - FIRE SUPPRESSION SYSTEM (1 REQ'D)
Captive-Aire Model TANK
Wet chemical, pre-piped system with gas shut off valve, chrome plated drops where exposed, nozzles, tanks and fuses for a complete and operable system. KEC to provide with all tests & permits with installation.

1. Wet chemical pre-piped system for type I exhaust hoods.
2. System to provide ventilator, duct and surface protection in compliance w/ NFPA and all applicable codes
3. System to be complete with shut-off valves, chrome plated nozzles and exposed piping, cables, conduit, cylinders, pull stations, micro-switch w/ dual contacts and parts of every description for a complete operable system.
4. System to be installed by authorized personnel in accordance w/ UL listing
5. Provide, install and label remote pull station where indicated on plans.
6. Provide complete system including all required permits and testing.

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 46 - ELECTRICAL CONTROL PACKAGE (1 REQ'D)
Captive-Aire Model DCV-21111
Provide with stainless steel utility cabinet. Interlock controls, display screen and interconnections to exhaust system. Coordinate requirements with mechanical fan selections. Refer to manufacturer shop drawings within the FS plan set for specification and details.

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 47 - S/S WALL FLASHING (1 REQ'D)
Custom Fabricated Stainless Steel
304 18 ga S/S construction from cove base to ceiling with "T" trim strip moldings.

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 48 - RANGE, 36", 6 OPEN BURNERS (1 REQ'D)
Imperial (Middleby) Model IR-6-C
Pro Series Restaurant Range, gas, 36", (6) open burners, convection oven, 1/2 HP blower motor, porcelain interior, (3) chrome racks, removable crumb tray, stainless steel front, sides, backguard, landing ledge & kick plate, 6" legs, adjustable feet, 222,000 BTU, NSF, CE, CSA Flame, CSA Star

Accessories:
1 ea Limited one year parts and labor warranty
1 ea Natural gas (must specify elevation if over 2000 ft)
1 ea Stainless steel backguard with shelf standard
1 ea Swivel casters (set of 4) two with brakes, per set
1 ea Quick disconnect & flex hose with restraining device, 3/4" N.P.T. x 48"

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet

utility requirements listed on rough-in plans.

ITEM 49 - TILTING SKILLET BRAISING PAN, ELECTRIC (1 REQ'D)
RATIONAL Model IVARIOPRO L 208/240V 3PH
iVario Pro L Multifunctional Cooking Center, (1) 26 gallon pan,integrated iVarioBoost energy management system, 85° to 480°F temperature range, iZoneControl with up to (4) individually controlled heating zones, iCookingSuite intelligent cooking system, 6-point sensor core temperature probe, AutoLift (baskets and arm required for use), portioned water dispenser, retractable hand shower, Ethernet interface, WiFi enabled, includes stand with plastic feet, 208/CE, ETL, NSF, IPX5

Accessories:
1 ea 2 years parts and labor warranty
1 ea Model CAP Chef Assistance Program, a RATIONAL certified Chef conducts 4 hours/location specialized application training with personnel, no charge
1 ea Model 9999.2221 RCI RATIONAL Certified Installation
1 ea Model 8730.1565US Installation Kit, includes parts for: water connection, electric hardwiring, & copper drain line
1 kt Model 60.74.500 Feet Kit, (4) adjustable stainless steel feet
1 ea Model 60.74.865 Storage Cabinet for Base, open front, (2) compartments, for storing GN accessories
1 ea Model 60.73.349 VarioMobil® Cart, for transporting 12" x 20" hotel pans, height adjustable
1 st Model 87.00.743 Accessory Package, includes: (1) spatula, (1) AutoLift arm, (2) boiling baskets, (1) strainer, (2) pan base rack, & (1) cleaning scrub, for size L
1 ea Model 60.71.643 Scraper 25, spatula, stainless steel

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 50 - COMBI OVEN, GAS (1 REQ'D)
RATIONAL Model ICP 10-FULL NG
(CE1GRRA.0000240) iCombi Pro® 10-Full Size Combi Oven, natural gas, (10) 18" x 26" sheet pan or (20) 12" x 20" steam pan or (10) 2/1 GN pan capacity, (5) stainless steel grids included, intelligent cooking system with (4) assistants; iDensityControl, iCookingSuite, iProductionManager, & iCareSystem, (6) operating modes, (5) cooking methods, (3) manual operating modes, 85° to 572°F temperature range, quick clean, care control, eco mode, 6-point core temperature probe, retractable hand shower, Ethernet interface, Wi-Fi enabled, 152,000 BTU, 208/6 ft. cord, CE, IPX5, cCSAus, NSF, ENERGY STAR-®

Accessories:
1 ea 2 years parts and labor, 5 years steam generator warranty
1 ea Model CAP Chef Assistance Program, a RATIONAL certified Chef conducts 4 hours/location specialized application training with personnel
1 ea Model 9999.2211 RCI RATIONAL Certified Installation
1 ea Model 9999.2110 Commissioning iCombi Gas
1 ea Model 8720.1561US Installation Kit, for gas iCombi
1 ea Model 1900.1154US Water Filtration Single Cartridge System, includes: (1) single head with pressure gauge, R95-CL filter & filter installation kit
1 ea Model 9999.2271 RCI RATIONAL Certified Installation
1 ea Model 1900.1155US Water Filtration Cartridge, replacement
1 ea Model 56.00.562 Care Tabs, bucket of 150 packets
1 ea Model 60.31.087 Stand II Stationary Oven Stand, 26-3/8"H, (14) supporting rails, side panels and top closed, rear panel open, stainless steel construction, for 6- and 10-full size Classic/Pro

Provide and install in location shown on plan and per manufactures recommendations complying

with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 51 - ICE MACHINE (1 REQ'D)
Manitowoc Model IYT1830C
Indigo NXT™ QuietQube Ice Maker, cube-style, air-cooled, designed for remote refrigeration (condensing unit and lines sold separately), 30"W x 24-1/2"D x 29-1/2"H, production capacity up to 1660 lb/24 hours at 70°/50° (1440 lb AHRI certified at 90°70°), DuraTech™ exterior, half-dice size cubes, CVD Technology, NSF, cULus, CE

Accessories:
1 ea Model WARRANTY-ICE-R 3 year parts & labor (Machine), 5 year parts & labor (Evaporator),
1 ea Model CVDT1800 Remote Condensing Unit, air-cooled, for IF-1800C Series (QuietQube), 2-1/2 HP compressor, AHRI, NSF, cULus
1 ea 5 year parts & 3 year labor Compressor warranty
1 ea Model RC50 Tubing, 50 ft. length, for CVDF1400 & CVDF1800 condensing units

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 52 - ICE BIN (1 REQ'D)
Follett Products, LLC (Middleby) Model SG1000S-36
Upright Ice Bin, single door, 990 lb. bin storage capacity, stainless exterior, poly liner, SmartGATE™ ice shield, poly door with PowerHinge, and corrosion-resistant ABS/poly top custom cut for ice machine, includes 82 oz. plastic ice scoop, NSF

Accessories:
1 ea 5 year parts & labor warranty
1 ea Model ABICSHOVEL Ice Shovel, heavy duty poly construction, for single or double door upright bin, and ITS ice transport and storage system

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 53 - WATER FILTER (1 REQ'D)
3M Purification Model ICE195-S
(5616404) 3M™ Water Filtration Products Water Filter System, with shut-off valve & gauge, 23-5/8"H x 5"D, high turbidity water, single vessel, max pressure of 125 psi at 100°F, 3 micron, 5 gpm flow rate, 54,000 gallons capacity, for sediment, chlorine taste & odor, scale, includes: (1) integral mounting bracket and (1) o-ring seal cartridge filter, 1/2" FNPT connections, NSF certified

Accessories:
1 ea Model HF95-S (5613509) 3M™ Water Filtration Products Replacement Cartridge, large diameter, 3 micron, 5 gpm flow rate, 54,000 gallons capacity, reduces sediment, chlorine taste & odor, scale inhibitor (for ICE195-S), NSF certified

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 54 - BACK SERVICE COUNTER (1 REQ'D)
N.I.K.E.C. SUPPLIED & INSTALLED BY G.C.

ITEM 55 - WALL CABINETS (1 REQ'D)
N.I.K.E.C. SUPPLIED & INSTALLED BY G.C.

ITEM 56 - RESIDENTIAL REFRIGERATOR/FREEZER (1 REQ'D)
G.E. Model GNE27JYMFS
N.I.K.E.C. - Supplied and installed by G.C. Confirm specifications with Architectural and ID plans.

ITEM 57 - RESIDENTIAL WALL OVEN/MICROWAVE (1 REQ'D)
G.E. Model PK7800EK/SK
N.I.K.E.C. - Supplied and installed by G.C. Confirm specifications with Architectural and ID plans.

ITEM 58 - DROP-IN SINK (1 REQ'D)
Advance Tabco Model DI-1-168
Drop-In Sink, 1-compartment, 16"W x 14"D front-to-back, 8" deep bowl, Deep Drawn™ sink bowl, 18 gauge 304 stainless steel, includes: deck mounted gooseneck faucet (K-52), & basket drain, NSF

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 59 - RESIDENTIAL RANGE TOP (1 REQ'D)
Wolf Model SRT484CG
N.I.K.E.C. - Supplied and installed by G.C. Confirm specifications with Architectural and ID plans.
Cleanup is a snap as sealed, seamless burner pans contain sloshes and spills. Move pots and pans effortlessly across the continuous cast-iron grates. Stainless-steel island trim. Stainless-steel bezels. Rage top configuration to include (1) 9,200 Btu burner, (1) 15,000 Btu burner, (1) 18,000 Btu burner, (1) 20,000 Btu burner, (1) Infared 16,000 Btu charbroiler, (1) Infrared 15,000 Btu griddle.

ITEM 60 - EXHAUST HOOD (1 REQ'D)
Captive-Aire Model 6030NDI-PSP-F
Exhaust only canopy island hood rated for all types of cooking equipment with eyebrow perforated make-up air plenum. Hood shall be island type with a minimum of four connections for hanger rods. Corner hanging angles have a 5/8" x 1-1/2" slot pre-punched at the factory, allowing hanging rods to be used for quick and safe installation. Exhaust duct collar to be 4" high with 1" flange sized per manufacturer shop drawings with the equipment plans. A double wall insulated front to eliminate condensation and increase rigidity. The insulation shall have a flexural modulus of 475 EI, meet UL 181 requirements and be in accordance with NFPA 90A and 90B. A built-in wiring chase provided for outlets and electrical controls on the hood face and shall not penetrate the capture area or require an external chaseway. See manufacturer shop drawing for specification & detail.

1. Construction shall be type 430 stainless steel with a #3 or #4 polish where exposed. Construction shall be dependent on the structural application to minimize distortion.
2. All seams, joints and penetrations of the hood enclosure to the lower outermost perimeter that directs and captures grease-laden vapor and exhaust gases shall have a liquid-tight continuous external weld in accordance with NFPA 96.
3. The hood shall be ETL Listed as "Exhaust Hood Without Exhaust Damper", ETL Sanitation Listed and built in accordance with NFPA 96.
3. Stainless steel Captrate Solo type baffle filters.
4. Provide stainless steel closure panels from top of hood to building ceiling
5. U.L. incandescent light fixtures and globes shall be installed and pre-wired to a junction box. The light fixtures shall be installed with a maximum of 4’0" spacing on center. Provide with LED light bulb fixture.

6. Mount unit to overhead building structure w/ bottom of hood at 78” above finished floor
7. Removable grease cup for easy cleaning.

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 61 - FRONT SERVICE COUNTER (1 REQ'D)
N.I.K.E.C. SUPPLIED & INSTALLED BY G.C.

ITEM 62 - WINE CELLAR CABINET (2 REQ'D)
Perlick Corporation Model HC24WS4
C-Series Wine Reserve Refrigerator, undercounter, 23-7/8"W x 24"D, self-contained refrigeration, 40°F to 68°F temperature range, (5.3) cu. ft. interior volume, digital thermostat & control, LED interior lighting, (1) hinged door, front vented, self-evaporating condensate pan, galvanized back & base, stainless steel top, sides, & interior, R, NSF, cULus, ETL-Sanitation

Accessories:
2 ea 5 yr. compressor warranty, 1 yr. parts & labor warranty
2 ea Door finish: glass with stainless steel frame
2 ea Door hinged per plan
2 ea Full length, 24", stainless steel grip with chrome endcaps
2 ea Door lock, chrome
2 ea Refrigerator shelving: (2) full extension shelves & floor rack
2 ea Model RS-RK-24R/L Stacking Kit
1 ea Model RED Red Wine temp
1 ea Model WHITE White Wine temp

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 63 - BEER DISPLAY REFRIGERATORS (2 REQ'D)
Perlick Corporation Model HC24RS4
C-Series Refrigerator, undercounter, 23-7/8"W x 24"D, self-contained refrigeration, 34°F to 42°F temperature range, 5.3 cu. ft. interior volume, digital thermostat & control, LED interior lighting, (2) black vinyl-coated full extension shelves (adjustable) & (1) black-vinyl coated floor rack, (1) hinged door, front vented, self-evaporating condensate pan, galvanized back & base, stainless steel top, sides, & interior, R, NSF, cULus, ETL-Sanitation

Accessories:
2 ea 5 yr. compressor warranty, 1 yr. parts & labor warranty
2 ea Door finish: glass with stainless steel frame
2 ea Door hinged per plan
2 ea Full length, 24", stainless steel grip with chrome endcaps
2 ea Door lock, chrome
2 ea No dispensing
2 ea Model RS-RK-24R/L Stacking Kit, for HC24

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 64 - CUTTING BOARD (1 REQ'D)
John Boos Model RA06 Dimensions: 2.25(h) x 30(w) x 23.25(d)
Cutting Board, 30"W x 23-1/4"D x 2-1/4" thick, edge grain construction, Northern Hard Rock Maple, with Oil Finish, hand grips on each end, reversible

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

ITEM 65 - SPARE NUMBER

END OF SECTION

BID LOT 1

NMSU
Demonstration Kitchen

Las Cruces, New Mexico

July 30, 2024

Food Service
Cut Sheet
Manual

Prepared By:

LANDMARK
KITCHEN DESIGN, LLC

landmarkphx.com

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 1 - REACH-IN FREEZER (1 EA REQ'D)

True Mfg. - General Foodservice STG2F-2S-HC

SPEC SERIES® Freezer, reach-in, two-section, -10°F, (2) stainless steel doors with locks, cam-lift hinges, digital temperature control, (6) gray shelves, LED interior lights, stainless steel front, aluminum sides, aluminum interior, 5" castors, R290 Hydrocarbon refrigerant, 1-1/4 HP, 115v/60/1-ph, 9.4 amps, NEMA 5-15P, cULus, UL EPH Classified, Made in USA, ENERGY STAR®

ACCESSORIES

Mfr	Qty	Model	Spec
True Mfg. - General Foodservice	1		7 year compressor warranty, 6 years parts warranty, 5 year labor warranty standard. Please visit www.truemfg.com for specifics standard
True Mfg. - General Foodservice	1		Left door hinged left, right door hinged right standard
True Mfg. - General Foodservice	1		(3) vinyl shelves & shelf supports standard per section
True Mfg. - General Foodservice	1		5" castors (set of 4), standard

BID LOT 1

TRUE MANUFACTURING CO., INC. • U.S.A. FOODSERVICE DIVISION • 2001 East Terra Lane • O'Fallon, Missouri 63366-4434
ph. 636.240.2400 • toll free 800.325.6152 • fax 636.272.2408 • parts fax 636.272.9471 • www.truemfg.com

Project Name	Location		AIA #
Item #	Qty	Model #	SIS #

SPEC SERIES®

REACH-IN SOLID SWING DOOR FREEZERS WITH HYDROCARBON REFRIGERANT

models	STR2F-2S-HC	STA2F-2S-HC	STG2F-2S-HC



STR2F-2S-HC

Exterior	Stainless steel door, front & sides.
Interior	Stainless steel side walls, back, floor, door liner, & ceiling.
Shelving	(1) Interior kit option included per full section, factory installed.

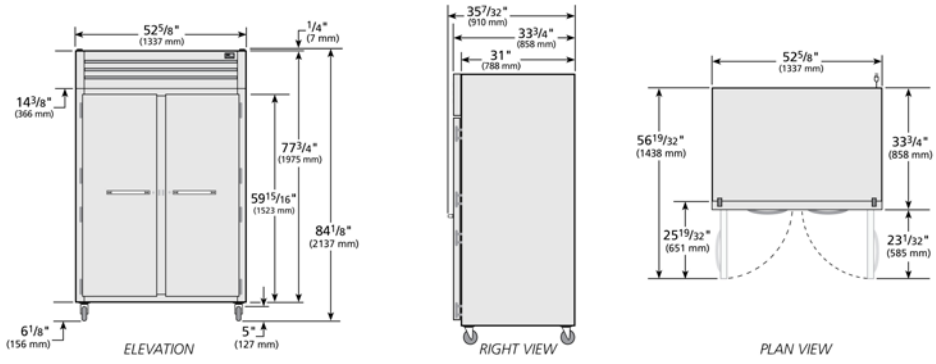
STA2F-2S-HC

Exterior	Stainless steel door, front & sides.
Interior	Aluminum side walls & back. Stainless steel floor & ceiling.
Shelving	(3) Heavy duty, chrome plated, wire shelves per section.

STG2F-2S-HC

Exterior	Stainless steel door & front, with matching aluminum sides.
Interior	Aluminum side walls & back. Stainless steel floor & ceiling.
Shelving	(3) Heavy duty, PVC coated, wire shelves per section.

plan view



SPECIFICATIONS

Dimensions	in.	mm.
Length	52⅝	1337
Depth	33¾	858
Height	77¾	1975
Electrical	**U.S.**	**International**
Horsepower	1¼	N/A
Amps	9.4	N/A
Voltage	115/60/1	
NEMA	5-15P	
Cord Length	9 ft.	2.74 M.

115/60/1
NEMA-5-15R

* Height does not include 6⅛" (156 mm) for castors or 6" (153 mm) for optional legs. Height does not include ¼" (7mm) for system mechanical components.
† Depth does not include 1½ for door handle.

Specifications subject to change without notice.
Chart dimensions are roundedup to the nearest ⅛" (millimeters rounded up to the next whole number).

MADE WITH INNOVATION IN THE USA · 7 YEAR COMPRESSOR WARRANTY USA and Canada · ENERGY STAR · c UL us · natural refrigerant

6/20 Printed in U.S.A.

Approvals

Available at

BID LOT 1

TRUE MANUFACTURING CO., INC. • U.S.A. FOODSERVICE DIVISION • 2001 East Terra Lane • O'Fallon, Missouri 63366-4434
ph. 636.240.2400 • toll free 800.325.6152 • fax 636.272.2408 • parts fax 636.272.9471 • www.truemfg.com

Project Name	Location		AIA #
Item #	Qty	Model #	SIS #

SPEC SERIES®

REACH-IN SOLID SWING DOOR FREEZERS WITH HYDROCARBON REFRIGERANT

models	STR2F-2S-HC	STA2F-2S-HC	STG2F-2S-HC



standard features

REFRIGERATION SYSTEM

- Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
- High capacity, factory balanced refrigeration system that maintains -10°F (-23.3°C) temperatures. Ideal for both frozen foods and ice cream.
- State of the art, electronically commutated evaporator and condenser fan motors. ECM motors operate at higher peak efficiencies and move a more consistent volume of air which produces less heat, reduces energy consumption and provides greater motor reliability.
- Top mounted refrigeration system with evaporator positioned out of food zone to maximize capacity.
- Automatic defrost system time-initiated, temperature-terminated. Saves energy consumption and provides shortest possible defrost cycle.
- Automatic evaporator fan motor delay during defrost cycle.

CABINET CONSTRUCTION

- Insulation - entire cabinet structure and solid door are foamed-in-place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).
- 5" (127 mm) diameter plate castors - locks provided on front set.

DOORS

- Lifetime guaranteed bolt style door locks standard.
- Lifetime guaranteed heavy duty all metal working door handles.
- Positive seal self-closing door with 120° stay open feature. Lifetime guaranteed external cam lift door hinges, four (4) per door section.
- Magnetic door gaskets of one piece construction, removable without tools for ease of cleaning.

SHELVING

- One (1) factory installed interior kit option. Four (4) different interior kits available (see Kit Options). Pilasters and tray slides are factory installed at no charge.

LIGHTING

- LED interior lighting, safety shielded.

MODEL FEATURES

- Exterior digital temperature display, available with either °F or °C .
- Evaporator epoxy coated to eliminate the potential of corrosion
- Curb mounting ready.
- NSF/ANSI Standard 7 compliant for open food product.

ELECTRICAL

- Unit completely pre-wired at factory and ready for final connection to a 115/60/1 phase, 15 amp dedicated outlet. Cord and plug set included.

OPTIONAL FEATURES/ ACCESSORIES

(upcharge & lead times may apply)

- 6" (153 mm) standard legs.
- 6" (153 mm) seismic/flanged legs.
- 6" (153 mm) stainless steel legs.
- Field reversible hinge.
- Additional shelves.
- Stainless back. (STR, STA, STG)
- Security package.

SHELVING KIT OPTIONS

- STR series kits factory installed at no charge. STA & STG series kits field installed, upcharge applies, lead times may apply.
- Kit #1: Nine (9) sets of #1 type tray slides and pilasters (field installed), bottom support of one (1) 18"L x 26"D (458 mm x 661 mm) pan or two (2) 14"L x 18"D (356 mm x 458 mm) pans.
- Kit #2: One (1) set half-section #2 steel rod tray slides and pilasters (field installed), rim support of one (1) 18"L x 26"D (458 mm x 661 mm) pan.
- Kit #3: Six (6) sets of universal type tray slides and pilasters (field installed), bottom support of one (1) 18"L x 26"D (458 mm x 661 mm) pan, two (2) 14"L x 18"D (356 mm x 458 mm) pans or two (2) 12"L x 20"D (305 mm x 508 mm) pans.
- Kit #4: Three (3) chrome shelves 26 5/16"L x 21 9/16"D (669 mm x 548 mm). Optional wall mounted shelf support pilasters (field installed) with four (4) shelf clips per shelf available; adjustable on ½" (13 mm) increments (must order at time of cabinet order).
- Additional kit option components available individually.

3 YEAR PARTS + LABOR 7 YEAR COMPRESSOR WARRANTY
(U.S.A. and Canada only)

METRIC DIMENSIONS ROUNDED UP TO THE NEAREST WHOLE MILLIMETER

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

KCL	Model	Elevation	Right	Plan	3D	Back
	ST( )2F-2S-HC					

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 2 - WORK TABLE, STAINLESS STEEL TOP (1 EA REQ'D)

Advance Tabco KSS-305

Work Table, 60"W x 30"D, 14 gauge 304 stainless steel top with 5"H backsplash, 18 gauge stainless steel adjustable undershelf, stainless steel legs with stainless steel bullet feet, NSF

BID LOT 1

STAINLESS STEEL

WORK TABLES

PREMIUM Series - 5" Backsplash - Undershelf Style



Item #: _____ Qty #: _____

Model #: _____

Project #: _____



Rolled Rim Edges on Front & Splash on Back and Square Side Edges



Featuring as Standard:
"THE PROVEN"
ORIGINAL ADVANCE TABCO
Adjustable Undershelf with Die Cast Leg Clamp

FEATURES:

Top is furnished with a 1 5/8" sanitary rolled rim edge on front, 1 5/8" square side edges, and a 5" splash with a 1" return on the rear side.

24" wide tables supplied with TWO hat channels stud welded to reinforce and maintain a level working surface. 30" and 36" wide tables supplied with THREE hat channels.

Pre-engineered welded angle adapters insure ease of future drawer installation.

Aluminum die cast "leg-to-shelf" clamp secures shelf to leg eliminating unsightly nuts and bolts. Undershelf is adjustable.

CONSTRUCTION:

All TIG welded. Exposed weld areas polished to match adjacent surfaces.

Entire top mechanically polished to a satin finish.

Top is sound deadened.

Roll formed embossed galvanized hat channels are secured to top by means of structural adhesive and weld studs.

Gussets welded to support hat sections.

MATERIAL:

KSS-SERIES: Stainless Steel Legs & Undershelf

TOP: 14 gauge stainless steel type "304" series.
SHELF: 18 gauge stainless steel.
LEGS: 1 5/8" diameter tubular stainless steel.
1" adjustable stainless steel bullet feet.
Stainless steel gussets.

KLG-SERIES: Galvanized Legs & Undershelf

TOP: 14 gauge stainless steel type "304" series.
SHELF: 18 gauge galvanized steel.
LEGS: 1 5/8" diameter tubular galvanized steel.
1" adjustable plastic bullet feet.
Galvanized steel gussets.

KSS-Series:
Stainless Steel Legs & Undershelf

L	24" Wide	30" Wide	36" Wide
30"	KSS-240	KSS-300	
24"	KSS-242	KSS-302	KSS-362
36"	KSS-243	KSS-303	KSS-363
48"	KSS-244	KSS-304	KSS-364
60"	KSS-245	KSS-305	KSS-365
72"	KSS-246	KSS-306	KSS-366
84"	KSS-247	KSS-307	KSS-367
*96"	KSS-248	KSS-308	KSS-368
*108"	KSS-249	KSS-309	KSS-369
*120"	KSS-2410	KSS-3010	KSS-3610
*132"	KSS-2411	KSS-3011	KSS-3611
*144"	KSS-2412	KSS-3012	KSS-3612

NSF

KLG-Series:
Galvanized Steel Legs & Undershelf

L	24" Wide	30" Wide	36" Wide
30"	KLG-240	KLG-300	
24"	KLG-242	KLG-302	KLG-362
36"	KLG-243	KLG-303	KLG-363
48"	KLG-244	KLG-304	KLG-364
60"	KLG-245	KLG-305	KLG-365
72"	KLG-246	KLG-306	KLG-366
84"	KLG-247	KLG-307	KLG-367
*96"	KLG-248	KLG-308	KLG-368
*108"	KLG-249	KLG-309	KLG-369
*120"	KLG-2410	KLG-3010	KLG-3610
*132"	KLG-2411	KLG-3011	KLG-3611
*144"	KLG-2412	KLG-3012	KLG-3612

*Units 8 ft. and larger are furnished with six (6) legs

Create Your Own Efficient Workstation with the Available Standard Accessories (Visit Section K)

ADVANCE TABCO SMART FABRICATION™ www.advancetabco.com

Customer Service Available To Assist You 1-800-645-3166 8:30 am - 7:00 pm E.S.T.
Email Orders To: customer@advancetabco.com. For Smart Fabrication™ Quotes, Email To: smartfab@advancetabco.com or Fax To: 631-586-2933

NEW YORK Fax: (631) 242-6900
GEORGIA Fax: (770) 775-5625
TEXAS Fax: (972) 932-4795
NEVADA Fax: (775) 972-1578

BID LOT 1

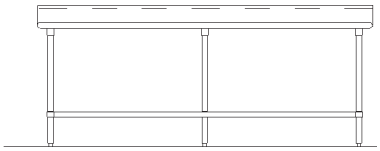
DETAILS and SPECIFICATIONS

ALL DIMENSIONS ARE TYPICAL TOL ± .500”

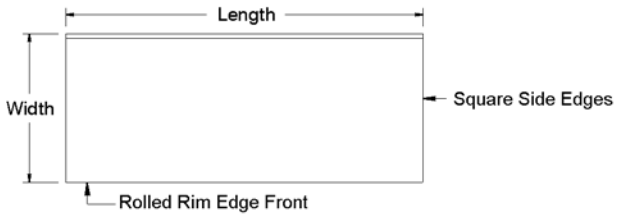
All Units Shipped Unassembled (KD) for Reduced Shipping Costs.

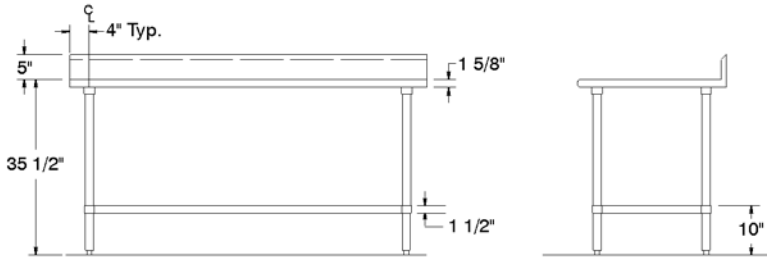
KSS & KLG Series
Undershelf Style
5” Backsplash

Finished size of undershelf = Length minus 5 3/4”
Width minus 5 3/4”



Units 8ft. and larger are furnished with six (6) legs





KSS-Series: Stainless Steel Legs & Undershelf

L	24” Wide	Wt.	30” Wide	Wt.	36” Wide	Wt.
30”	KSS-240	55 lbs.	KSS-300	70 lbs.		
24”	KSS-242	50 lbs.	KSS-302	56 lbs.	KSS-362	86 lbs.
36”	KSS-243	66 lbs.	KSS-303	77 lbs.	KSS-363	92 lbs.
48”	KSS-244	81 lbs.	KSS-304	92 lbs.	KSS-364	101 lbs.
60”	KSS-245	95 lbs.	KSS-305	111 lbs.	KSS-365	121 lbs.
72”	KSS-246	113 lbs.	KSS-306	129 lbs.	KSS-366	142 lbs.
84”	KSS-247	135 lbs.	KSS-307	153 lbs.	KSS-367	169 lbs.
96”	KSS-248	150 lbs.	KSS-308	171 lbs.	KSS-368	189 lbs.
108”	KSS-249	165 lbs.	KSS-309	195 lbs.	KSS-369	260 lbs.
120”	KSS-2410	268 lbs.	KSS-3010	294 lbs.	KSS-3610	315 lbs.
132”	KSS-2411	301 lbs.	KSS-3011	331 lbs.	KSS-3611	358 lbs.
144”	KSS-2412	316 lbs.	KSS-3012	346 lbs.	KSS-3612	373 lbs.

KLG-Series: Galvanized Steel Legs & Undershelf

L	24” Wide	Wt.	30” Wide	Wt.	36” Wide	Wt.
30”	KLG-240	55 lbs.	KLG-300	70 lbs.		
24”	KLG-242	50 lbs.	KLG-302	56 lbs.	KLG-362	86 lbs.
36”	KLG-243	66 lbs.	KLG-303	77 lbs.	KLG-363	92 lbs.
48”	KLG-244	81 lbs.	KLG-304	92 lbs.	KLG-364	101 lbs.
60”	KLG-245	95 lbs.	KLG-305	111 lbs.	KLG-365	121 lbs.
72”	KLG-246	113 lbs.	KLG-306	129 lbs.	KLG-366	142 lbs.
84”	KLG-247	135 lbs.	KLG-307	153 lbs.	KLG-367	169 lbs.
96”	KLG-248	150 lbs.	KLG-308	171 lbs.	KLG-368	189 lbs.
108”	KLG-249	165 lbs.	KLG-309	195 lbs.	KLG-369	260 lbs.
120”	KLG-2410	268 lbs.	KLG-3010	294 lbs.	KLG-3610	315 lbs.
132”	KLG-2411	301 lbs.	KLG-3011	331 lbs.	KLG-3611	358 lbs.
144”	KLG-2412	316 lbs.	KLG-3012	346 lbs.	KLG-3612	373 lbs.

ADVANCE TABCO is constantly engaged in a program of improving our products. Therefore, we reserve the right to change specifications without prior notice.
© ADVANCE TABCO, APRIL 2021

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 3 - COFFEE BREWER (1 EA REQ'D)

FETCO CBS-2242-NG (E2242US-1B230-MA010)

Extractor NG™ Series Coffee Brewer, twin, 1.0 gallon capacity, LED touchscreen interface, brew status indicator light, ECO mode, USB plug-in feature, manual hot water service, stainless steel brew basket, 2 x 3.0kW heater, 208-240v/60/1-ph, 2+G wires, 25.5 max amp draw, 6.0 kW, NO CORD, 15 gallons per hour, cULus, NSF (Use with FETCO D451/D482/D448/D479 - sold separately)

ACCESSORIES

Mfr	Qty	Model	Spec
FETCO	1		NOTE: Pricing and specifications subject to change with or without notice - Please call 1.800.FETCO.99 for confirmation
FETCO	1		Circuit board: 3 year parts & 1 year labor warranty, standard
FETCO	1		Electro-mechanical parts: 2 year parts & 1 year labor warranty, standard
FETCO	1		All other parts: 1 year parts & 1 year labor warranty, standard
FETCO	4	D448	L4D-10 LUXUS® Thermal Dispenser, 1.0 gallon, Freshness Timer®, Volume Indicator™, vacuum insulated, flip & hide fill-through lid, base with built-in handles and drip tray
FETCO	1		1 year parts warranty, standard
FETCO	1	A039	Everpure® In-Line Water Filtration System, includes: filter head, connector hose, cartridge & mounting hardware
FETCO	1	A075	Replacement Water Filter Cartridge, (for A039)

BID LOT 1

LUXUS® 1.0 / 1.5 / 2.0 GALLON THERMAL DISPENSERS AND SERVERS

L4 SERIES



2.0 Gallon

1.5 Gallon

1.0 Gallon

The L4 Series Thermal Dispenser and Servers are designed to keep your coffee service hot, fresh and portable. With the legendary thermal retention properties you'd expect from FETCO, the L4 is equipped with enhanced features that now make it even easier for operators to manage their daily coffee service. Digital liquid-level monitoring and rugged stainless construction make the L4 the perfect self-serve choice for any foodservice segment - Hotels, OCS, C-Stores, Restaurants, Coffee Shops, Cafes, etc.

L4D Thermal Dispensers

L4S Thermal Servers



2.0 Gallon

1.5 Gallon

1.0 Gallon

* Shown with #A147 Server Stand (sold separately)

FETCO® TRUSTED | RELIABLE | QUALITY

BID LOT 1

L4D Series LUXUS® Thermal Dispensers & Servers

The LUXUS® L4D Thermal Dispensers and Servers are designed to retain all the heat generated during the brewing process with very little dissipation. In fact, FETCO thermal dispensers maintain the suggested 180-185°F holding temperature for at least 4 hours and meet or exceed industry standards. This patented technology eliminates the need for an additional heat source, thus saving energy and equipment costs.



L4D Dispenser

With integrated stand and removable drip tray.



L4S Server

Shown with Serving Station with removable drip tray (sold separately).

BID LOT 1

Key Features and Benefits

Integrated Lid Design with Improved Functionality

The integrated lid design features a removable funnel system, pivoting brew cap and front-positioned handle.

- Precision Fit Funnel Assembly keeps moisture and heat from escaping to lock in freshness and aroma
- Brew Cap mounted on lid exterior for easy access
- Forward positioned handle for better maneuverability



Digital Freshness Timer

Four pie-shaped visual indicators that represent how much time (in 15 minute increments) has elapsed since filling.



- Example #1

1 hour 15 mins. elapsed / 80% liquid remaining (represented by 4 filled bars)



*NOTE: Time is reset when dispenser is emptied, removing funnel or when enough liquid is added to increase volume by one level.

Digital Volume Indicator

Digital visual indicator shows how much liquid remains with a series of "V" shape bars representing 20% increments.



- Example #2

2 hours 30 mins. elapsed / 20% liquid remaining (represented by 1 filled bar)



*NOTE: Time is reset when dispenser is emptied, removing funnel or when enough liquid is added to increase volume by one level.

Funnel Construction

Funnel enclosure helps provide additional protection to circuit board, internal battery and display window. Features built-in handle for quick cleaning and maintenance.



Traditional Pull Faucet

Precise control of beverage container filling. Transparent polycarbonate faucet guard keeps containers and cups away from the spout to help prevent cross contamination.



Wrap Stabilizer

Pronounced ledge in molded plastic cover helps prevent graphic "wraps" from sliding up the dispenser body during handling.



Mullti-Face Serving Stations (L4 Servers)

Modular multi-station design in 1, 2 or 3 increments can create a permanent or temporary beverage service on any countertop, meeting room, lobby or food line.



L4D Dispenser / L4S Server | Technical Specifications

BID LOT 1

Measurements

D448	L4D-10 1.0 Gallon LUXUS® Thermal Dispenser				
	Height	Width	Depth	Empty Weight	Filled Weight
Product	21¾" [55.2 cm]	8" [20.3 cm]	12½" [31.7 cm]	8.0 lbs [3.6 kg]	15.9 lbs [7.2 kg]
Shipping	23"	16"	13"	12.0 lbs	–

D449	L4D-15 1.5 Gallon LUXUS® Thermal Dispenser				
	Height	Width	Depth	Empty Weight	Filled Weight
Product	23" [58.4 cm]	9" [22.9 cm]	13¼" [33.6 cm]	10.5 lbs [4.8 kg]	22.4 lbs [10.2 kg]
Shipping	25"	17"	13"	14.0 lbs	–

D450	L4D-20 2.0 Gallon LUXUS® Thermal Dispenser				
	Height	Width	Depth	Empty Weight	Filled Weight
Product	24½" [62.2 cm]	9" [22.9 cm]	13¼" [33.6 cm]	11.5 lbs [4.8 kg]	27.5 lbs [10.2 kg]
Shipping	27"	17"	13"	16.0 lbs	–

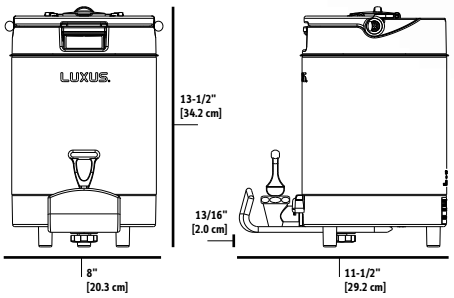
D451	L4S-10 1.0 Gallon LUXUS® Thermal Server*				
	Height	Width	Depth	Empty Weight	Filled Weight
Product	13½" [34.2 cm]	8" [20.3 cm]	11½" [29.2 cm]	5.6 lbs [2.5 kg]	12.4 lbs [5.6 kg]
Shipping	15"	16"	12"	9.0 lbs	–

D452	L4S-15 1.5 Gallon LUXUS® Thermal Server*				
	Height	Width	Depth	Empty Weight	Filled Weight
Product	14¾" [37.4 cm]	9" [22.9 cm]	12½" [31.7 cm]	7.2 lbs [3.3 kg]	17.6 lbs [8.0 kg]
Shipping	16"	17"	13"	10.0 lbs	–

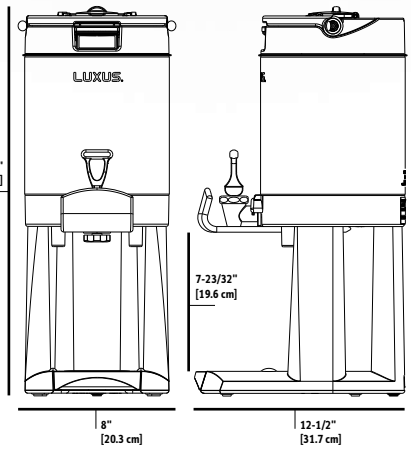
D453	L4S-20 2.0 Gallon LUXUS® Thermal Server*				
	Height	Width	Depth	Empty Weight	Filled Weight
Product	16¹/₁₆" [40.8 cm]	9" [22.9 cm]	12½" [31.7 cm]	8.3 lbs [3.3 kg]	25.0 lbs [8.0 kg]
Shipping	21"	17"	13"	12.0 lbs	–

* Must be used with with "A" series Serving Stations.

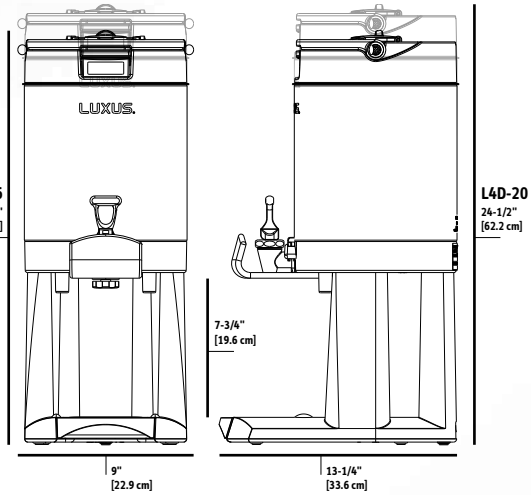
L4S-10



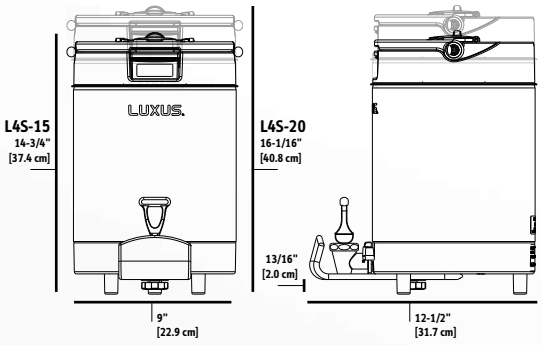
L4D-10



L4D-15/20



L4S-15/20





Customize Your Dispenser

#1071.00030.00	Orange Dispenser Faucet Replacement Handle*
#1071.00031.00	Green Dispenser Faucet Replacement Handle*
#1071.00032.00	Blue Dispenser Faucet Replacement Handle*
#1071.00040.00	Red Dispenser Faucet Replacement Handle*
#Z053	Rear Facing Positioned Digital Display

* Color choice must be specified at time of purchase for no charge

Serving Stations

Serving Stations for L4S-10 Server

#A147	Single Face
#A148	Double Facing
#A149	Triple Facing

Serving Stations for L4S-15/L4S-20 Servers

#A150	Single Face
#A151	Double Facing
#A152	Triple Facing

NOTE: Serving stations work for both L3 and L4 series servers.



Information

fetco.com
info@fetco.com
847.719.3000
1.800.338.2699 USA
847.719.3001
Food Equipment Technologies Co.
600 Rose Road
Lake Zurich, IL 60047
USA

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#RR14004

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 4 - COFFEE TEA BREWER (1 EA REQ'D)

FETCO TBS-1221-S (T1221US-1A117-PN001)

Extractor® Plus Series Single Station Tea Brewer, 2.66 gallon tank, 18 gallons per hour, high-volume batch brewing, pre-programmed, digital touch pad operation, USB, fits iced tea dispensers (Not included), 1.7kW heater, 120v/60/1-ph, 14.7 amps, 1.7 kW, NEMA 5-15P, cULus, NSF

ACCESSORIES

Mfr	Qty	Model	Spec
FETCO	1		NOTE: Pricing and specifications subject to change with or without notice - Please call 1.800.FETCO.99 for confirmation
FETCO	1		Circuit board: 3 year parts & 1 year labor warranty, standard
FETCO	1		Electro-mechanical parts: 2 year parts & 1 year labor warranty, standard
FETCO	1		All other parts: 1 year parts & 1 year labor warranty, standard
FETCO	2	D082	ITD-1235 Iced Tea Dispenser, 3.5 gallon, full coverage lid, large welded handle with flat surface, slim body design, drip resistant faucet, built-in carry handle, stainless steel finish
FETCO	1	A039	Everpure® In-Line Water Filtration System, includes: filter head, connector hose, cartridge & mounting hardware
FETCO	1	A075	Replacement Water Filter Cartridge, (for A039)

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 5 - ICE MAKER, CUBE-STYLE (1 EA REQ'D)

Manitowoc IYT0620A

Indigo NXT™ Series Ice Maker, cube-style, air-cooled, self-contained condenser, 22"W x 24-1/2"D x 21-1/2"H, production capacity up to 575 lb/24 hours at 70°/50° (465 lb AHRI certified at 90°/70°), easyTouch display with 13 different language options, date/time stamp display, automatic reminder/alert icon, one touch asset information, automatic detection of accessories, continuous operating status, programmable production options (time, weight, day or night), one touch cleaning with displayed instructions, Alpha-San anti-microbial protection, acoustical ice sensing probe, self-diagnostic technology, DuraTech™ exterior, half-dice size cubes, R410 refrigerant, NSF, cULus, CE, ENERGY STAR®

ACCESSORIES

Mfr	Qty	Model	Spec
Manitowoc	1	WARRANTY-ICE-SC	3 year parts & labor (Machine), 5 year parts & labor (Evaporator), 5 year parts & 3 years labor (Compressor), standard (nc)
Manitowoc	1		(-261) 208-230v/60/1-ph, 5.9 amps

Manitowoc

INDIGO NXT

iT0620 Ice Cube Machine

iT0620 Ice Cube Machine

Models

☐ IRT0620A ☐ IDT0620A ☐ IYT0620A ☐ IDT0620W ☐ IYT0620W

ENERGY STAR



Indigo NXT Series iT0620
Ice Machine on D420 Bin
*Ice machine and Bin sold separately

Designed for operators who know that ice is critical to their business, the Indigo®w Series ice machine's preventative diagnostics continually monitor itself for reliable ice production. Improvements in cleanability and programmability make your ice machine easy to own and less expensive to operate.

- **Space-Saving Design** – Measures only 16.5" high (42 cm) and 30" wide (76.20 cm) allowing it to fit on top of dispensers when a low ceiling is an issue.
- **easyTouch® Display**- New icon based touch screen takes the guess work out of owning and operating an ice machine.
- **Programmable Ice Production** – Now its super easy to program your ice machine to be off at certain times of the day to save money with fluctuating electrical rates. Also programmable by daily ice production volume and night time programming.
- **Easy to Clean Foodzone** – Hinged front door swings out for easy access. Removable water-trough, distribution tube, curtain, and sensing probes for fast and efficient cleaning. Select components made with AlphaSan® antimicrobial.
- **Intelligent Diagnostics** – Provide 24 hour preventative maintenance and diagnostic feedback for trouble free operation.
- **Acoustical Ice Sensing Probe** – Unique patented technology allows for reliable operation in challenging water conditions and environments.
- **DuraTech™ Exterior** – Provides superior corrosion resistant above stainless steel. Innovative clear-coat resists fingerprints and dirt making it easier to keep clean.
- **Available LuminIce II Virus and Bacteria Inhibitor**- Controls viruses, bacteria, mold and yeast within the food zone to keep the ice machine clean longer. A new sanitation icon lets you know the operational status.
- **Active sense** - Insures consistent ice harvest in all environmental conditions. This software solution works in conjunction with the acoustical ice sensing probe improving reliability and performance.

COMMERCIAL WARRANTY

ICE MAKER	EVAPORATOR	COMPRESSOR
3 YEAR PARTS AND LABOR	5 YEAR	5 YEAR PARTS 3 YEAR LABOR

Ice Machine Electric

115/60/1 standard
(208-230/60/1also available)

Minimum circuit ampacity:
Air-cooled: 12.2, 115v 5.9, 208-230V
Water-cooled: 11.6,-115v, 5.6,-208-230v

Maximum fuse size:
Air-cooled: 20A for 115v, 15A for 208-230v
Water-cooled: 20A, 115v and 15A, 208-230v

Specifications

BTU Per Hour:
5,400 (average),
and 6,300 (peak)

Refrigerant:
R410A CFS - Free
Lowers global warming by 48%

Operating Limits:

- Ambient Temperature Range: 40 to 110 F (4.4 to 43.3 C)
  Water Temperature Range: 40 to 90 F (4.4 to 32.2 C)
- Potable Water Pressure: Min. 20 psi (137.9 kPA) Max. 80 psi (551.1 kPA)
- Condenser Water Pressure: Min. 20 psi (137.9 kPA) Max. 276 psi (1902.95 kPA)

Ice Shape



Dice
⅞" x ⅞" x ⅞"
(2.22 x 2.22 x 2.22 cm)



Half Dice
⅜" x 1⅛" x ⅞"
(.95 x 2.86 x 2.22 cm)



Regular
1⅛" x 1⅛" x ⅞"
(2.86 x 2.86 x 2.22 cm)

CALIFORNIA LOW LEAD QUALIFIED Conforms to NSF-61 Annex G · AHRI CERTIFIED · NSF c UL US LISTED · CE · AQ · ISO 9001:2015 Certification

2110 South 26th Street
Manitowoc, WI 54220

Tel: 1.920.682.0161
Fax: 1.920.683.7589

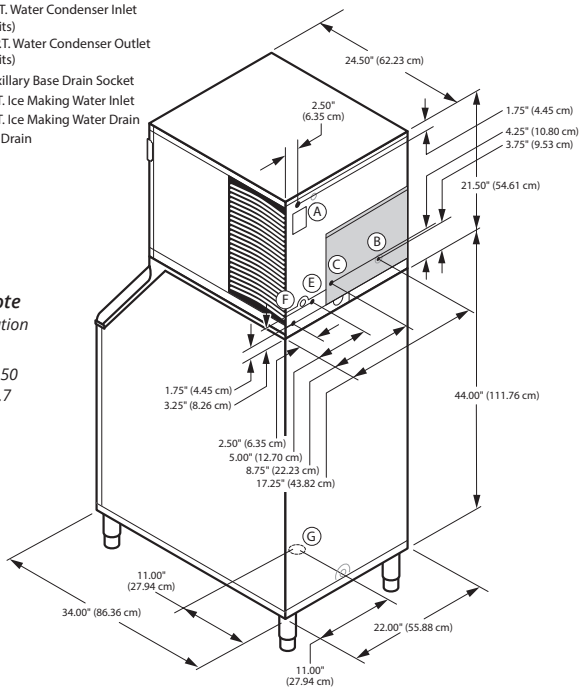
www.manitowocice.com

Manitowoc®

Indigo® NXT™ iT0620 Ice Cube Machine

iT0620 on D420 Storage Bin

Ⓐ Electrical Entrance (2) Options
Ⓑ 3/8" (0.95 cm) F.P.T. Water Condenser Inlet (water-cooled units)
Ⓒ 1/2" (1.27 cm) F.P.T. Water Condenser Outlet (water-cooled units)
Ⓓ 1/2" (1.27 cm) Auxillary Base Drain Socket
Ⓔ 3/8" (0.95 cm) F.P.T. Ice Making Water Inlet
Ⓕ 1/2" (1.27 cm) F.P.T. Ice Making Water Drain
Ⓖ 3/4" (1.91 cm) Bin Drain



Installation Note
Minimum installation clearance:

Top/side: 12" (30.50 cm)Back is 5" (12.7 cm)

Space-Saving Design



	iT0620 D-400	iT0620 D-420
Height	59.50" 151.13 cm	71.50" 181.61 cm
Width	30.00" 76.20 cm	22.00" 55.88 cm
Depth	34.00" 86.30 cm	34.00" 86.30 cm
Bin Storage	365 lbs. 166 kgs.	383 lbs. 174 kgs.

Height includes adjustable bin legs 6.00" to 8.00", (15.24 to 20.32 cm) set at 6.00" (15.24 cm).
Bin capacity is based on 90% of the volume x 33 lbs/ft3 average density of ice.

K00443 bin adapter required for D400 bin. Sold separately

Specifications

	Model	Ice Shape	Ice Production 24 Hours 70°Air/ 50°F Water	Ice Production 24 Hours 90°Air/ 70°F Water	Power Usage kWh/100 lbs. @90°Air/70°F 1 Ph	Potable Water Usage/100 lbs. 45.4 kgs. of Ice
AIR COOLED	IRT0620A	regular	525 lbs.	410 lbs.	5.29	19.9 Gal.
			238 kgs	186 kgs		75.3 L
	IDT0620A	dice	560 lbs.	450 lbs.	5.18 ★	19.9 Gal.
			254 kgs	204 kgs		75.3 L
	IYT0620A	half-dice	575 lbs.	465 lbs.	4.87 ★	19.9 Gal.
			261 kgs	211 kgs		75.3 L
WATER COOLED	IDT0620W	dice	530 lbs.	450 lbs.	4.13	19.9 Gal.
			240 kgs	204 kgs		75.3 L
	IYT0620W	half-dice	560 lbs.	485 lbs.	3.87	19.9 Gal.
			254 kgs.	220 kgs		75.3 L
	-Water-cooled Condenser Water Usage / 100 lbs. /45.4 kgs. Of Ice: 140 gal/ 530 L. -Water-cooled models are excluded from ENERGY STAR qualification.					

Order separately: Ice storage bin for all units
★ *ENERGY STAR® 3.0 qualified*

Accessories

LuminIce® II Viruses and Bacteria Inhibitor
controls viruses and bacteria in the ice machine



External Scoop holder
protect the ice scoop with the NSF approved versatile scoop holder.



Arctic Pure® Plus
reduce sediments and chlorine contaminants down to .5 microns.
Use with Pre-filter recommended



iAuCS®
schedules and performs routine ice machine cleaning automatically.



Manitowoc Ice reserves the right to make changes to the design or specifications without prior notice.

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Fax: 1.920.683.7589

www.manitowocice.com
6408D 6/22

Manitowoc

INDIGO NXT

50Hz

iT0620 Ice Cube Machine

Indigo® NXT™ iT0620 Ice Cube Machine

Models

☐ IRT0620A ☐ IDT0620A ☐ IYT0620A ☐ IDT0620W ☐ IYT0620W ☐ IRT0620W



Indigo NXT Series iT0620
Ice Machine on D420 Bin

*Ice machine and bin sold separately

Designed for operators who know that ice is critical to their business, the Indigo NXT Series ice machine's preventative diagnostics continually monitor itself for reliable ice production. Improvements in cleanability and programmability make your ice machine easy to own and less expensive to operate.

- **New levels of Performance** – Showcasing an average of 31% lower energy consumption, 16% reduction in in potable water usage and a 32% reduction in condenser water usage. This translates into lower cost of ownership over the life of your machine.
- **easyTouch® Display** - New icon based touch screen takes the guess work out of owning and operating an ice machine.
- **Multiple Language Capability** - The easyTouch display is available in multiple languages selected in the initial start-up installation Wizard.
- **Programmable Ice Production** – Now its super easy to program your ice machine to be off at certain times of the day to save money with fluctuating electrical rates. Also programmable by daily ice production volume and night time programming.
- **Easy to Clean Foodzone** – Hinge front door swing out for easy access. Removable water-trough, distribution tube, curtain, water probe and water pump for fast and efficient cleaning. Selected components are made with AlphaSan® antimicrobial.
- **Intelligent Diagnostics** – Provides 24 hour preventative maintenance and diagnostic feedback for trouble free operation.
- **Acoustical Ice Sensing Probe** – Unique patented technology allows for reliable operation in challenging water conditions and environments
- Available **LuminIce® II Virus and Bacteria Inhibitor** – Controls viruses, bacteria, mold and yeast within the food zone to keep the machine clean longer. A new sanitation icon lets you know the operational status.
- **Active Sense -** insures consistent ice harvest in all environmental conditions. This software solution works in conjunction with the acoustical ice sensing probe improving reliability and performance.



Ice Machine Electric

230/50/1

Minimum circuit ampacity:
Air-cooled: 5.6
Water-cooled: 5.4

Maximum fuse size:
Air-cooled: 15A
Water-cooled: 15A

Specifications

BTU Per Hour:
5,400 (average),
and 6,300 (peak)

Refrigerant:
R410A CFS - Free
Lowers global warming by 48%

Operating Limits:

- Ambient Temperature Range:
  40 to 110 F (4.4 to 43.3 C)
  Water Temperature Range:
  40 to 90 F (4.4 to 32.2 C)
- Potable Water Pressure:
  Min. 20 psi (137.9 kPA)
  Max. 80 psi (551.1 kPA)
- Condenser Water Pressure:
  Min. 20 psi (137.9 kPA)
  Max. 276 psi (1902.95 kPA)

Ice Shape



Dice
⅞" x ⅞" x ⅞"
(2.22 x 2.22 x 2.22 cm)
Cube weight 8.5 g



Half Dice
⅜" x 1⅛" x ⅞"
(.95 x 2.86 x 2.22 cm)
Cube weight 5.7 g



Regular
1⅛" x 1⅛" x ⅞"
(2.86 x 2.86 x 2.22 cm)
Cube weight 14.2 g

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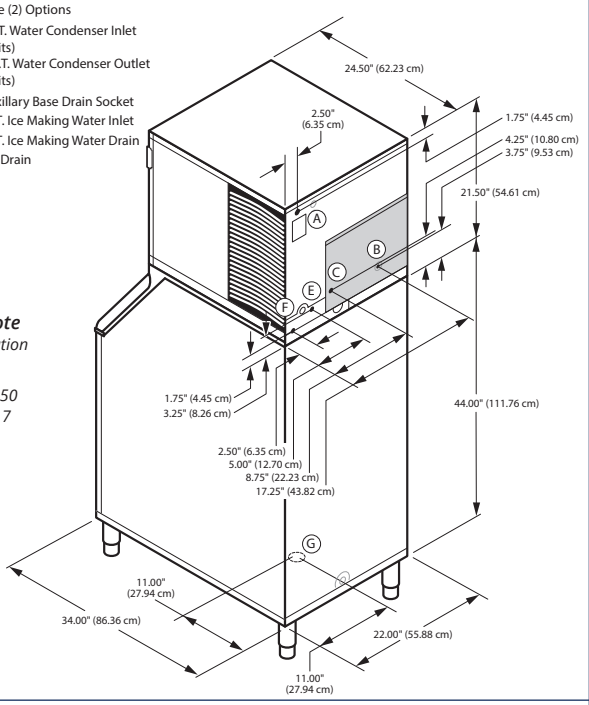
Manitowoc®

50Hz

Indigo® NXT™ iT0620 Ice Cube Machine

iT0620 on D420 Storage Bin

Ⓐ Electrical Entrance (2) Options
Ⓑ 3/8" (0.95 cm) F.P.T. Water Condenser Inlet (water-cooled units)
Ⓒ 1/2" (1.27 cm) F.P.T. Water Condenser Outlet (water-cooled units)
Ⓓ 1/2" (1.27 cm) Auxillary Base Drain Socket
Ⓔ 3/8" (0.95 cm) F.P.T. Ice Making Water Inlet
Ⓕ 1/2" (1.27 cm) F.P.T. Ice Making Water Drain
Ⓖ 3/4" (1.91 cm) Bin Drain



Installation Note
Minimum installation clearance:

Top/side: 12" (30.50 cm)Back is 5" (12.7 cm)

Space-Saving Design



	iT0620 D-400	iT0620 D-420
Height	59.50" 151.13 cm	71.50" 181.61 cm
Width	30.00" 76.20 cm	22.00" 55.88 cm
Depth	34.00" 86.30 cm	34.00" 86.30 cm
Bin Storage	365 lbs. 166 kgs.	383 lbs. 174 kgs.

Height includes adjustable bin legs 6.00" to 8.00", (15.24 to 20.32 cm) set at 6.00" (15.24 cm).
Bin capacity is based on 90% of the volume x 33 lbs/ft3 average density of ice.

K00443 bin adapter required for D400 bin. Sold separately

Specifications

Order separately: Ice storage bin for all units. This product is hermetically sealed and contains fluorinated greenhouse gas R410A

	Model	Ice Shape	Ice Production 24 Hours: 21°Air /10°C Water 70°Air/ 50°F Water	Ice Production 24 Hours: 32°Air / 21°C Water 90°Air/ 70°F Water	Power Usage kWh 45.4 kg / 100 lbs @ 32°Air / 21°C Water 90°Air / 70°F Water: 1 Ph	Potable Water Usage/100 lbs. 45.4 kgs. of Ice
AIR COOLED	IRT0620A	regular	505 lbs.	390 lbs.	5.29	19.9 Gal.
			229 kgs	177 kgs		75.3 L
	IDT0620A	dice	535 lbs.	430 lbs.	5.18	19.9 Gal.
			243 kgs	195 kgs		75.3 L
	IYT0620A	half-dice	535 lbs.	430 lbs.	4.97	19.9 Gal.
			243 kgs	195 kgs		75.3 L
WATER COOLED	IDT0620W	dice	510 lbs.	430 lbs.	4.13	19.9 Gal.
			231 kgs	195 kgs		75.3 L
	IYT0620W	half-dice	495 lbs.	460 lbs.	4.04	19.9 Gal.
			225 kgs.	290 kgs		75.3 L
	IRT0620W	regular	485 lbs.	400 lbs.	4.20	19 Gal.
			220 kgs	181 kgs		75.4 L

* Water-cooled Condenser Water Usage / 100 lbs. /45.4 kgs. Of Ice: 140 gal/ 530 L.

Accessories

LuminIce® II Virus and Bacteria Inhibitor
controls viruses and bacteria inside the ice machine.



External Scoop holder
protect the ice scoop with the NSF approved versatile scoop holder.



Arctic Pure® Plus Water Filters
reduce sediments and chlorine contaminants down to .5 microns. Use with a Pre-filter is recommended.



6648C 06/22

Manitowoc Ice reserves the right to make changes to the design or specifications without prior notice.

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ICE MACHINE WARRANTY

Manitowoc Ice, Inc. (hereinafter referred to as the "COMPANY") warrants for a period of thirty-six months from the installation date (except as limited below) that new ice machines manufactured by the COMPANY shall be free of defects in material or workmanship under normal and proper use and maintenance as specified by the COMPANY and upon proper installation and start-up in accordance with the instruction manual supplied with the ice machine. The COMPANY'S warranty hereunder with respect to the compressor shall apply for an additional twenty-four months, excluding all labor charges, and with respect to the evaporator for an additional twenty-four months, including labor charges.

The obligation of the COMPANY under this warranty is limited to the repair or replacement of parts, components, or assemblies that in the opinion of the COMPANY are defective. This warranty is further limited to the cost of parts, components or assemblies and standard straight time labor charges at the servicing location.

Time and hourly rate schedules, as published from time to time by the COMPANY, apply to all service procedures. Additional expenses including without limitation, travel time, overtime premium, material cost, accessing or removal of the ice machine, or shipping are the responsibility of the owner, along with all maintenance, adjustments, cleaning, and ice purchases. Labor covered under this warranty must be performed by a COMPANY Contracted Service Representative or a refrigeration service agency as qualified and authorized by the COMPANY'S local Distributor. The COMPANY'S liability under this warranty shall in no event be greater than the actual purchase price paid by customer for the ice machine.

The foregoing warranty shall not apply to (1) any part or assembly that has been altered, modified, or changed; (2) any part or assembly that has been subjected to misuse, abuse, neglect, or accidents; (3) any ice machine that has been installed and/or maintained inconsistent with the technical instructions provided by the COMPANY; or (4) any ice machine initially installed more than five years from the serial number production date. This warranty shall not apply if the Ice Machine's refrigeration system is modified with a condenser, heat reclaim device, or parts and assemblies other than those manufactured by the COMPANY, unless the COMPANY approves these modifications for specific locations in writing.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES OR GUARANTEES OF ANY KIND, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

In no event shall the COMPANY be liable for any special, indirect, incidental or consequential damages. Upon the expiration of the warranty period, the COMPANY'S liability under this warranty shall terminate.

The foregoing warranty shall constitute the sole liability of the COMPANY and the exclusive remedy of the customer or user. To secure prompt and continuing warranty service, the warranty registration card or register on line within five (5) days from the installation date.

MANITOWOC ICE, INC.
2110 So. 26th St., P.O. Box 1720, Manitowoc, WI 54221-1720
Telephone: 920-682-0161 • Fax: 920-683-7585
Web Site - www.manitowocice.com
Form 80-0373-3 Rev. 01/02

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 6 - ICE BIN FOR ICE MACHINES (1 EA REQ'D)

Follett Products (Middleby) 425-30

Ice bin, slope front, 30" wide, 430 lb. bin storage, stainless steel front and sides, bin interior includes polyethylene-lined walls & stainless steel bottom, stainless top is custom cut for ice machine(s), includes 6.00" (15.24 cm) plastic adjustable legs

ACCESSORIES

Mfr	Qty	Model	Spec
Follett Products (Middleby)	1		NOTE: Purchase orders must clearly indicate the make & model of the ice machine(s) being used with the bin to properly prepare the bin top. Lack of this information will delay order processing.
Follett Products (Middleby)	1		3 years parts and labor for corrosion repair for useful life of the product; 2 years parts and labor on all other integral components

BID LOT 1



Slope front

ice storage bin

Features

Capacities available from 300 - 1000 lb (137 - 454 kg) and widths from 22.00" - 52.00" (55.9 - 132.1 cm)

Convenient design

- extra large door opening for maximum access
- low sill height allows access to reach bottom of bin
- 22.00" (55.9 cm) and 30.00" (76.2 cm) bins match with compact ice machines to maximize ice production and storage in small space

Durable construction

- full stainless top, front and sides standard
- heavy-duty welded steel shell and frame support
- poly-lined interior to eliminate corrosion
- rigid, insulated stainless steel lift door with non-staining ABS interior
- fully replaceable gasket seals door opening

Easy installation

- comes assembled, simply screw in legs
- all models will fit through 32.00" (81.3 cm) doors (for 23.00" (58.4 cm) doors order model 300-22)

Warranty

- 3 years parts and labor for corrosion repair for useful life of the product
- 2 years parts and labor on all other integral components
- 3rd party ice machines must be installed and operated in accordance with the manufacturer's instructions
- visit follettice.com for complete warranty details

Accessories

SmartCART™ 75 ice cart (item# 00112771)

Ice paddle and hanging bracket (item# ABICEPADDL46)

Plastic ice shovel (item# ABICSHOVEL)

Stainless steel legs (item# ABSPECLEGS)

Partition (item# ABPARTSF65 for 425-30 and 650-44, item# ABPARTSF95 for 950-48 and 1025-52)

Additional carts and accessories (refer to form# 3435)

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+48 (58) 785-6140 | Fax: +48 (58) 785-6159
folletteurope.com

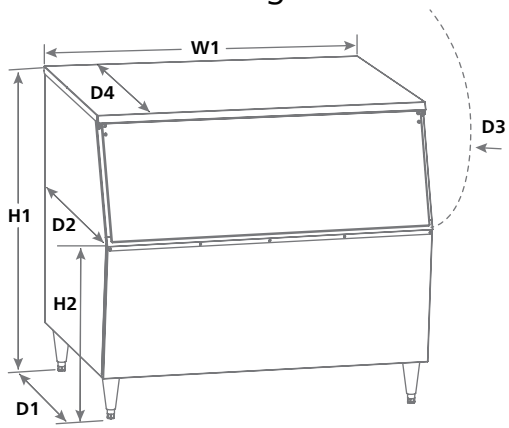
801 Church Lane | Easton, PA 18040, USA
1.610.252.7301 | Fax: +1.610.250.0696 | follettice.com

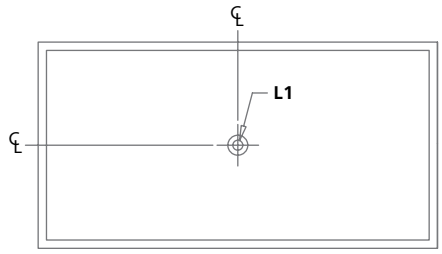
Specification

Maximum bin capacity	see model table below
W1 Width	see model table below
D1 Depth at bottom	see model table below
D2 Depth at door	31.50" (80.0 cm)
D3 Depth with door fully extended	41.50" (105.4 cm)
D4 Depth top surface	27.25" (69.22 cm)
H1 Height (adjustable)	see model table below
H2 Bin sill height	see model table below
Required door access	see model table below
L1 Drain[1]	1.00" FPT, center of bin bottom
Ice compatibility	all ice types
Shipping weight	see model table below
NOTE: For indoor use only	

SHORT FORM SPECIFICATION: Ice storage bin to be Follett® model _____. Bin to hold approximately _____ lb (kg) of ice. Construction to be welded steel shell and frame. Exterior finish to be stainless steel front and sides with galvanized steel back and bottom. Bin interior to have non-corroding polyethylene-lined walls and stainless steel bottom. Bin insulation to be CARB compliant non-HFC foam, bonded to shell and polyethylene-lined walls for added structural strength. Bin top to be stainless steel and to be custom-cut for specific ice machine(s) to be used. Lift door to have stainless steel exterior and ABS interior, bonded together with CARB compliant non-HFC foam for extra rigidity and strength. Bin to have conveniently low door sill height to allow easy access to ice in the bottom of the bin. Door opening to be completely sealed with fully replaceable gasketing. Bin to have 6.00" (15.24 cm) legs, adjustable to 6.75" (17.14 cm). Bin drain to be 1.00" FPT rigid PVC. NSF listed.

Dimensional drawing





HORIZON ELITE, MAESTRO PLUS and SMARTCART are trademarks of Follett Products, LLC.
FOLLETT is a registered trademark of Follett Products, LLC, registered in the US.
Follett reserves the right to change specifications at any time without obligation. Certifications may vary depending on country of origin.

Model	Maximum bin capacity lb (kg)	Cubic volume cu ft (m)	Width - **W1** in (cm)	Depth - **D1** in (cm)	Height - **H1** in (cm)	Door Sill Height - **H2** in (cm)	Required door access in (cm)	Approximate ship weight lb (kg)
300-22[2]	300 (136)	9.6 (0.27)	22.00 (55.9)	29.50 (74.9)	40.00 (101.6)	26.00 (66.0)	23.00 (58.4)	120 (54)
425-30	430 (195)	13.8 (0.39)	30.00 (76.2)	29.50 (74.9)	40.00 (101.6)	26.00 (66.0)	31.00 (78.7)	144 (65)
650-44	660 (299)	20.8 (0.59)	44.00 (111.8)	29.50 (74.9)	40.00 (101.6)	26.00 (66.0)	32.00 (81.2)	178 (81)
950-48	950 (431)	30.1 (0.85)	48.00 (121.9)	28.25 (71.8)	50.00 (127.0)	36.00 (91.4)	32.00 (81.2)	207 (94)
1025-52	1030 (467)	32.6 (0.92)	52.00 (132.1)	28.25 (71.8)	50.00 (127.0)	36.00 (91.4)	32.00 (81.2)	217 (98)

Notes:
[1] Follett recommends installation of a floor drain with grate with all ice storage bins.
[2] Model 300-22 only for use with Follett® Maestro Plus™ 425 and Horizon Elite™ 710 series ice machines.

Slope front bins

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folletteurope.com

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BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 7 - WATER FILTRATION SYSTEM, FOR ICE MACHINES (1 EA REQ'D)

3M Purification ICE145-S

(5616204) 3M™ Water Filtration Products Water Filter System, with gauge, 14-7/8"H x 5-1/16"D, valve-in-head, high turbidity water, single vessel, 1/4-turn shut off valve, max pressure of 125 psi at 100°F, 3 micron, 2.1 gpm flow rate, 25,000 gallons capacity, for sediment, chlorine taste & odor, scale, includes: (1) integral mounting bracket and (1) o-ring seal cartridge filter, 3/8" FNPT connections, NSF certified (for ice machines -cubers up to 1000lbs, flakers up to 1800lbs: Manitowoc I 0906, 0996, 1002, 1003, 1005, 1072, 1092, Scotsman C 0722, 0830, 1030, Hoshizaki KM 850, 901, Ice-O-Matic ICE 0806, 1006, 1007, Koolaire K 1000)

ACCESSORIES

Mfr	Qty	Model	Spec
3M Purification	1	HF45-S	(5613309) 3M™ Water Filtration Products Replacement Cartridge, large diameter, 3 micron, 2.1 gpm flow rate, 25,000 gallons capacity, reduces sediment, chlorine taste & odor, scale inhibitor for ICE145-S (5616204), NSF certified

BID LOT 1

3M™ Water Filtration Products

SPEC# _____

QUANTITY _____

application: **ICE**



ENHANCED

models:

ICE140-S/ICE145-S

3M Purification Inc. Water Filtration Products Models ICE140-S and ICE145-S single cartridge water filtration systems help provide consistent high quality water for commercial ice by reducing the effects of sediment, chlorine taste and odor and scale at flow rates up to 2.1 gpm (7.9 lpm). Built-in scale inhibition reduces the ability of calcium and magnesium to precipitate on the evaporator plates as hard scale.

- **ICE140-S** combines chlorine taste and odor reduction with cyst, bacteria[1] and sediment reduction, while reducing the effects of chlorine corrosion and scale for up to 25,000 gallons (94,635 liters).
- **ICE145-S** combines chlorine taste and odor reduction with sediment reduction from higher turbidity water, while reducing the effects of chlorine corrosion and scale for up to 25,000 gallons (94,635 liters).

PRODUCT BENEFITS

- Effectively reduces sediment and chlorine taste and odor for better equipment protection and clearer, great tasting ice.
- Revolutionary **I**ntegrated **M**embrane **P**re-**A**ctivated **C**arbon **T**echnology (**"IMPACT"**) dual-zone media cartridge construction combines a membrane in series with premium activated carbon to provide superior throughput and cartridge life.
- Tested and verified by manufacturer's laboratory to Standard 53 for cyst reduction (HF40-S replacement cartridge).
- Built-in bacteria inhibitor intended to reduce fouling of media (HF40-S replacement cartridge).
- NSF Standard 42 and/or FDA CFR-21 compliant materials.
- Reduction of up to 99.99% of common water-borne heterotrophic bacteria by membrane filtration as tested by 3M Purification (HF40-S replacement cartridge).
- Patented valve-in-head design simultaneously shuts off and vents water, allowing for simple and virtually trouble-free cartridge change-outs without the need to shut off the upstream feed water.
- Built-in scale inhibitor reduces lime scale build-up on evaporator plates as tested by 3M Purification.
- Sanitary Quick Change (SQC) encapsulated cartridge design allows for fast and easy cartridge change-outs with a 1/4 turn.
- 3/8" FNPT horizontal inlet and outlet ports allow direct or easily adaptable connections to existing plumbing lines.

PRODUCT SPECIFICATIONS

Model Number	Part Number	Reduction Claims	Nominal Micron Rating	Capacity	Service Flow Rate	Application	Replacement Cartridge	Sizing
ICE140-S	56162-03	Cyst, Bacteria[1], Sediment, Chlorine Taste and Odor, Scale[2]	0.2[2]	25,000 gallons (94,635 liters)	2.1 gpm (7.9 lpm)	Most Standard Water	HF40-S: 56133-05	Low Flow Cubers to 1,000 lbs. (454 kg) High Flow Cubers to 600 lbs. (272 kg) Flakers to 1,800 lbs. (816 kg)
ICE145-S	56162-04	Sediment, Chlorine Taste and Odor, Scale[2]	3.0	25,000 gallons (94,635 liters)	2.1 gpm (7.9 lpm)	Higher Turbidity Water	HF45-S: 56133-09	Low Flow Cubers to 1,000 lbs. (454 kg) High Flow Cubers to 600 lbs. (272 kg) Flakers to 1,800 lbs. (816 kg)

[1]As tested with either E.Coli ATCC (11229) or Pseudomonas (B) diminuta ATCC (19146)

[2]Tested and verified by manufacturer's laboratory

BID LOT 1

ICE140-S/ICE145-S

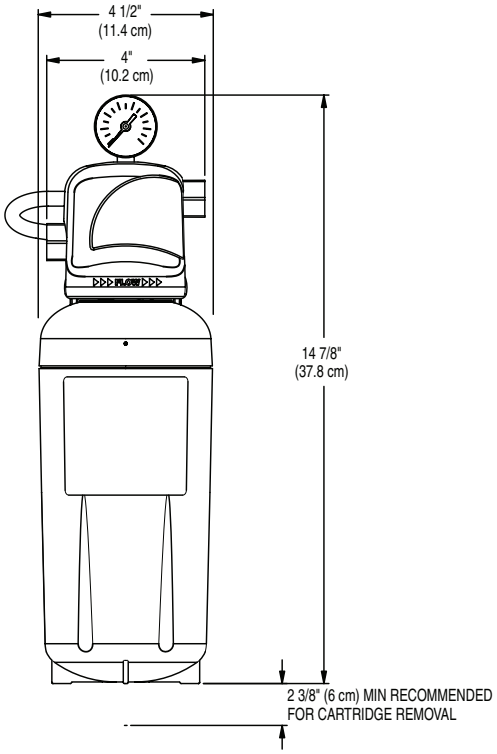
SPEC# _____

QUANTITY _____

MODEL NUMBER _____

PART NUMBER _____

3M Purification Inc. Water Filtration Products



⚠ **WARNING: To reduce the risk associated with the ingestion of contaminants:**

- **Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.** Systems certified for cyst reduction may be used on disinfected water that may contain filterable cysts. EPA Establishment #070595-CT-001

3M Purification Inc. recommends regularly scheduled maintenance and replacement of the filter cartridge(s) in order for the product to perform as advertised/sold. 3M Purification shall not be liable for system failures due to improper maintenance.

PHYSICAL SPECIFICATIONS

- System includes a head assembly with integral mounting bracket, pressure gauge and a single cartridge filter.
- Inlet and outlet plumbing connections are 3/8" FNPT.
- System incorporates an internal automatic 1/4 turn shut-off valve.
- Filter cartridges are o-ring seal type.
- System maximum operating pressure of 125 psi (862 kPa) and operating temperature of 100°F (37.8°C).
- Recommended service flow rate is up to 2.1 gpm (7.9 lpm).
- Filter cartridges incorporate a bacteriostatic carbon block filtration medium (HF40-S replacement cartridge) and scale inhibitor.
- System materials are NSF Standard 42 and/or FDA CFR-21 compliant.
- Cartridges are sanitary in design, requiring no contact with the filter media during cartridge change-out.
- Filter cartridges require no pre-activation.
- NSF Performance Data Sheet (PDS) is included.
- Shipping weight: 8.9 lbs. (4.0 kg) per case.
- Operating weight: 6 lbs. (2.7 kg) per case.
- Case quantity: 2.

IMPORTANT: INSTALLATION TIPS

These installation tips are for informational purposes only and are not intended to be used as actual installation instructions. CAUTION: To reduce the risk associated with property damage due to water leakage:

- **Read and follow** Use Instructions before installation and use of this system.
- Installation and use **MUST** comply with all state and local plumbing codes.
- **Protect from freezing,** remove filter cartridge when temperatures are expected to drop below 40°F (4.4°C).
- **Do not install on hot water supply lines.** The maximum operating water temperature of this filter system is 100°F (37.8°C).
- **Do not install** if water pressure exceeds 125 psi (862 kPa). If your water pressure exceeds 80 psi (552 kPa), you must install a pressure limiting valve. Contact a plumbing professional if you are uncertain how to check your water pressure.
- **Do not install** where water hammer conditions may occur. If water hammer conditions exist you must install a water hammer arrester. Contact a plumbing professional if you are uncertain how to check for this condition.
- The disposable filter cartridge **MUST** be replaced every 12 months, at the rated capacity or if a noticeable reduction in flow rate occurs.

LIMITED WARRANTY

3M Purification Inc. warrants this Product will be free from defects in material and manufacture for five (5) years from the date of purchase: The filter cartridge or filter membrane is warranted to be free from defects in material and manufacture for one (1) year. This warranty does not cover failures resulting from abuse, misuse, alteration or damage not caused by 3M Purification Inc. or failure to follow installation and use instructions. No warranty is given as to the service life of any filter cartridge or membrane as it will vary with local water conditions and water consumption. **3M PURIFICATION INC. MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOMER OR USAGE OF TRADE.** If the Product fails to satisfy this Limited Warranty during the warranty period, 3M Purification Inc. will replace the Product or refund your Product purchase price. This warranty does not cover labor. **The remedy stated in this paragraph is Customer's sole remedy and 3M Purification Inc.'s exclusive obligation. For additional information, see the entire Limited Warranty located in the product Installation and Operating Instruction Manual.**

Limitation of Liability: 3M Purification Inc. will not be liable for any loss or damage arising from this 3M Purification Inc. product, whether direct, indirect, special, incidental, or c onsequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability. Some states and countries do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

3M

3M Purification Inc.
400 Research Parkway
Meriden, CT 06450 U.S.A.
Toll Free: 1.800.243.6894
Worldwide: 203.237.5541
Fax: 203.630.4530
www.3Mpurification.com

NSF

Visit www.nsf.org for the claims associated with products that are NSF listed.

3M is a trademark of 3M Company.
NSF is a trademark of NSF International.
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LITFS289 0811B
70-0201-9416-6
Please recycle. Printed in U.S.A.

BID LOT 1

3M™ Water Filtration Products

SPEC# _____

QUANTITY _____

application: **MULTIPLE EQUIPMENT**

models:

High Flow Series Replacement Cartridges HF45-S-SR5 thru HF95



HF45 Series HF65 Series HF95 Series

3M™ Water Filtration Products line of replacement cartridges offer multiple solutions to help improve the taste, appearance and consistency of your product at flow rates from 2.1 gpm to 7 gpm.

PRODUCT BENEFITS

- Sanitary Quick Change (SQC) encapsulated cartridge design reduces media contamination during change-outs.
- Expansive breadth of product offering that can accommodate most applications.
- Multiple choice of medias to help provide solutions for varying water conditions.
- FDA CRF-21 compliant materials.
- NSF Certified; 3M Purification Inc: Commercial Modular-High Flow Series[1], Components-Commercial Modular[2].
- Contains Integrated Pre-Activated Carbon Technology ("I.M.P.A.CT.") media.

PRODUCT SPECIFICATIONS

Model No.	Part No	3M ID#	Micron Rating	Claims	Flow Rate	Capacity
HF95[1]	5613507	70020020171	3	Particulate*, Chlorine Taste & Odor	5 gpm (18.9 lpm)	54,000 gals. (204,412 lit.)
HF95-S[1]	5613509	70020121433	3	Particulate*, Chlorine Taste & Odor, Scale Inhibitor*	5 gpm (18.9 lpm)	54,000 gals. (204,412 lit.)
HF95-S-SR[2]	5613527	70020300458	5	Particulate*, Scale Inhibitor*, Fits Standard (A3) Keyed heads	7 gpm (26.5 lpm)	N/A
HF95-S-SR5[2]	5613525	70020300441	5	Particulate*, Scale Inhibitor*, Fits Black (A5) Keyed heads	7 gpm (26.5 lpm)	N/A
HF65[1]	5613407	70020115476	3	Particulate*, Chlorine Taste & Odor	3.34 gpm (12.6 lpm)	35,000 gals. (132,489 lit.)
HF65-S[1]	5613409	70020020130	3	Particulate*, Chlorine Taste & Odor, Scale Inhibitor*	3.34 gpm (12.6 lpm)	35,000 gals. (132,489 lit.)
HF65-S-SR[2]	5613453	70020300425	5	Particulate*, Scale Inhibitor*, Fits Standard (A3) Keyed heads	5 gpm (18.9 lpm)	N/A
HF65-S-SR5[2]	5613451	70020300417	5	Particulate*, Scale Inhibitor*, Fits Black (A5) Keyed heads	5 gpm (18.9 lpm)	N/A
HF45[1]	5613307	70020115468	3	Particulate*, Chlorine Taste & Odor	2.1 gpm (7.9 lpm)	25,000 gals. (94,635 lit.)
HF45-S[1]	5613309	70020121425	3	Particulate*, Chlorine Taste & Odor, Scale Inhibitor*	2.1 gpm (7.9 lpm)	25,000 gals. (94,635 lit.)
HF45-S-SR[2]	5613346	70020300409	5	Particulate*, Scale Inhibitor*, Fits Standard (A3) Keyed heads	3.5 gpm (13.2 lpm)	N/A
HF45-S-SR5[2]	5613344	70020300391	5	Particulate*, Scale Inhibitor*, Fits Black (A5) Keyed heads	3.5 gpm (13.2 lpm)	N/A

*As tested and verified by manufacturer's laboratory.

BID LOT 1

Replacement Cartridges

3M™ Water Filtration Products

SPEC# _____

QUANTITY _____

MODEL NUMBER _____

PART NUMBER _____

Model No.	Part No.	Shipping Dimension	Weight	Case Qty
HF95	5613507	28" x 4-7/8" x 4-7/8" (71.1 cm. x 12.4 cm. x 12.4 cm)	5 lbs.(2.3 kg.)	1
HF95-S	5613509	28" x 4-7/8" x 4-7/8" (71.1 cm. x 12.4 cm. x 12.4 cm)	5 lbs. (2.3 kg.)	1
HF95-S-SR	5613527	28" x 4-7/8" x 4-7/8" (71.1 cm. x 12.4 cm. x 12.4 cm)	5 lbs.(2.3 kg.)	1
HF95-S-SR5	5613525	28" x 4-7/8" x 4-7/8" (71.1 cm. x 12.4 cm. x 12.4 cm)	5 lbs.(2.3 kg.)	1
HF65	5613407	22" x 4-7/8" x 4-7/8" (55.9 cm. x 12.4 cm. x 12.4 cm)	3.4 lbs. (1.5 kg.)	1
HF65-S	5613409	22" x 4-7/8" x 4-7/8" (55.9 cm. x 12.4 cm. x 12.4 cm)	3.4 lbs. (1.5 kg.)	1
HF65-S-SR	5613453	22" x 4-7/8" x 4-7/8" (55.9 cm. x 12.4 cm. x 12.4 cm)	3.4 lbs. (1.5 kg.)	1
HF65-S-SR5	5613451	22" x 4-7/8" x 4-7/8" (55.9 cm. x 12.4 cm. x 12.4 cm)	3.4 lbs. (1.5 kg.)	1
HF45	5613307	10-1/2" x 5-1/2" x 23-1/4" (26.7 cm. x 14 cm. x 59.1 cm)	5 lbs. (2.3 kg.)	2
HF45-S	5613309	10-1/2" x 5-1/2" x 23-1/4" (26.7 cm. x 14 cm. x 59.1 cm)	5 lbs. (2.3 kg.)	2
HF45-S-SR	5613346	10-1/2" x 5-1/2" x 23-1/4" (26.7 cm. x 14 cm. x 59.1 cm)	5 lbs. (2.3 kg.)	2
HF45-S-SR5	5613344	10-1/2" x 5-1/2" x 23-1/4" (26.7 cm. x 14 cm. x 59.1 cm)	5 lbs. (2.3 kg.)	2

SPECIFICATIONS

- Maximum operating pressure of 125 psi (862 kPa) and operating temperature of 100º (37.8ºC).
- Materials are FDA CFR-21 compliant.
- Shipping weight: Refer to Price Book
- Operating weight: Contact factory

IMPORTANT: INSTALLATION TIPS

These installation tips are for informational purposes only and are not intended to be used as actual installation instructions.

⚠**WARNING: To reduce the risk associated with the ingestion of contaminants:**
- **Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.**

CAUTION: To reduce the risk associated with property damage due to water leakage:
- **Read and follow** Use Instructions before installation and use of this system.
- Installation and use **MUST** comply with all state and local plumbing codes.
- **Protect from freezing,** remove filter cartridge when temperatures are expected to drop below 40°F (4.4°C).
- **Do not install on hot water supply lines.** The maximum operating water temperature of this filter system is 100°F (37.8°C).
- **Do not install** if water pressure exceeds 125 psi (862 kPa). If your water pressure exceeds 80 psi (552 kPa), you must install a pressure limiting valve. Contact a plumbing professional if you are uncertain how to check your water pressure.
- **Do not install** where water hammer conditions may occur. If water hammer conditions exist you must install a water hammer arrester. Contact a plumbing professional if you are uncertain how to check for this condition.
- The disposable filter cartridge **MUST** be replaced every twelve (12) months, at the rated capacity or sooner if a noticeable reduction in flow rate occurs.

LIMITED WARRANTY

3M Purification Inc. warrants this Product will be free from defects in material and manufacture for one (1) years from the date of purchase: This warranty does not cover failures resulting from abuse, misuse, alteration or damage not caused by 3M Purification Inc. or failure to follow installation and use instructions. No warranty is given as to the service life of any filter cartridge or membrane as it will vary with local water conditions and water consumption. **3M PURIFICATION INC. MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOMER OR USAGE OF TRADE.** If the Product fails to satisfy this Limited Warranty during the warranty period, 3M Purification Inc. will replace the Product or refund your Product purchase price. This warranty does not cover labor. **The remedy stated in this paragraph is Customer's sole remedy and 3M Purification Inc.'s exclusive obligation. For additional information, see the entire Limited Warranty located in the product Installation and Operating Instruction Manual.**

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3M

3M Purification Inc.
400 Research Parkway
Meriden, CT 06450 U.S.A.
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Worldwide: 203-237-5541
Fax: 203-238-8701
www.3Mfoodservice.com • 3Mpurification.com

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70020303130 REV 0513

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 8 - WALK-IN COOLER (1 EA REQ'D)

American Panel CUSTOM PRE-FABRICATED UNIT

WALK IN COOLER per plans with all labor, material, equipment, and tools required for the complete installation of modular foamed panel pre-fabricated cold storage rooms of size and shape as shown on plan and specified herein and in full compliance with NSF-7 2004. Size and shape per plan and field verified conditions.

1 ea Model RMI Exterior ceiling height shall be 8’6” unless otherwise specified. Verify all existing conditions for installation before confirming final height. Furnish without floors.
1 ea Model RMI Provide all proper wall mounting screeds as detailed below. Verify architectural flooring materials and coordinate installation with area flooring requirements for smooth and level transitions.
1 ea Model RMI Carefully check dimensions of areas and notify Architectural design team of any discrepancies prior to fabrication of unit. Refer to building conditions drawing for installation notes, etc.
1 ea Model RMI Work included: Wall, corner, floor and ceiling panels, door assemblies, light switches and light fixtures, digital thermometer/alarm, utility penetrations, escutcheon plates, drain line bumper, finish trim, interior floor insulation, and interior wall protection.
1 ea Model RMI Insulation to be California code compliant R-28 value or 5 inch thick foamed-in-place polyurethane foam.
1 ea Model RMI Furnish unit with all detectors, in-wall chases, switches, and alarms for an approved refrigerant vapor detection and alarm system.
1 ea Model RMI Interior finish to be 20 ga. white Sani-Steel.
1 ea Model RMI Exterior finish to be galvalume finish with diamond tread wainscot. Doors to have protective bar as shown in Foster+Partners door details.

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 9 - COOLER EVAP COIL (1 EA REQ'D)

American Panel BEL0060BS6AM

Low profile blower coil to maintain 35 degree operation with EC motors. See refrigeration shop drawing for specification and detail.

BEL0060BS6AMAB0300 - SUBMITTAL

Project Name:		Project Location:	US
Quote ID:		Item #:	
Submitted For:		Submitted On:	
Submitted By:	Tim Blackmore	Submitted From:	American Panel
Identity #:		Tag:	
System Description:	Split system	System Tag:	

☐ For Record ☐ For Approval By:_____ Date:_____

General Product Information

Product Family:	BEL	Motor type	2 SPEED EC
Defrost Type:	Air	Number of Fans:	1
Voltage: (Volts/Ph/Hz)	208-230/1/60	Fan HorsePower	1/20
Refrigerant Type:	R448A	Fins per Inch	6

Technical Information

Performance Data

Capacity			Air Flow				Altitude (ft)	AWEF Value
TD (°F)	SST (°F)	Capacity (BTU/H)	CFM	Fan Diameter (ft)	Air Throw (ft) Standard	w/Collar		
13.22	29.78	5,850	610	12				9

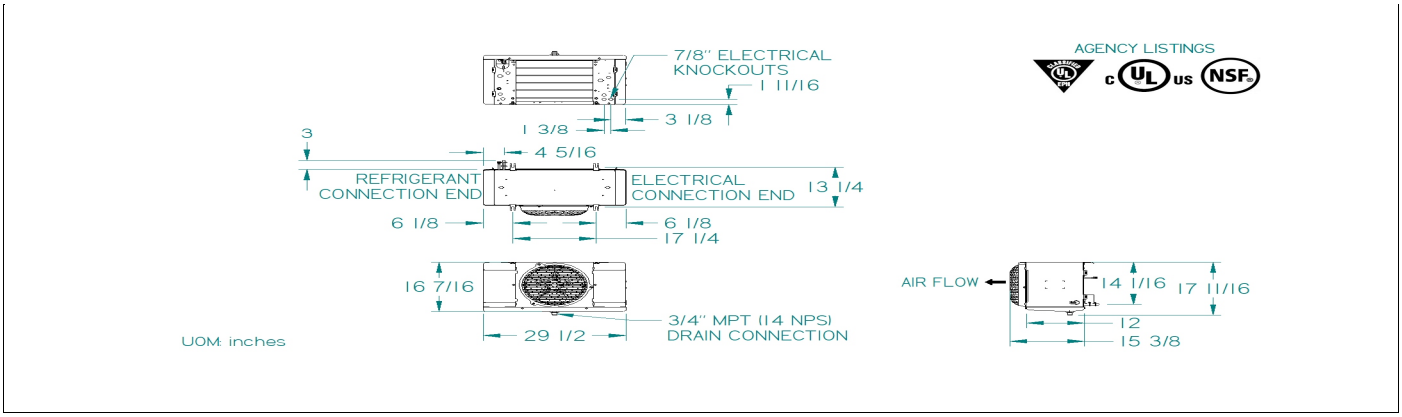
Electrical Data

Fan Motor(s)		Defrost Heater(s)		Drain Pan Heater(s)	
Watts	Amps	Watts	Amps	Watts	Amps
55	0.5				

Unit Specifications

Connections (in.)						Approx. Net Weight (lbs)
Coil Inlet	Suction	External Equalizer	Drain	Side Port	Hot Gas Drain Pan	
1/2	5/8	1/4	3/4			36

Dimensional Drawing(s)



BEL0060BS6AMAB0300 - SUBMITTAL

Project Name:	Petri Dish Box	Project Location:	US
Quote ID:	R951372	Item #:	1020
Submitted For:	Pam Howard	Submitted On:	05/28/2020
Submitted By:	Tim Blackmore	Submitted From:	American Panel
Identity #:		Tag:	
System Description:	Split system	System Tag:	

Standard Features

EASE OF INSTALLATION SERVICE

- ALL ELECTRICAL COMPONENTS FACTORY WIRED TO TERMINAL BOARD AND IDENTIFIED, MAKING IT EASY TO FIELD WIRE THE UNIT
- CABINET DESIGN FEATURES HINGED, REMOVABLE FRONT ACCESS PANELS ON EACH SIDE FOR EASY ACCESS TO ELECTRICAL AND REFRIGERATION COMPONENTS
- LIQUID LINE SOLENOID WIRE HARNESS IS FACTORY-INSTALLED FOR QUICK INSTALLATION
- MOTORS PLUG INTO WIRING HARNESS FOR EASIER SERVICING
- HINGED, REMOVABLE DRAIN PAN FOR EASY AND SAFE ACCESS
- PRE-DRILLED HOLES ON THE BACK OF THE UNIT FOR ROOM THERMOSTAT
- QUICK REMOVAL FAN GUARD/MOTOR ASSEMBLY FOR EASY SERVICE OR REPLACEMENT OF AIR MOVER PARTS

PERFORMANCE

- INTERNAL PANELS ARE ISOLATED FOR QUIET OPERATION
- INTERNALLY ENHANCED TUBING AND FIN DESIGN FOR HIGHER EFFICIENCY
- EC MOTORS STANDARD ON ALL MODELS FOR IMPROVED UNIT EFFICIENCY

RELIABLE DURABLE

- HEAVY GAUGE GRAINED ALUMINUM CABINET CLEANS EASILY AND LOOKS ATTRACTIVE
- MOLDED FAN GUARD AND ACCESS PANELS ARE MADE OF STRONG, DURABLE, AND NSF AND UL SANITATION RATED PLASTIC MATERIAL
- SWEAT CONNECTIONS TO REDUCE POTENTIAL FOR LEAKS

VERSATILE

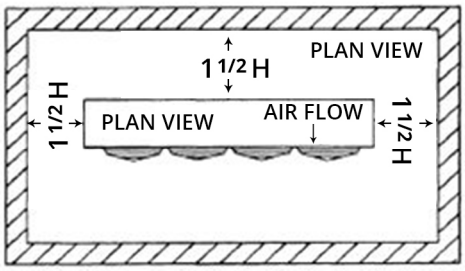
- LARGE DIAMETER DRAIN HOLE (3/4 " ID) IS LOCATED TOWARDS THE BACK OF THE UNIT
- MINIMAL HEIGHT OF THE LOW PROFILE SERIES MAKES IT IDEAL FOR LOW CEILING COOLERS

Options

Mounted Options

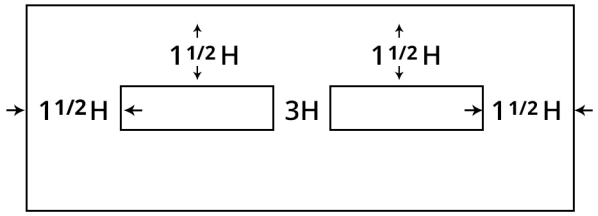
- Brand Label - BOHN
- Motor - 2 Speed EC
- Voltage - 208-230/1/60
- Defrost Type - Air
- DTFD Option - None
- Fan Blade - Standard
- Fan Guard - Molded
- Cabinet Type - Stucco
- Drain Pan Type - Stucco
- Controller Option - QRC
- Defrost Control - None
- Fin Material - Aluminum
- Insulated Drain Pan - NO
- Coil Mechanical Option - Beacon/QRC [E2V11 / L-1/3]

Minimum Unit Clearances



One Evaporator

NOTE:
H =Total Height evaporator coil surface.



Two Evaporators

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 10 - COOLER CONDENSER (1 EA REQ'D)

American Panel FFAM-A08Z-CFV-075

SEE MANUFACTURER'S SHOP DRAWING FOR SPEC & DETAIL

BID LOT 1

FFAM-A08Z-CFV-075

HFO, R-448A, 60Hz, 1- Phase, 208/230 V

Availability : Custom US OEM Or Wholesaler

Mechanical

Unit Height (in):	16.3
Unit Length (in):	24.1
Unit Width (in):	18.9
Ship Weight (lbs):	104.0
Condensor Type:	Air
CopeVap Water Storage:	NA
Liquid Connection Size (in)/Type:	0.37 SWEAT
Suction Connection Size (in)/Type:	0.87 SWEAT
Discharge Line Size (in):	0.5
Water Inlet (in):	
Water Outlet (in):	
Oil Type:	POE
Oil Recharge Amount (oz):	21.00

Electrical

Max Fuse Size:	15
Min Circuit Ampacity:	8.9
Compressor:	ZB06KAE-PFV-118
Compressor LRA - Low:	
Compressor LRA - High:	35.7
Compressor LRA - Half winding:	
Compressor RLA:	6.0
UL:	Listed
UL File #:	SA633
UL Guide Card:	LZFE
Amps Per Motor:	
Fan Motor Quantity:	1

Air - Cooled Unit Performance

Release Date:	12-Nov-2019	Return Gas Temp. (°F):	40
Compressor:	ZB06KAE-PFV-118 x 1	Subcooling (°F):	5
Performance No:	16920	Air Flow Rate (CFM)	696

90°F Ambient Air Temperature

Evap Temp (°F)	Unit Capacity (Btu/hr)	Cond. Temp. (°F)	Temp. Diff. (°F)	EER (Btu/Wh):
-5	3,600	105.6	15.6	4.3
0	4,060	106.4	16.4	4.7
5	4,570	107.2	17.2	5.2
10	5,120	108.1	18.1	5.8
15	5,720	109.0	19.0	6.3
20	6,360	110.0	20.0	7.0
25	7,030	111.1	21.1	7.6

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BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 11 - WIRE SHELVING UNIT (4 EA REQ'D)

Metro EPOXY

Super Adjustable Super Erecta® Starter Shelving Unit, (4) posts, Metroseal 3™ epoxy-coated corrosion-resistant finish with Microban® antimicrobial protection, KD, NSF. See FS Plan for size and configuration.

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 12 - BUN / SHEET PAN RACK (2 EA REQ'D)

New Age 1331

Bun Pan Rack, mobile, full height, end loading, open sides, accommodates (20) 18" x 26" pans, slides on 3" centers, all welded aluminum construction, (4) 5" platform casters, NSF, Made in USA, (standard factory lead time)

ACCESSORIES

Mfr	Qty	Model	Spec
New Age	2		Lifetime warranty against rust & corrosion, 5 year workmanship and material defects warranty, standard
New Age	2		5" platform type casters, std.

BID LOT 1

New Age Industrial Corp., Inc.
PO Box 520 • 16788 US Hwy 36 • Norton, Kansas 67654
Phone: 800-255-0104 • Fax: (877)-877-7687 • **www.NewAgeIndustrial.com**

Job: _____

Item: _____

Quantity: _____

Bun Pan Racks

Virtually Maintenance Free,

- All welded construction insures the maximum strength and stability of each rack.
- Shipped assembled for immediate use.
- Available in both end and side loading styles, to accommodate 18" x 26", 13" x 18", and 14" x 18" pans

Easy to Maneuver

- Equipped with four 5" heavy duty platform type casters.
- Non-marking wheels protect floors and minimize noise.
- Caster plates are securely welded to the frame of each unit and casters are then bolted to the caster plate…not directly to the frame…with four bolts. This procedure strengthens the overall integrity of the rack and prevents breakage.

Guaranteed To Last

- Five-Year Guarantee against material defects and workmanship.
- Lifetime Guarantee against rust and corrosion.

NSF Certified



#1330



#1461



#1331S



#1461S

This information is for general sales and engineering use only. New Age Industrial reserves the right to modify or make changes at any time without notice to materials and specifications.

Made in the USA

Made For:

NMSU Demonstration Kitchen

BID LOT 1

New Age Industrial Corp., Inc.
PO Box 520 • 16788 US Hwy 36 • Norton, Kansas 67654
Phone: 800-255-0104 • Fax: (877)-877-7687 • **www.NewAgeIndustrial.com**

Job: _____

Item: _____

Quantity: _____

Bun Pan Racks

APPLICATIONS: General storage and movement of trays and pans.

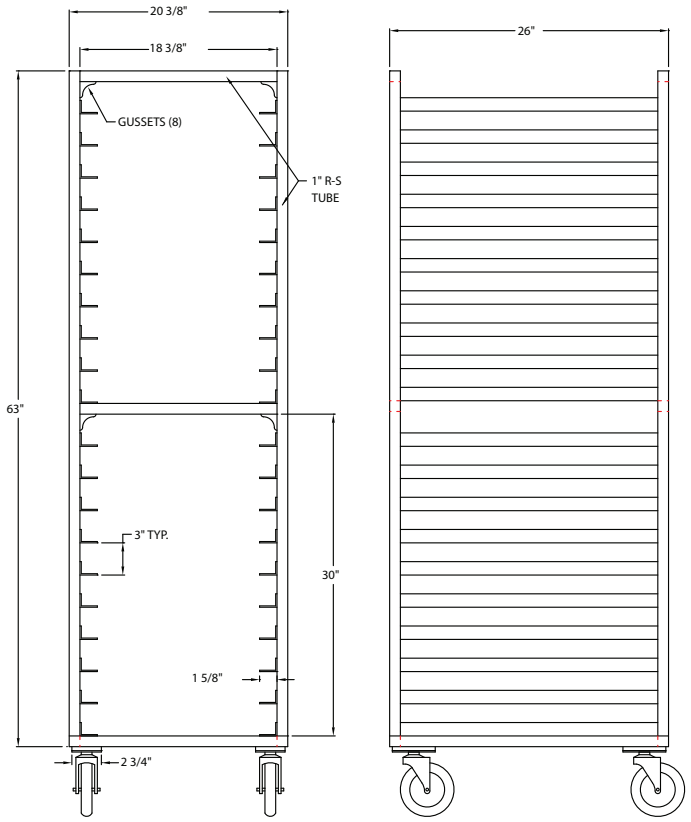
CONSTRUCTION: Heavy duty, high tensile, extruded aluminum. Type 6463-T5 alloy.

TRAY SLIDES: Slides are 1¼" x 1⅝" x .100 extruded aluminum angle welded to frame.

FRAME & CROSS SUPPORTS: Vertical and horizontal frame members are 1" x 1" x .070 extruded aluminum tubing. All welded unit.

CORNER GUSSETS: Gussets of 1½" x 1½" x ⅝" thick angle are welded to the inside angles (bottom side) where horizontal cross bracing meets vertical uprights. Note: Each gusset requires 4½" of weld.

CASTERS: Platform type, 5" diameter wheel, full swivel design with sealed ball bearing. Wheel material is non-marking polyurethane.



#1331

Model No.	Size W-H-D	Pan Cap.	Runner Spacing	Ship Wt.
¾-SIZE END LOADING RACK				
1361	20⅜" x 60⅝" x 26"	17	3"	54#
END LOADING RACKS				
1461*	20 11/16" x 69¾" x 26"	38	1½"	56#
1330	20⅜" x 69¾" x 26"	30	2"	70#
1331	20⅜" x 69¾" x 26"	20	3"	58#
1332	20⅜" x 69¾" x 26"	15	4"	49#
1333	20⅜" x 69¾" x 26"	12	5"	46#
1334	20⅜" x 69¾" x 26"	10	6"	42#
SIDE LOADING RACKS				
1461S*	28⅜" x 69¾" x 19"	38	1 ½"	50#
1330S	28⅜" x 69¾" x 19"	30	2"	60#
1331S	28⅜" x 69¾" x 19"	20	3"	51#
1332S	28⅜" x 69¾" x 19"	15	4"	45#
1333S	28⅜" x 69¾" x 19"	12	5"	42#
1334S	28⅜" x 69¾" x 19"	10	6"	41#

Four 5" platform type swivel casters (#C450).
*** #1461 & #1461S Units Hold Pans By The Lip Only.**

NSF

This information is for general sales and engineering use only. New Age Industrial reserves the right to modify or make changes at any time without notice to materials and specifications.

Made in the USA

Made For:

NMSU Demonstration Kitchen

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 13 - WIRE SHELVING UNIT (3 EA REQ'D)

Metro CHROME

Super Adjustable Super Erecta® Starter Shelving Unit, (4) posts, chrome plated finish, KD, NSF. See FS Plan for size and configuration.

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 14 - MICROWAVE OVEN, SHELF (1 EA REQ'D)

Advance Tabco MS-18-24

Microwave Shelf, wall-mounted, 24"W x 18"D, stainless steel, NSF

BID LOT 1

ADVANCE TABCO
SMART FABRICATION™

STAINLESS STEEL

MICROWAVE SHELVES

NSF



Wall Mounted

Item #: _____ Qty #: _____

Model #: _____

Project #: _____

Model #	Size W x L	Approx. Wt.	Approx. Cu. Ft.
MS-18-24	18" x 24"	27 lbs.	5
MS-20-30	20" x 30"	36 lbs.	5
MS-24-24	24" x 24"	32 lbs.	5
MS-24-36	24" x 36"	38 lbs.	7

CONSTRUCTION:

All TIG welded.

Exposed surfaces polished to a satin finish.

MATERIAL:

18 gauge stainless steel.

OPTIONAL TABLE MOUNTED UNITS:

Mounted on tubular supports and fastened to the top with expanding tubular connectors.

Please use OTS Series Shelving and add TA-102 for 24" x 24" extension for table mounted version.

FOR TABLE MOUNTED MICROWAVE SHELF:

Model #	W x L
MST-24-24	24" x 24"
MST-24-36	24" x 36"

MST Series





TA-102

TABLE MOUNTED SHELF WITH MICROWAVE EXTENTION

Use **OTS Shelving** and add **TA-102** for Microwave 24" x 24" extension. Specify Right or Left.

OPTIONAL:

2" Hole with Grommet For Appliance Cord

TA-108

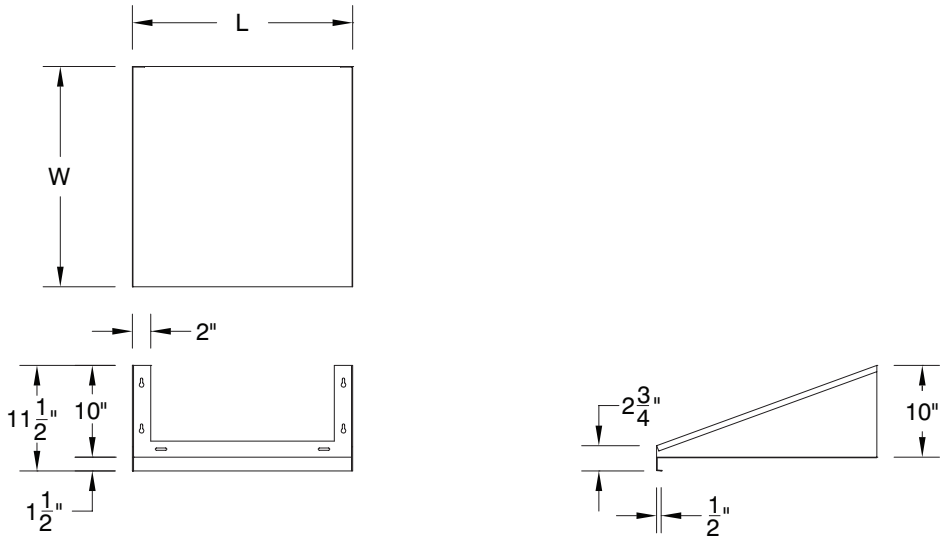


DETAILS and SPECIFICATIONS

TOL ± .500"

ALL DIMENSIONS ARE TYPICAL

WALL MOUNTED



ADVANCE TABCO
SMART FABRICATION™
www.advancetabco.com

Customer Service Available To Assist You 1-800-645-3166 8:30 am - 7:00 pm E.S.T.

For Orders & Customer Service:
Email: customer@advancetabco.com or **Fax:** 631-242-6900

For Smart Fabrication™ Quotes:
Email: smartfab@advancetabco.com or **Fax:** 631-586-2933

ADVANCE TABCO is constantly engaged in a program of improving our products. Therefore, we reserve the right to change specifications without prior notice. © ADVANCE TABCO, AUG. 2019 **REF-L**

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 15 - MICROWAVE OVEN (1 EA REQ'D)

ACP RCS10TS

Amana® Commercial Microwave Oven, 1000 watts, 1.2 cu. ft. capacity, medium volume, 4-stage cooking, (5) power levels, (100) memory settings, braille touch pads, non-removable air filter, side hinged door with tempered glass, accommodates 14" plate, stainless steel interior & exterior, 120v/60/1-ph, 13.0 amps, 15 MCA, 1550 watts (total), NEMA 5-15P, cETLus, ETL-Sanitation

ACCESSORIES

Mfr	Qty	Model	Spec
ACP	1		3-year limited warranty (1 year full)

BID LOT 1

Amana® Commercial

Project #: _____

Item #: _____

AIA File #:

Specification #:

Medium Volume

Amana Commercial Microwave Model RCS10TS



Model RCS10TS shown

Medium Volume

This category of microwave is ideal for...

Applications:
- Pizza restaurants
- Casual dining
- Clubs
- Deli

Defrost:
- Defrosts most frozen food products

All ACP, Inc. commercial ovens are backed by our Culinary Center. Call us with any question regarding food preparation, menu development and cooking times. 866-426-2621.

Power Output
- 1000 watts of power.
- Five power levels for consistent, delicious results for frozen, refrigerated and fresh foods - from the freezer to table in minutes.

Easy to Use
- Up to 100 programmable menu items simplifies cooking and ensures consistent results.
- Four stage cooking option for easy one-touch cooking.
- Multiple quantity pad calculates the proper cooking times for multiple portions.
- User friendly touch controls are easy to use.
- Time entry option for added flexibility.
- Digital display with countdown timer for simple operation and “at-a-glance” monitoring.
- Braille touch pads are ADA compliant.
- See-through door and lighted interior for monitoring without opening the door.
- 1.2 cubic ft. (34 liter) capacity accommodates a 14” (356 mm) platter, prepackaged foods and single servings.
- Stackable to save valuable counter space.

Easy to Maintain
- Stainless steel exterior and interior for easy cleaning and a professional look.
- Non-removable air filter protects oven components.
- Constructed to withstand the foodservice environment.
- Backed by the ACP, Inc. 24/7 ComServ Support Center, 866-426-2621.
- ETL Listed.

Intertek Intertek

Part No. 20154732
Updated 6/17/2016
Original Instructions

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Cedar Rapids, Iowa 52404

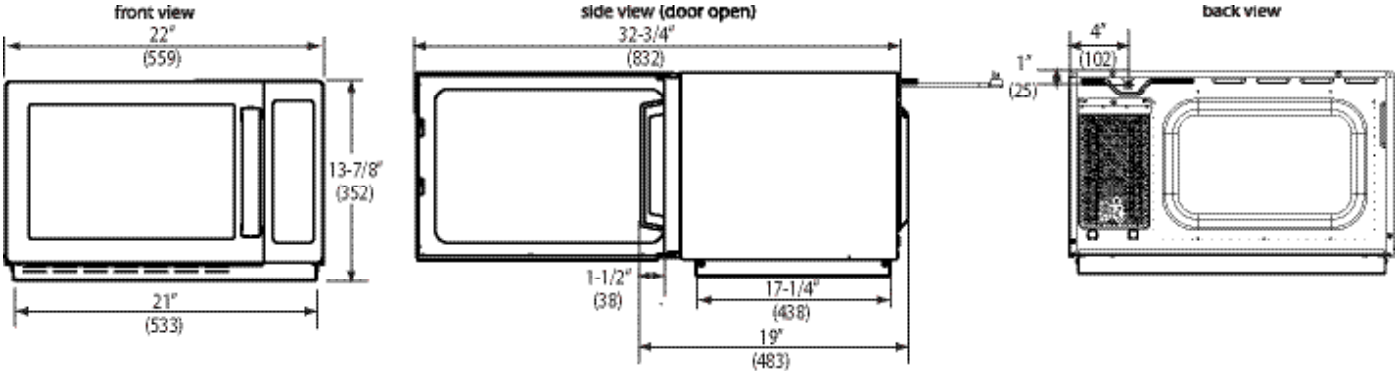
225 49th Ave. Dr. SW Cedar Rapids, IA 52404 U.S.A. | 800-233-2366 | 319-368-8120 | Fax: 319-368-8198 | www.acpsolutions.com

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NMSU Demonstration Kitchen

BID LOT 1

Amana Commercial Microwave Model RCS10TS | Medium Volume



Installation Clearances - Top: 2" (51), Sides: 1" (25), Back: None

Drawings available from KCL CADlog - techs@kclcad.com

Specification #:

Specifications			
Model	RCS10TS	UPC Code 728028020724	
Configuration	Countertop		
Control System	Touch		
Programmable Control	10		
Settings Programmable	100		
Braille			
Max. Cooking Time	60:00		
Power Levels	5		
Defrost	Yes		
Time Entry Option	Yes		
Microwave Distribution	Rotating antenna, top		
Magnetron(s)	1		
Display	VFD		
Stackable	Yes		
Stage Cooking	Yes, 4		
Interior Light	Yes		
Door Handle	Grab & Go		
Signal	End of cycle, adjustable		
Air Filter	Non-removable with cleaning reminder		
Multiple Portion Setting	Yes, X2		
Exterior Dimensions	H 13 ⅞" (352)	W 22" (559)	D*19" (483)
Cavity Dimensions	H 8 ½" (216)	W 14 ½" (368)	D 15" (381)
Door Depth	32 ¾" (832), 90°+ door open		
Usable Cavity Space	1.2 cubic ft. (34 liter)		
Exterior Finish	Stainless steel		
Interior Finish	Stainless steel		
Power Consumption	1550 W, 13 A		
Power Output**	1000 W** Microwave		
Power Source	120V, 60 Hz, 15 A single phase		
Plug Configuration / Cord	NEMA 5-15	5 ft. (1.5m)	
Frequency	2450 MHz		
Product Weight	41 lbs. (19 kg.)		
Ship weight (approx.)	47 lbs. (21 kg.)		
Shipping Carton Size	H 16 ⅝" (422)	W 25 3/16" (640)	D 19 ¾" (502)
UPS Shippable	Yes		

AIA File #:

Measurements in ( ) are millimeters
* Includes handle
** IEC 60705 Tested

Specifications

Commercial microwave 10 touch pad control panel shall be programmable with the ability to program up to 100 menu items with two multiple portions. Touch pad shall include Braille for ADA compliance. Cooking timer shall be 60 minute, countdown style with a time entry option and an adjustable end of cycle audible signal. There shall be 5 power levels, including defrost and 4 cooking stages. Microwave output shall be 1000 watts distributed by one magnetron with a rotating top antenna to provide superior even heating throughout the cavity. Durable door shall have a tempered glass window and a grab and go handle with a 90°+ opening for easy access. An interior light shall facilitate monitoring without opening the door. The large 1.2 cubic ft. (34 liter) cavity shall accommodate a 14" (356 mm) platter. Interior ceramic shelf shall be sealed and recessed on oven bottom to reduce plate-to-shelf edge impact. Oven shall have a stainless steel interior and exterior and be stackable to save counter and shelf space. Front air filter shall be permanently affixed to the front of the oven and have a clean filter reminder. Microwave oven shall comply with standards set by the U.S Department of Health and Human Services, UL923 for safety and NSF4 for sanitation.

Intertek Intertek

Warranty

Warranty Certificate for this product can be found on the ACP, Inc. website at:

www.acpsolutions.com/warranty

Service

All products are backed by the ACP, Inc. 24/7 ComServ Support Center.

ComServ Commercial Service 866-426-2621

Part No. 20154732
Updated 6/17/2016
Original Instructions

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Cedar Rapids, Iowa 52404

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BID LOT 1

RCS Series

RESTAURANT LINE

RCS10TS - 1000 Watts, Touch pad control
RCS10DSE - 1000 Watts, Dial control



FEATURES AND BENEFITS

- 1000 watts of cooking power
  - Quick heating for consistent results
- 1.2 cubic ft. (34 L) oven capacity
  - Accommodates a 14" (356 mm) platter
- Motor driven top antenna
  - Reliable distribution of energy for consistent heating results
- Non-removable front air filter
  - Cools componentry, extends life of oven

TOUCH CONTROL MODELS

- 100 programmable menu items, 4 cooking stages, 5 power levels
- Braille touch pads
- Versatile program options
- One-touch cooking

DIAL CONTROL MODELS

- 10:00 light up dial timer
- 4 power levels
- Automatic reset to zero when cooking cycle is interrupted (manual reset available as user option)



Reliable, long lasting Grab 'n Go handle with no moving parts

Available with touch pad or dial controls

IDEAL APPLICATIONS

- Server stations
- Convenience stores
- Coffee shops
- Concessions
- Breakrooms

Fabricated and Assembled in the USA

BOOST HEATS AND RE-THERMS IN SECONDS!

- Breakfast sandwich reheats in 1:00
- Stage cooking perfectly prepares instant oatmeal in 1:30

Amana Commercial

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 16 - HEATED CABINET (1 EA REQ'D)

Alto-Shaam 750-S

Halo Heat® Low Temp Holding Cabinet, on/off simple controller with adjustable thermostat, indicator light, capacity (10) 12" x 20" pans, (2) chrome plated side racks, (3) wire shelves, stainless steel exterior, 2-1/2" casters; 2 rigid, 2 swivel with brakes, EcoSmart®, cULus, UL EPH ANSI/NSF 4, CE, IPX3, TUV-NORD, EAC, N11942

ACCESSORIES

Mfr	Qty	Model	Spec
Alto-Shaam	1		NOTE: Subject to Manufacturer's Terms & Conditions. See Documents Section
Alto-Shaam	1		120v/60/1-ph, 9.0 amps, 1.1kW, 5 ft. cord, NEMA 5-15P, standard
Alto-Shaam	1		Solid door, hinged on right, standard
Alto-Shaam	1	5027133	Casters, 3-1/2" (89mm), plate, (2) rigid, (2) swivel with brakes

BID LOT 1

750-S
Low Temperature Hot Food Holding Cabinet

Keeping food that has been cooked to perfection hot and fresh until the moment it is served demands the gentle precision of Alto-Shaam's exclusive Halo Heat® technology. With controlled temperatures and a closed environment free from forced air, harsh heating elements and added humidity, food is kept warm and flavorful, just as intended.



750-S

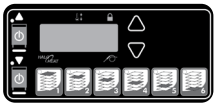
Standard features

- Simple and intuitive pushbutton control that commands all appliance functions with easily identifiable icons
- Halo Heat—a controlled, uniform heat source that gently surrounds food for better appearance, taste, and longer holding life
- Stainless steel interior resists corrosion
- Digital control senses temperature drops faster, providing quick heat recovery time
- Close temperature tolerance and even heat application maintain ideal serving temperature throughout the cabinet
- Door venting holds crispy food better

Deluxe control option (select one)

Deluxe control features SureTemp™ heat recovery system. SureTemp™ reacts immediately to compensate for any loss of heat whenever the door is opened.

A 

B 

- ☐ Deluxe control **(A)**
- ☐ Deluxe control with probe **(A)**
- ☐ Deluxe control with six (6) independent shelf timers **(B)**
- ☐ Deluxe control with probe and shelf timers **(B)**



TEMPERATURE

Temperature range: 60°F to 200°F (16°C to 93°C)



CAPACITY

10 Ten full-size or GN 1/1 pans 2-1/2" (65mm) deep
6 Six full-size or GN 1/1 pans 4" (100mm) deep
4 Four full-size or GN 1/1 pans 6" (150mm) deep
6 Six full-size sheet pans (on wire shelves only)

Two side racks with eleven pan positions spaced on 1-3/8" (35mm) centers

120 lb (54 kg) product maximum

100 qt (95 L) volume maximum

Includes three shelves. Additional shelves required for maximum capacity.

c UL us LISTED COOKING APPLIANCE 584m

ANSI/NSF 4

CE EAC IP X3 ecosmart TÜV NORD Type Tested N11942

Configurations (select one)

Door choices
- ☐ Solid door, standard
- ☐ Window door, optional

Door swing
- ☐ Right hinged, standard
- ☐ Left hinged, optional

Cabinet choices
- ☐ Reach-in, standard
- ☐ Pass-through, optional—note: pass-through cabinets cannot have doors hinged on the same side

Electrical
- ☐ 120V, 1 ph
- ☐ 208–240V, 1 ph
- ☐ 230V, 1 ph

Accessories (select all that apply)
- ☐ Bumper, full perimeter (5010371)—not available with 2-1/2" casters
- ☐ Handle, push/pull (55662)
- ☐ Door lock with key (LK-22567)
- ☐ Security panel with lock—requires door lock (LK-22567)(5013936)
- ☐ Drip tray—external (5010391)
- ☐ Pan grid, wire—18" x 16" (457mm x 406mm) pan insert (PN-2115)
- ☐ Legs, 6" (152mm), flanged—set of four (5011149)
- ☐ Carving holder, prime rib (HL-2635)
- ☐ Carving holder, steamship (cafeteria) round (4459)
- ☐ Drip pan with drain, 1-11/16" (43mm) deep (14831)
- ☐ Drip pan without drain, 1-5/8" (41mm) deep (1014684)

Casters, stem—2 rigid, 2 swivel w/ brake
- ☐ 5" (127mm) (5004862)
- ☐ 3-1/2" (89mm) (5008017)
- ☐ 2-1/2" (64mm)(5008022)—standard

Shelves
- ☐ Chrome wire, reach-in (SH-2105)
- ☐ Chrome wire, pass-through (SH-2327)
- ☐ Stainless steel, flat wire, reach-in (SH-2324)
- ☐ Stainless steel, rib rack (SH-2743)

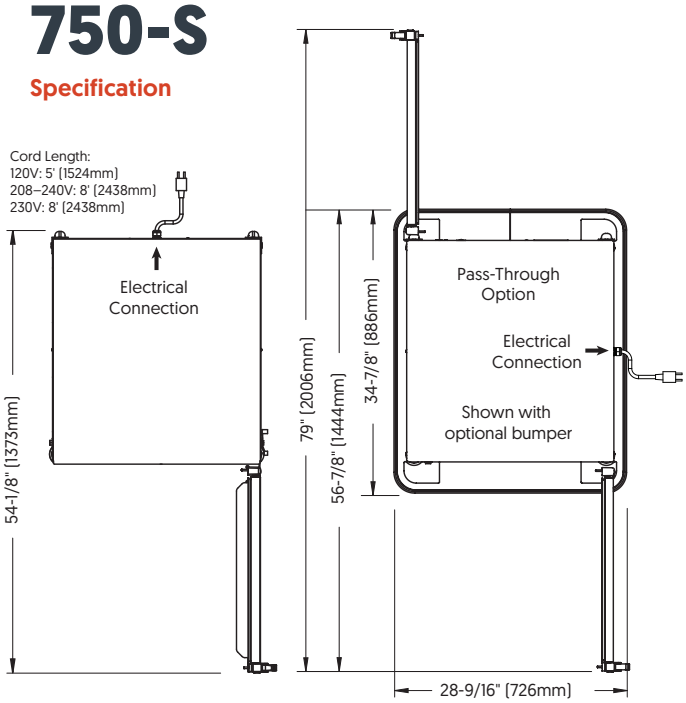
Stacking hardware
- ☐ Over or under 750-TH, 767-SK, 750-S-Series (5004864)
- ☐ Under CTX4-10 Combitherm®

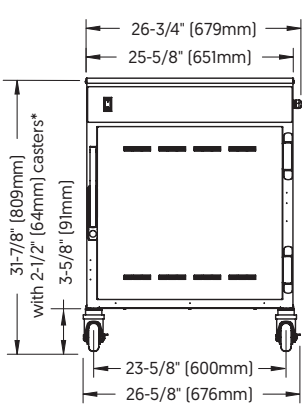
BID LOT 1

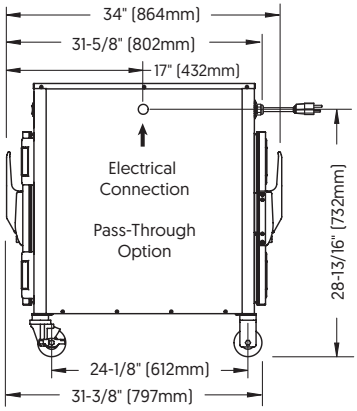
750-S

Specification

ALTO-SHAAM







*33-3/8" (848mm) with optional 3-1/2" (89mm) casters
*35-1/4" (894mm) with optional 5" (127mm) casters
*33-3/4" (857mm) with optional 6" (152mm) legs

DIMENSIONS

Model	Exterior (H x W x D)	Interior (H x W x D)
750-S	31-7/8" x 26-5/8" x 31-3/8" (809mm x 676mm x 797mm)	20" x 21-15/16" x 26-1/2" (507mm x 556mm x 673mm)
	Pass-Through Exterior	**Net Weight**
	31-7/8" x 26-3/4" x 33-13/16" (809mm x 679mm x 858mm)	157 lb (71 kg)
	Ship Dimensions (L x W x H)*	**Ship Weight***
750-S	35" x 35" x 41" (889mm x 889mm x 1041mm)	228 lb (103 kg)

*Domestic ground shipping information. Contact factory for export weight and dimensions.

CHECK FIRST

- Appliance must be installed level.
- Appliance must not be installed in any area where it may be affected by steam, grease, dripping water, extreme temperatures, or any other severely adverse conditions.
- Appliances with casters and no cord or plug must be secured to the building structure with a flexible connector. Not factory supplied.

CLEARANCE

Top:	2" (51mm)
Left:	1" (25mm)
Right:	1" (25mm)
Back:	3" (76mm)

ELECTRIC

750-S	V	Ph	Hz	A	kW	Cord & Plug
120V	120	1	50/60	9.0	1.1	NEMA 5-15p 15A-125V plug
208-240V	208	1	50/60	3.9	.81	NEMA 6-15p 15A-250V plug (U.S.A. only)
	240	1	50/60	4.5	1.1	
230V	230	1	50/60	4.3	1.0	plugs rated 250V CEE 7/7
						CH2-16p
						BS 1363 (U.K. only)
						AS/NZS 3112

HEAT

Heat of rejection

750-S	Heat Gain qs, BTU/hr	Heat Gain qs, kW
	223	0.07

CONTACT US

W164 N9221 Water Street | Menomonee Falls, Wisconsin 53051 | U.S.A.
Phone: 262.251.3800 | 800.558.8744 U.S.A./Canada | Fax: 262.251.7067 | alto-shaam.com

750-S-HH-SPC-003 - 03/20 Printed in U.S.A.

Due to ongoing product improvement, specifications are subject to change without notice.

Submittal Sheet

04/16/2024

ITEM# 17 - SPARE NO.

<Spare No.>

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 18 - PREP TABLE W/SINK (1 EA REQ'D)

Fabricator FAB-TABLE-PREP-1SINK

Custom Fabricated Stainless Steel
14 gauge 304 stainless steel top, 18 gauge adjustable stainless steel undershelf, stainless steel legs & adjustable bullet feet, NSF

Provide with splash mount faucet and leverwaste with support bracket. Provide with ¼" S/S cutting board supports welded to sink bowl for 1" thick white poly cutting board inserts to sit flush when in use. Provide with S/S cutting board storage brackets, S/S legs and undershelves per plans and elevations.

SEE FS PLANS FOR SIZE & CONFIGURATION
Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 19 - SHELVING, WALL MOUNTED (2 EA REQ'D)

Advance Tabco WS-12-108-16

Shelf, wall-mounted, 108"W x 12"D, 1-5/8" bullnose front edge, 1-1/2"H rear up-turn, 16/304 satin finish stainless steel, NSF (units 84" & longer have (3) support brackets)

ACCESSORIES

Mfr	Qty	Model	Spec
Advance Tabco	2	TA-60	Modification to reduce length and/or width of shelf, start with next largest size then add "TA-60" to model number

BID LOT 1

ADVANCE TABCO
SMART FABRICATION™

STAINLESS STEEL

WALL SHELVES

NSF



Item #: _____ Qty #: _____

Model #: _____

Project #: _____



FEATURES:

Brackets can be positioned to accommodate wall studs.

Furnished with a 1-5/8" Bullnose edge with a 1-1/2" turn-up edge at rear. Ends are turned down square.

MATERIAL:

16 Gauge Series - 304 stainless steel polished to a satin finish.

18 Gauge Series - 430 stainless steel polished to a satin finish.

CONSTRUCTION:

Secured to wall by means of bolts through support brackets.

Units 7 ft. and larger are furnished with 3 brackets.

	10" Wide			12" Wide			15" Wide			18" Wide			
L	16 Ga.	18 Ga.	Approx. Wt.	16 Ga.	18 Ga.	Approx. Wt.	16 Ga.	18 Ga.	Approx. Wt.	16 Ga.	18 Ga.	Approx. Wt.	Approx. Cu. Ft.
24"	WS-10-24-16	WS-10-24	8 lbs.	WS-12-24-16	WS-12-24	9 lbs.	WS-15-24-16	WS-15-24	11 lbs.	WS-18-24-16	WS-18-24	14 lbs.	3
30"	-	-	-	WS-12-30-16	WS-12-30	12 lbs.	-	-	-	-	-	-	4
36"	WS-10-36-16	WS-10-36	10 lbs.	WS-12-36-16	WS-12-36	12 lbs.	WS-15-36-16	WS-15-36	15 lbs.	WS-18-36-16	WS-18-36	21 lbs.	4
42"	-	-	-	WS-12-42-16	WS-12-42	14 lbs.	-	-	-	-	-	-	5
48"	WS-10-48-16	WS-10-48	12 lbs.	WS-12-48-16	WS-12-48	14 lbs.	WS-15-48-16	WS-15-48	18 lbs.	WS-18-48-16	WS-18-48	24 lbs.	5
60"	WS-10-60-16	WS-10-60	15 lbs.	WS-12-60-16	WS-12-60	17 lbs.	WS-15-60-16	WS-15-60	23 lbs.	WS-18-60-16	WS-18-60	28 lbs.	6
72"	WS-10-72-16	WS-10-72	17 lbs.	WS-12-72-16	WS-12-72	21 lbs.	WS-15-72-16	WS-15-72	28 lbs.	WS-18-72-16	WS-18-72	32 lbs.	7
84"	WS-10-84-16	WS-10-84	20 lbs.	WS-12-84-16	WS-12-84	25 lbs.	WS-15-84-16	WS-15-84	32 lbs.	WS-18-84-16	WS-18-84	36 lbs.	8
96"	WS-10-96-16	WS-10-96	23 lbs.	WS-12-96-16	WS-12-96	28 lbs.	WS-15-96-16	WS-15-96	36 lbs.	WS-18-96-16	WS-18-96	42 lbs.	10
108"	WS-10-108-16	WS-10-108	28 lbs.	WS-12-108-16	WS-12-108	32 lbs.	WS-15-108-16	WS-15-108	40 lbs.	WS-18-108-16	WS-18-108	48 lbs.	11
120"	WS-10-120-16	WS-10-120	32 lbs.	WS-12-120-16	WS-12-120	36 lbs.	WS-15-120-16	WS-15-120	44 lbs.	WS-18-120-16	WS-18-120	54 lbs.	12
132"	WS-10-132-16	WS-10-132	36 lbs.	WS-12-132-16	WS-12-132	42 lbs.	WS-15-132-16	WS-15-132	49 lbs.	WS-18-132-16	WS-18-132	60 lbs.	13
144"	WS-10-144-16	WS-10-144	40 lbs.	WS-12-144-16	WS-12-144	48 lbs.	WS-15-144-16	WS-15-144	55 lbs.	WS-18-144-16	WS-18-144	66 lbs.	14

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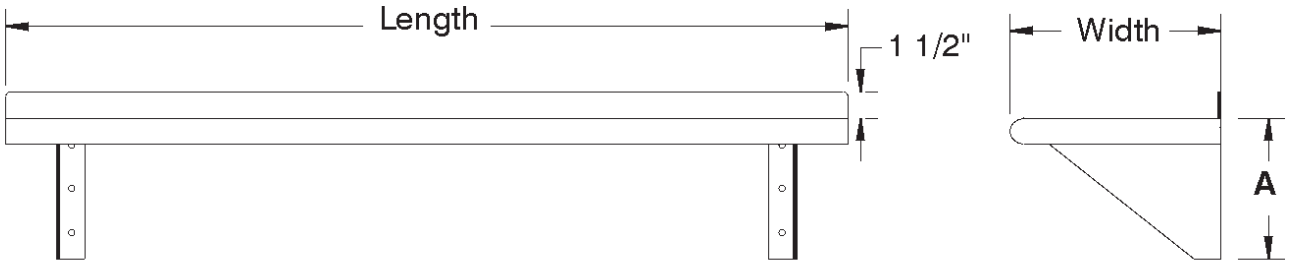
REF-L

BID LOT 1

DETAILS and SPECIFICATIONS

TOL ± .500”

ALL DIMENSIONS ARE TYPICAL



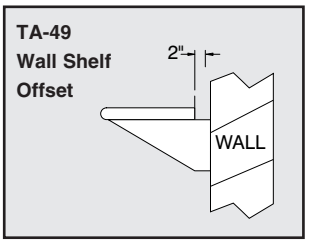
Width	A
10”	8 1/2”
12”	10 1/2”
15”	13 1/2”
18”	16 1/2”

Load Capacity = 20 lbs. per sq. ft.

(Evenly Distributed Weight)

Wall Shelf Options

PRT-1	Printer Shelf
TA-22A	Square Edge Shelf
TA-26	Welded Shelf Brackets
TA-49	Wall Shelf 2” Offset
TA-71	Heat Lamp Provision
TA-77	Check Minder
TA-77A	Concealer for Heat Lamp (Requires TA-77)
TA-99A	14 Ga. S/S 304 Upgrade for Overshelves
TA-100A	Bullnose Edge On All 4 Sides of Shelf
TA-102	6” Cantilever Shelf Offset





ADVANCE TABCO is constantly engaged in a program of improving our products. Therefore, we reserve the right to change specifications without prior notice.

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BID LOT 1

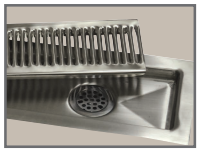
ADVANCE TABCO
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TABLE MODIFICATIONS & ACCESSORIES

TOP MODIFICATIONS



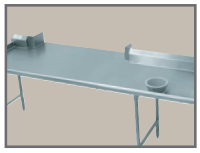
TA-56
5" NSF Partition



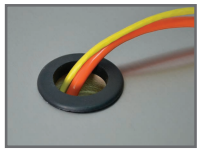
TA-523
Drop-In Urn Trough



CDR-5
Condiment Holder



TA-84
Pass-Thru



TA-108
Grommet For Cords

QTY.		
____	CDR-5	Condiment Holder (Accommodates 5 Bins)
____	TA-1	Notch Backsplash For Roll Up Door w/ Pass-Thru
____	TA-3	Stainless Steel Hat Channel & Gusset Upgrade
____	TA-7	10" Partial Splash
____	TA-8	Column Notch in Rear Splash (Includes Splash)
____	TA-10	5" Partial Splash
____	TA-12	Countertop Edge
____	TA-22	Square Edge Table
____	TA-28	Cut-Out For Cold Well. Incudes Louvered Doors
____	TA-29	16 Ga. 304 Rear Splash Capping Strip w/Adhesive Backing
____	TA-30	1-1/2" Side Splash
____	TA-30A	1-1/2" Turn Up For Table Tops
____	TA-31	5" Side Splash
____	TA-32	10" Side Splash
____	TA-34	Top Cut-Out
____	TA-34A	Top Cut-Out for Undermount Well
____	TA-35	Splash Cut-Out
____	TA-41	Poly-Vance 5/8" Cutting Board
____	TA-56	5" NSF Partition
____	TA-56A	18" NSF Partition
____	TA-57	Prepare Welded Field Joint (Welded in field by others)
____	TA-57A	Bolted Field Joint (Bolted in field by others)
____	TA-57B	Hairline Field Joint
____	TA-58	Stepdown to 24" Working Height
____	TA-64	Urn Trough (Factory installation only)
____	TA-75	Mitered Edge
____	TA-76	Paint on Sound Deadening
____	TA-79	Flour Trough (Factory installation only)
____	TA-82	Scrap Chute (6" dia. opening)
____	TA-84	Simple Pass-Thru
____	TA-87	Enclosed Rear Splash
____	TA-91	Poly Retaining Clips Includes TA-22 (S/S top table)

QTY.		
____	TA-93	Wall Brackets (Includes 2. For 5" & 10 1/2" splash only)
____	TA-96A	Can Opener Provision for Openers with Bolt-on Base (Customer to provide location)
____	TA-96B	Can Opener Surface Mount Provision with 4" S/S Tube for Openers w/o Base (Customer to provide location)
____	TA-96C	Can Opener Spacer Plate Provision for Use on Tables With Countertop Edge & Can Opener Base (Customer to provide location)
____	TA-100	Bull Nose All Sides of Worktable
____	TA-101	Rear Tray Lock
____	TA-106	Mirror HI-LITE Edge
____	TA-107	Vacuum Breaker Holes on Tables (Includes Backsplash with 2" Return)
____	TA-108	2" Hole with Grommet for Appliance Cord
____	TA-112	Hubble Outlet
____	TA-113	Notch Top for Buyout Unit
____	TA-130	Cutlery Dispenser Holder (Undercounter Mounted)
____	TA-135	Plate Shelf (Undercounter Mounted)
____	TA-366A	Heavy duty Understructure Top
____	TA-502	Install Advnace Tabco Hot Food Unit In Work Table Top (Requires TA-34 Top Cut-Out & TA-27 Control Panel. Does not include wiring. Consult factory)
____	TA-521	Drop-In urn Trough 1'
____	TA-522	Drop-In urn Trough 2'
____	TA-523	Drop-In urn Trough 3'
____	TA-524	Drop-In urn Trough 4'
____	TA-525	Drop-In urn Trough 5'
____	TA-526	Drop-In urn Trough 6'
____	TA-527	Drop-In urn Trough 7'
____	TA-528	Drop-In urn Trough 8'
____	TA-529	Drop-In urn Trough 9'
____	TA-550	Install Customer Supplied Buyout Items (Does not include wiring. Consult factory)
____	TA-551	Installation of Hot Food Wells. (Requires TA-34 Top Cut-Out & TA-27 Control Panel. Does not include wiring. Consult factory)

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BID LOT 1

TABLE MODIFICATIONS & ACCESSORIES

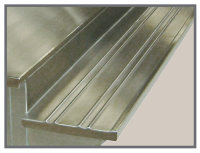
BASE MODIFICATIONS



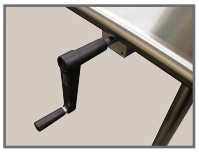
TA-39
Louvered Hinged Doors



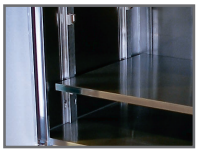
TA-73
Drop-Down Tray Slide



TA-74
Solid Tray Slide



TA-900
ADJ. Height Tables



TA-116
Adj. Mid-Shelf

QTY.		
____	TA-4	Removable Access Panel
____	TA-4A	Luvered Panel
____	TA-5	Curb Mounting Provision
____	TA-15	Provision for Built In Drawer Warmer
____	TA-23	Welded Set-Up Table/Crating
____	TA-24	Shell Crating
____	TA-27	Control Panel (Must add TA-34A or TA-34B)
____	TA-36A	Sliding/Hinge Stainless Steel Doors
____	TA-36B	1/2 Height Stainless Steel Hinge Doors
____	TA-36C	Hinged door with Trash Flap
____	TA-37	Stainless Enclosed Base
____	TA-39	24" Louvered Hinged Doors
____	TA-40	Remove Undershelf in Cabinet Base For Slide in Buyout
____	TA-42	Interior Partition (2.5"x30")
____	TA-43	Filler Panel (3"x30" with Flanged Feet)
____	TA-44	K.D. Aluminum Pan Rack Slides (6 slides. Table min. lgth. 30")
____	TA-45	K.D. Aluminum Glass Rack Slides (3 slides. Table min. lgth. 3 feet)
____	TA-46	Door Locks

QTY.		
____	TA-48	12"x12" Cut-Out in Back Panel/Undershelf for Plumbing
____	TA-54	Removable Kick Plate
____	TA-55	Remove Back Panel (on Enclosed Base)
____	TA-63	Removable Shelving (In addition to standard shelf & table width)
____	TA-70	S/S Tubular Tray Divider (12" sections)
____	TA-73	Tubular Tray Slide w/Dropdown (Stationary Tray Slide Available. Factory installation only)
____	TA-74	Solid Tray Slide
____	TA-92	12" Apron (in front of sink)
____	TA-92A	17" Stainless Steel Apron to Cover Sink Bowls and Support Lever Drain Handles
____	TA-116	Adjustable Enclosed Base Cabinet Mid Shelf- Add to Price of Enclosed Base Table with Fixed Mid Shelf **(M)**. Shelves Over 36" In Length Require Multiple Sections With Center Partition. For Partial Shelves Add To Price Of Shelf.
____	TA-130	Cutlery Dispenser Holder (Undercounter Mounted)
____	TA-135	Plate Shelf (Undercounter Mounted)
____	TA-205	Connect Cafeteria Items (Per Joint Between 2 Tables. Requires Casters)
____	TA-900	Upgrade Table To be Height Adjustable In Field (Up to 6" Only. Unit Ships Set Up)

ELECTRICAL & DATA PORT OUTLETS



TA-62
Duplex Outlet



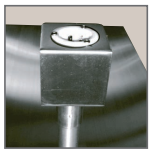
TA-62A
GFI Duplex Outlet



TA-62D
GFI Doghouse Outlet



TA-62F
Empty Junction Box



TA-112
Hubble Outlet

QTY.		
____	TA-62	Standard Duplex Electrical Outlet & Cover Plate (Under Flat Top). NEMA 5-15R
____	TA-62A	GFI Duplex Outlet & Cover Plate in a VKS Splash. NEMA 5-20R
____	TA-62C	GFI Duplex Outlet & Cover Plate Below Shelf Top. NEMA 5-20R
____	TA-62D	GFI Duplex Outlet & Cover Plate in a Doghouse. NEMA 5-20R

QTY.		
____	TA-62E	Upgrade Outlet to a NEMA 6-20R or Equiv.
____	TA-62F	Junction Box (empty) Below Table Top. Includes 1 Gang Size, Stainless Steel Face Plate
____	TA-112	Hubble Outlet
____	TA-622	CAT-5 Data Port Outlet. Cable Not Included

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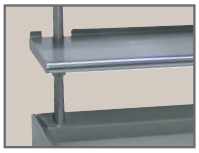
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BID LOT 1

TABLE MODIFICATIONS & ACCESSORIES

OVERSHELF & POT RACK MODIFICATIONS



TA-9A
1" Turn Up



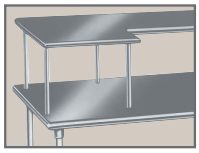
TA-22A
Square Edge



TA-71
Heat Lamp Mounting Provision



TA-100A
Bull Nose



TA-102
24" x 24" Extension

QTY.		
____	TA-9A	Partial 1" Turn-Up for all Table Mt. Shelves
____	TA-22A	Square Edge on Overshelf
____	TA-26-10	Welded Wall Shelf Brackets for 10" Wide Shelf
____	TA-26-12	Welded Wall Shelf Brackets for 12" Wide Shelf
____	TA-26-15	Welded Wall Shelf Brackets for 15" Wide Shelf
____	TA-26-18	Welded Wall Shelf Brackets for 18" Wide Shelf
____	TA-47	Shelf Mounting Bracket for Existing Table
____	TA-49	Wall Shelf 2" Offset
____	TA-60	Special Sizing Charge for Shelves (Must Order Larger Unit to be Cut Down to Smaller Size)
____	TA-71	Heat Lamp Mounting Provision
____	TA-71A	Heat Lamp Remote Control Bracket
____	TA-78	Additional Lin. Ft. Past 12' For Table Mt. Shelf (For ODS, OTS, TS, DS & WS Shelving only)
____	TA-77	Check Minder Shelf Provision (Factory install only)
____	TA-83	Spice Bins

QTY.		
____	TA-84A	Knife Rack for Rolled Rim Tables
____	TA-84B	Knife Rack for Poly Top Tables
____	TA-84C	Knife Rack for Square Edge Tables
____	TA-86	Stainless Steel Pot Hooks
____	TA-89	Double Sided Plated Pot Hooks (Package of 4)
____	TA-89A	Single Sided Plated Pot Hooks (Package of 4)
____	TA-98	Stainless Steel Flat Bar in lieu of Chain
____	TA-99	16 Ga. S/S 304 Upgrade for Wall & Over Shelves
____	TA-100A	Bull Nose All Sides of Shelf
____	TA-100R	Bull Nose Three Sides of Shelf w/ Rear Turn Up
____	TA-102	24" x 24" Extension for Microwave or Computer Shelf (Add to OTS and ODS Shelves. See page 65)
____	TA-103	24" Wide PT Shelf (36" Min Length. Mid mount only. PT Series Shelf, See Pg. 73. Add to 18" Wide Shelf)
____	TA-104	Additional Length Over 12' (Add to 18" Shelf. (PA & CU Shelving Only. Max. Length is 14' as Single Piece)

UNDERSHELF MODIFICATIONS

QTY.		
____	TA-9	1-1/2" Turn-Up for Undershelves
____	TA-17	Upgrade Undershelf to a Marine Edge (Must add TA-23)
____	TA-48	12"x12" Cut-Out in Back Panel or Undershelf for Plumbing

QTY.		
____	TA-94	Upgrade 16 Ga. 304 S/S Undershelf
____	TA-94A	Upgrade 14 Ga. 304 S/S Undershelf
____	TA-366	Reinforced Understructure For Undershelves

SIZE MODIFICATIONS

QTY.		
____	TA-33	Special Working Height
____	TA-59	36" Wide Equipment Stand
____	TA-6	Extra Length for Standard Tables Over 12' (Tables Over 14' Require Field Joint TA-57)
____	TA-61	Special Sizing Charge (Larger Unit Cut Down to Smaller Size)
____	TA-61A	Special Modification Charge

QTY.		
____	TA-65	Enclosed Base Units Over 12' (Open Base Table)
____	TA-66	Enclosed Base Units Over 12' (Sliding Door Units)
____	TA-67	Enclosed Base Units Over 12' (Hinged Door Units)
____	TA-105	Modify Enclosed Base Table w/ Drawers to 24" Width
____	TA-110	Modify Enclosed Base Table w/ Drawers to 36" Width

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BID LOT 1

TABLE MODIFICATIONS & ACCESSORIES

LEG MODIFICATIONS

QTY.		
____	TA-16	1 Galvanized Leg with Plastic Bullet Foot (34 1/2" Total Length)
____	TA-16-4	4 Galvanized Legs with Plastic Bullet Feet (34 1/2" Total Length)
____	TA-16-6	6 Galvanized Legs with Plastic Bullet Feet (34 1/2" Total Length)
____	TA-19	Stainless Steel Flanged Bullet Foot For Work Table
____	TA-19L	S/S Bolt-on Leg w/ Flanged Foot For Enclosed Base Table
____	TA-20	1 Stainless Steel Leg with S/S Bullet Foot (34 1/2" Total Length)
____	TA-20-4	4 Stainless Steel Leg with S/S Bullet Feet (34 1/2" Total Length)

QTY.		
____	TA-20-6	6 Stainless Steel Leg with S/S Bullet Feet (34 1/2" Total Length)
____	TA-20L	Replacement Bolt-on Leg For Enclosed Base Table
____	TA-21	Stainless Steel Bullet Foot
____	TA-68	Relocate Rear Cross Rail To Center (for Open Base Tables Only)
____	TA-72	Leg to Wall Brace (Set per table)
____	TA-95	Upgrade 16 Ga. 304 S/S Legs Only

WORK TABLE CASTERS



Standard Casters

Maintains the Standard 35-1/2" Working Height

200 lbs. Load Capacity Per Caster

When Used w/ Stainless Steel Legs

TA-25S-4 **Set of 4** (Two with Brakes)
TA-25S-6 **Set of 6** (Two with Brakes)

When Used w/ Galvanized Legs

TA-25G-4 **Set of 4** (Two with Brakes)
TA-25G-6 **Set of 6** (Two with Brakes)

Replacement Casters

For Work Tables

TA-25 **Set of 4** (Two with Brakes)

TA-25A **Set of 6** (Two with Brakes)

200 lbs. Load Capacity Per Caster



Optional Standard Caster Upgrades:

TA-25B Set For brakes on all wheels (Standard Casters) - Add price to the following models: TA-25, TA-25A, TA-25S-4, TA-25S-6, TA-25G-4, TA-25G-6

TA-25C Per Caster Upgrade Standard Caster with Heavy Duty Urethane Wheels (Per Caster)

EQUIPMENT STAND CASTERS



Standard Casters

5" Urethane Wheels.
Maintains the Standard 24" Working Height

200 lbs. Load Capacity Per Caster

w/ Stainless Steel Legs

TA-25ES **Set of 4** (Two with Brakes)

w/ Galvanized Legs

TA-25EG **Set of 4** (Two with Brakes)



HEAVY DUTY Casters

5" Urethane Wheels

400 lbs. Load Capacity Per Caster

TA-255 Super Heavy Duty Set of 4 (Two with Brakes)

TA-256 Super Heavy Duty Set of 6 (Two with Brakes)

Enclosed Base Table Casters

Easy Bolt-On Style



TA-255P **Set of 4** (Two with Brakes)
TA-255AP **Set of 6** (Two with Brakes)

300 lbs. Load Capacity Per Caster

For brakes on all wheels (Enclosed Base Casters) - Add price to models: TA-255P or TA-255AP

TA-255PB

Optional Equipment Stand Caster Upgrade:

TA-255B For brakes on all wheels (Equipment Casters) - Add price to any of the following models: TA-255, TA-256, TA-25ES, TA-25EG

Contact Our SMART FABRICATION™ Department for more information at 800-645-3166 or email in your specifications to smartfab@advancetabco.com

ADVANCE TABCO is constantly engaged in a program of improving our products. Therefore, we reserve the right to change specifications without prior notice.
© ADVANCE TABCO, AUGUST 2018

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 20 - BLENDER, BAR (1 EA REQ'D)

Vitamix 036019-ABAB

The Quiet One® Twist Lock Blender (VM0145), countertop, 48 oz. (1.4 liter) capacity, clear Tritan™ BPA free Advance® container, 24-1/2"H with lid open, stackable, removable compact twist lock cover, (6) touch control buttons with (34) program options, includes: Advance® blade assembly & lid, 3-peak HP, 120v/50/60/1-ph, 15.0 amps, NEMA 5-15P, RoHs compliant, CE, cULus, NSF

ACCESSORIES

Mfr	Qty	Model	Spec
Vitamix	1		3 years warranty on motor base parts & 1 year warranty on labor, standard

THE QUIET ONE®

Vitamix COMMERCIAL



Best-In-Class Quiet Blending Technology

The ultimate blender with unparalleled sound reduction, exceptional beverage blends, and improved speed of service.

Smart Product Design

- Twist Lock sound enclosure is easier to remove and clean
- 48-ounce Advance® container creates faster, smoother pours resulting in time and cost savings along with improved customer experience
- Larger centering pad allows for simple, one-step cleaning
- Advanced vibration dampening technology results in a more enjoyable atmosphere
- 6 program buttons with 34 optimized settings for easier, consistent blending
- Air management and powerful 3-peak output HP motor reduces noise, improves reliability, and minimizes downtime

La Mejor Tecnología de Licuado Silencioso en su Clase

La mejor licuadora, con una reducción de ruido incomparable, mezcla de bebidas excepcionales y una mejor velocidad de servicio.

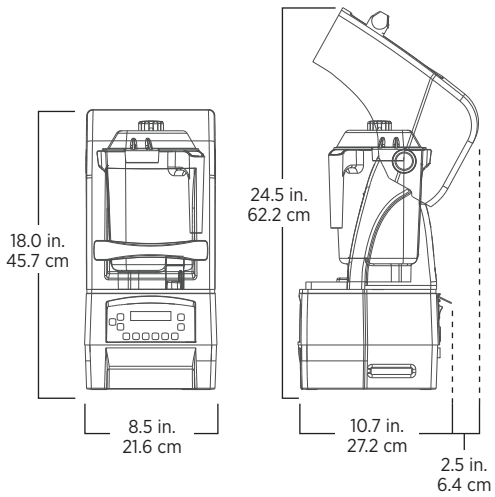
Diseño Inteligente del Producto

- Su cubierta antiruido con mecanismo de cierre por torsión es más fácil de remover y limpiar
- Su vaso Advance de 48 onzas mezcla mas rapida y fácilmente, permitiendole ahorrar tiempo y dinero mejorando así la experiencia del cliente
- Su almohadilla centrante mas grande permite una limpieza más sencilla en un solo paso
- Su avanzada tecnología de amortiguación de vibraciones permite mantener una atmósfera más agradable
- 6 botones con 34 programas optimizados para un licuado más fácil y consistente
- Su sistema de enfriamiento y potente motor de 3 HP de potencia de salida máxima reducen el ruido, mejoran la confiabilidad y minimizan el tiempo improductivo

vitamix.com/commercial

THE QUIET ONE®

36019



Includes The Quiet One® with 48-ounce high-impact, clear/stackable Advance container complete with Advance blade assembly and lid, and removable compact enclosure.

The Quiet One is backed by a three-year warranty on motor base parts and a one-year warranty on labor. For more complete warranty terms and conditions, please visit vitamix.com/commercial.

**Standard 64 oz. container cannot be used with the compact cover.*

La The Quiet One viene con un vaso Advance de alto impacto, transparente y apilable de 48 onzas, un ensamble de cuchillas y tapa Advance, y una cubierta compacta removible.

La The Quiet One está respaldada por una garantía de 3 años en las partes de la base y un año de garantía en la mano de obra. Para obtener información completa sobre los términos y condiciones de la garantía, visite vitamix.com/commercial.

**El vaso estándar de 64 onzas no se puede utilizar con la cubierta compacta.*

Product Specifications

Item Number	36019
Motor	≈3 peak output horsepower motor
Electrical	120 V, 50-60 Hz, 15.0 A
Net Weight	19.2 lbs, *(23.1 lbs. with box)*
Dimensions	18.0 x 8.5 x 10.7 in. *(HxWxD)* *Height with lid open:* 24.5 in.

Also Available

62947	32 oz. Aerating container *(complete with aerating blade assembly, lid, and mini tamper)*		
15978	48 oz. Clear Advance container*		
58988	48 oz. Blue Advance container*	58990	48 oz. Orange Advance container*
58989	48 oz. Yellow Advance container*	58991	48 oz. Purple Advance container*

**Complete with Advance blade assembly and lid*

Especificaciones del Producto

Número de Artículo	36019
Motor	≈3 HP de potencia de salida máxima
Especificaciones Eléctricas	120 V, 50-60 Hz, 15.0 A
Peso Neto	19.2 lb *(23.1 lb con la caja)*
Dimensiones	18.0 x 8.5 x 10.7 pulg *(Al x An x Pr)* *Altura con la tapa abierta:* 24.5 pulg

También Disponible

62947	Vaso para aireación de 32 onzas *(viene con ensamble de disco para aireación, tapa y mini tamper)*		
15978	Vaso Advance Transparente de 48 onzas*		
58988	Vaso Advance Azul de 48 onzas*	58990	Vaso Advance Anaranjado de 48 onzas*
58989	Vaso Advance Amarillo de 48 onzas*	58991	Vaso Advance Morado de 48 onzas*

**Incluye ensamble de cuchillas y tapa Advance*

Contact Information

U.S.A.

800.4DRINK4 or 800.437.4654

commercial@vitamix.com

Información de Contacto

Latin America

+1.440.782.2450

international@vitamix.com

vitamix.com/commercial

For more information, contact your local foodservice distributor.

Para más información, póngase en contacto con su distribuidor local de equipos para food service.

Vitamix COMMERCIAL

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BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 21 - FOOD PROCESSOR, BENCHTOP / COUNTERTOP (1 EA REQ'D)

Robot Coupe R301UDICE

D Series Combination Food Processor, 3.7 liter stainless steel bowl with handle, continuous feed kit with kidney shaped & cylindrical shaped hoppers, includes: (1) "S" blade (27286), (1) 2mm grating disc (27577), (1) 4mm slicing disc (27566), (1) 10mm dicing kit (27114), on/off & pulse switch, single speed, 1725 RPM, 120v/60/1-ph, 12.0 amps, 2 HP, NEMA 5-15P, cETLus, ETL-Sanitation

ACCESSORIES

Mfr	Qty	Model	Spec
Robot Coupe	1		1 year parts & labor warranty
Robot Coupe	1	SP5DISC	SP5Disc, (5) disc package includes: (1) 1/4" grating disc, (1) 1/4" x 1/4" julienne disc, (1) 5/64" julienne disc, (1) 1/32" slicing disc, (1) 1/4" slicing disc
Robot Coupe	1	107812	Disc Holder, wall mount, (4) stainless steel hooks, holds (16) small discs or (8) large discs

BID LOT 1

COMBINATION PROCESSOR : Bowl cutter & Vegetable prep

R 301 Ultra Dice



D Number of meals per service	10 to 80
Quantity per batch in cutter function	Up to 3.3 lbs
Vegetable slicer output	Up to 110 lbs/h

A SALES FEATURES

R 301 Ultra Dice Combination Processor: Bowl cutter & Vegetable Prep equipped with a cutter attachment for chopping, fine mincing, emulsions, grinding and kneading, and a vegetable preparation attachment for slicing, grating, ripple cut slicing, dicing and making French fries.

B TECHNICAL FEATURES

R 301 Ultra Dice Combination Processor: Bowl cutter & Vegetable Prep. Single phase 120/60/1. Power 2 HP. Speed: 1725 rpm. 3.7 L cutter bowl in stainless steel and smooth bowl-base blade assembly. Vegetable preparation attachment in polycarbonate material with side ejection equipped with 2 hoppers : 1 large and 1 cylindrical hopper. Supplied with 2 mm (5/64") grating, 4 mm (5/32") slicing discs and 10 mm (3/8") dicing kit. Large range of 28 stainless steel discs available as option. 10 to 80 meals.

Select your options at the back page, F part.

C TECHNICAL DATA

Output power	2 HP
Electrical data	120V/60/1 - 12 Amp
Speed	1725 rpm
Dimensions (WxDxH)	13 1/16"x11 15/16"x21 1/2"
Rate of recyclability	95%
Net weight	44 lbs
Nema #	5-15P
Reference	R 301 Ultra Dice 120V/60/1

E VEGETABLE PREPARATION FUNCTION

MOTOR BASE

- Direct drive induction motor (no belt) for intensive use.
- Power 2 HP
- Stainless steel motor shaft.
- Built in on / off / pulse buttons.
- Magnetic safety and motor brake.
- **Speed**: 1725 rpm.
- **Pulse** button for better cut precision.

CUTTER FUNCTION

- **3.7 L stainless steel cutter bowl** with handle, and high resistance smooth blade assembly.

VEGETABLE FUNCTION

- Vegetable preparation attachment equipped with 2 hoppers :
  1 large hopper (surface : 12 square inches) and 1 cylindrical hopper (Ø : 2 1/4"). Removable chute and feed lead.
- Removable chute and feed lead for dishwasher safe and easy cleaning.
- Side ejection for space saving and better user comfort to receive 5 7/8" high GN containers.
- Automatic restart of the machine by the pusher.
- Vertical pusher presses on vegetables for uniform cuts.
- Large range of 28 stainless steel discs available as option.

COULIS/ FRUIT SAUCE & CITRUS PRESS FUNCTIONS:

- **Option**: Juice Extractor Kit including a coulis/ fruit sauce attachment and a citrus press attachment to prepare amuse-bouche, in-a-glass preparations, sauces, soups, sorbets and ice cream, smoothies, jam, fruit pastes...

ACCESSORIES INCLUDED

- Cutter attachment: lid and high resistance stainless steel smooth blade assembly with removable cap.
- Vegetable attachment : chute, feed lead ejecting disc and discharge plate.
- Supplied with 2 mm (5/64") grating, 4 mm (5/32") slicing discs and 10 mm (3/8") dicing kit.

STANDARDS
ETL electrical and sanitation Listed/ cETL (Canada)

ETL LISTED 9900098 Conforms to UL NSF/ANSI Std 763 Std 8 Certified to CAN/CSA Std C22.2 No.195

Robot Coupe USA, Inc.
264 South Perkins - Ridgeland, MS 39157
PH: 601-898-8411 - Toll free: 800-824-1646 - Fax: 601-898-9134
info@robotcoupeusa.com

NMSU Demonstration Kitchen

BID LOT 1

COMBINATION PROCESSOR : Bowl cutter & Vegetable prep

robot coupe

R 301 Ultra Dice

F OPTIONAL ACCESSORIES

- **BLADE OPTIONS**
  - Coarse serrated blade assembly for kneading and grinding, ref 27288
  - Fine serrated blade assembly for chopping herbs and spices, ref 27287
- **OTHER OPTIONS**
- Juice Extractor Kit for fruit sauces and citrus fruit juice, ref 27396
- Wall-mounted blade and disc holder: holds 1 blade and 8 discs, ref 107810
- Dice cleaning kit, ref 39881

SUGGESTED PACKS OF DISCS

3 disc package	6mm (1/4") coarse grating, 6mm (1/4"x1/4") julienne and 1mm (1/32") slicing discs.
5 disc package	6mm (1/4") coarse grating, 6mm (1/4"x1/4") julienne and 1mm (1/32") slicing, 2 mm (5/64") julienne and 6 mm (1/4") slicing discs.

- **OPTIONAL DISCS**



SLICING	
1 mm (1/32")	27051
2 mm (5/64")	27555
3 mm (1/8")	27086
4 mm (5/32")	27566
5 mm (3/16")	27087
6 mm (1/4")	27786



RIPPLE CUTTING	
2 mm (5/64")	27621



GRATING	
1.5 mm (1/16")	27588
2 mm (5/64")	27577
3 mm (1/8")	27511
6 mm (1/4")	27046
9 mm (11/32")	27632
Hard Cheese grate	27764
Röstis potatoes	27191
Fine Pulping Disc	27078
Pulping Disc	27079
Pulping Disc	27130



JULIENNE	
2x4 mm (5/64" x 5/32")	27080
2x6 mm (5/64" x 1/4")	27081
2x2 mm (5/64" x 5/64")	27599
4x4 mm (5/32" x 5/32")	27047
6x6 mm (1/4" x 1/4")	27610
8x8 mm (5/16" x 5/16")	27048



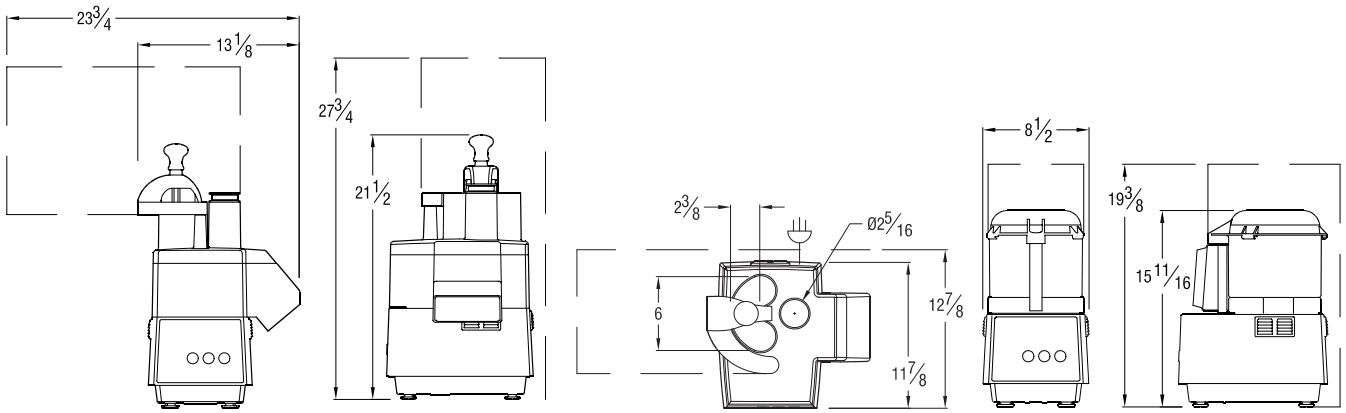
DICING EQUIPMENT	
8x8 mm (5/16")	27113
10x10 mm (3/8")	27114
12x12 mm (15/32")	27298



FRENCH FRY EQUIPMENT	
8x8 mm (5/16" x 5/16")	27116
10x10 mm (3/8"x 3/8")	27117

G ELECTRICAL DATA

120V/60/1 - delivered with cord and plug



BID LOT 1





Area : 16 in²

R 301 Dice Ultra

Induction motor	✓
Power	1.5 HP
Voltage	Single Phase 120 V
Speed	1725 rpm
Pulse	✓
Cutter	3.7 L stainless steel bowl
Blade	Stainless steel smooth "S" blade - **Included**
Vegetable slicer	Half-moon hopper Cylindrical hopper Ø 2 1/4"
Dicing & French fry capabilities	✓
Discs	Included: Slicing disc 4 mm (5/32"), grating disc 2 mm (5/64")

Choose your model:

R 301 Dice Ultra	$
R301UDICE - 120V/60/1	
2 discs	

Complete disc collection page 42



Packs of discs available page 49

	Ref.	$
3 Disc Package	SP3Disc	
1 mm (3/64") Slicers · 6 mm (1/4") Grater · 6 mm (1/4") Julienne		
5 Disc Package	SP5Disc	
1 mm (3/64") · 6 mm (1/4") Slicers · 6 mm (1/4") Grater · 2 mm (5/64") · 6 mm (1/4"×1/4") Julienne		

Options	Ref.	$
	R 301 Dice Ultra	
Coarse serrated "S" blade **Special Grinding - Pastry**	27288	
Fine serrated "S" blade **Special Herbs & Spices**	27287	
Additional Smooth "S" blade	27286	







BACK TO SUMMARY

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 22 - INGREDIENT BIN (2 EA REQ'D)

Cambro IBS20148

Ingredient Bin, mobile, 21 gallon capacity, molded polyethylene with sliding cover, scoop holder included (scoop sold separately), (4) 3" heavy duty casters (2 front swivel, 2 fixed), with bin securely attached to base plate, white with clear cover, NSF

ACCESSORIES

Mfr	Qty	Model	Spec
Cambro	2	SCP12CW135	Camwear® Scoop, 12 oz., polycarbonate, clear, NSF

BID LOT 1

CAMBRO

Item No. _____

Specifier Identification No. _____

Model No. _____

Quantity _____

Ingredient Bins

Slant Top

Models IBS20 – 21 gallon (81 L)
IBS27 – 27 gallon (102 L)
IBS37 – 37 gallon (140 L)



IBS20



IBS27



IBS37

Scoops not Included

Features & Benefits

- Stores and transports a wide variety of dry ingredients such as flour, sugar, rice or grains. Perfect for restaurants, food manufacturers or commissaries.
- Available in 21, 27 and 37 gallon (81, 102, 140 L) capacity to meet standard industry requirements for storage and transportation of bulk foods.
- One-piece, seamless single-wall polyethylene bin construction is extremely durable. Won't rust or corrode. Liquids and dry foods will not stick or seep between seams.
- FDA accepted material. Meets all food contact requirements and eliminates need for liners.
- Smooth interior and exterior are easy to clean.
- Injection molded Camwear® polycarbonate lids are transparent, break resistant and offer quick and easy identification of contents. Slide-back feature means easy access.
- Working height permits storage under standard work tables.
- Heavy-duty 3" (7,6 cm) casters, 2 front swivel, 2 fixed.
- No assembly required.
- Available in White (148) only with Clear (135) cover.

Approvals

NSF

© Cambro Manufacturing Company 5801 Skylab Road, Huntington Beach, CA 92647-2056, U.S.A.
Telephone 714 848 1555 **Toll Free** 800 854 7631 **Customer Service Department** 800 833 3003

BID LOT 1

Ingredient Bins

Slant Top

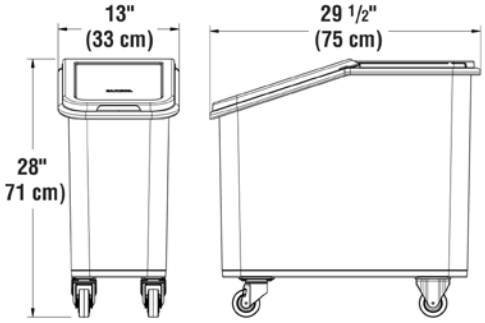
Models IBS20 – 21 gallon (81 L)
IBS27 – 27 gallon (102 L)
IBS37 – 37 gallon (140 L)

Item No. _____

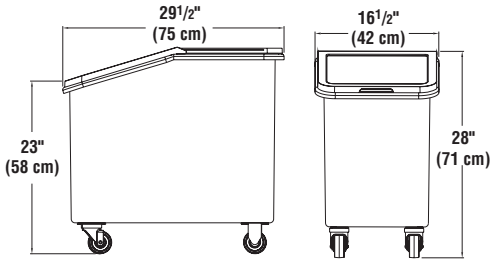
Specifier Identification No. _____

Model No. _____

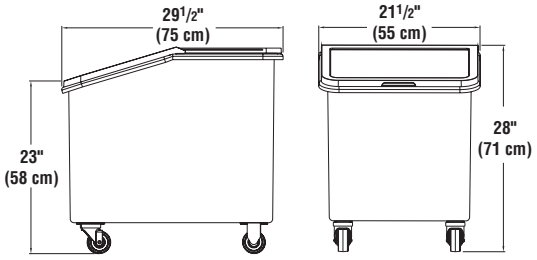
Quantity _____



IBS20



IBS27



IBS37

Specifications

Dimension Tolerance: +/- 1/4" (0,64 cm)

Code	Description	Volume Capacity	Load Capacity Sugar	Load Capacity Flour	Exterior Dimensions W x D x H	Case lbs./cube Kg/m³
Slant Top Ingredient Bin						
IBS20	21 gal. Ingredient Bin (81 L)	2.87 Cubic feet (0,081) Cubic meters	170 lbs. (77 kg.)	140 lbs. (63 kg.)	13" x 29 1/2" x 28" (33 x 75 x 71 cm)	28 (6,57) 13 (0,19)
IBS27	27 gal. Ingredient Bin (102 L)	3.98 Cubic feet (0,113) Cubic meters	226 lbs. (103 kg.)	150 lbs. (68 kg.)	16 1/2" x 29 1/2" x 28" (42 x 75 x 71 cm)	24 (7,50) 11 (0,22)
IBS37	37 gal. Ingredient Bin (140 L)	5.55 Cubic feet (0,157) Cubic meters	314 lbs. (142 kg.)	225 lbs. (102 kg.)	21 1/2" x 29 1/2" x 28" (55 x 75 x 71 cm)	28 (10,10) 13 (0,29)

Architect Specs

The Ingredient Bins shall be Cambro Model..., manufactured by Cambro Mfg. Co., Huntington Beach, CA 92648 U.S.A. Each unit shall be one piece, seamless, single-wall molded construction made of FDA Approved white polyethylene. Unit capacity shall range from 21 - 37 gallons (81 - 140 L) and/or 2.87 - 5.55 cu. ft. (0,081 - 0,157 cubic meters).

It shall have four each 3" (7,6 cm) casters with 1 1/4" (3,2 cm) wide tread, 2 front swivel and 2 fixed. It shall have an injection molded, transparent, slide-back polycarbonate lid. It shall not exceed 29" (73,6 cm) in height so that it can store under standard work tables. It shall be available in white only with a clear cover.

Approvals

NSF

CAMBRO

© Cambro Manufacturing Company 5801 Skylab Road, Huntington Beach, CA 92647-2056, U.S.A.
Telephone 714 848 1555 **Toll Free** 800 854 7631 **Customer Service Department** 800 833 3003

BID LOT 1

INGREDIENT BINS AND CAMWEAR® DRY SCOOPS



Ingredient Bins

- Store bulk dry ingredients such as flour and grain.
- Hygienic clear sliding lid reduces handling and allows for quick content identification.
- Bin made of FDA-accepted material so no liners are needed.
- Designed to fit under standard work tables.

3" Casters: 2 rear fixed, 2 front swivel.

Color: White (148).
Cover Color: Clear (135).

Scoops sold separately.

CA PROP 65 Lids Only



IBS20 IBS27 IBS37 IBSF27 IB32 IB36 IB44

CODE	DIMENSIONS W x L x H	LIQUID CAPACITY	LID TYPE	DRY CAPACITY (SUGAR)	DRY CAPACITY (FLOUR)
IBS20	13" x 29½" x 28"	21 gal.	Two Piece Sliding Lid	170 lbs.	140 lbs.
IBS27	16⁵⁄₁₆" x 29⅝" x 28"	27	Two Piece Sliding Lid	226	150
IBS37	21½" x 29½" x 28¼"	37	Two Piece Sliding Lid	314	225
IBSF27	13" x 30⅛" x 28½"	26.7	Two Piece Sliding Lid	216	150
IB32	22" x 24" x 23"	32	Single Flat Lid	215	160
IB36	15¼" x 29½" x 29"	34	Single Flat Lid	252	180
IB44	18½" x 29½" x 29"	42.5	Single Flat Lid	320	230

Case Pack: 1 **InStock Color:** White (148).

Camwear Dry Scoops

- Virtually unbreakable Camwear will not dent, chip or rust.
- Molded-in sure grip handle includes a hole for hanging.
- Ideal for use with Cambro Ice Caddies and Ingredient Bins.

Color: Clear (135).

CA PROP 65



CODE	APPROX. CAPACITY	CASE PACK
SCP6CW	6 oz.	12
SCP12CW	12	12
SCP24CW	24	12
SCP64CW	64	6

InStock Color: Clear (135).

NMSU Demonstration Kitchen

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 23 - PLANETARY MIXER (1 EA REQ'D)

Globe (Middleby) SP08

(QUICK SHIP) Planetary Mixer, 8 qt., countertop model, 3-speed (fixed), gear-driven transmission, front-mounted touchpad controls with 15-minute digital timer, safety interlocked bowl lift, thermal overload protection, includes: polycarbonate bowl guard with chute, stainless steel bowl & whip, aluminum beater & spiral dough hook, cast aluminum body, 1/4 HP, 115v/60/1-ph, 5.0 amps, cord, NEMA 5-15P, NSF, cETLus (Ships within 1-2 days)

ACCESSORIES

Mfr	Qty	Model	Spec
Globe (Middleby)	1		Quick Ship items have limited configurations & that standard configuration may not apply. Contact factory for details
Globe (Middleby)	1		2 year parts & labor warranty (1 year parts only warranty on agitator and hub accessories, no labor provided) (excludes wear items), standard

BID LOT 1

Project Name: _____ AIA#: _____

Model #: _____ Location: _____

SIS#: _____ Item #: _____ Quantity: _____

The Perfect Mix of Performance and Value

8 Quart Planetary Countertop Power Mixer

Small Size, Big Performance

Perfect for restaurants, culinary schools, bakeries and small kitchens.



Model

❑ *SP08*

Standard Features

- Powerful 1/4 HP custom built motor
- Three fixed speeds
- Thermal overload protection
- Front mounted touch pad control panel with 15-minute digital timer
- Removable splash cover and bowl lift
- 6-foot cord and ground plug
- Gear-driven, high-torque transmission
- Heat-treated hardened steel alloy gears & shafts
- Permanently lubricated transmission
- Rigid cast aluminum body

Standard Accessories/Attachments

- 8 qt stainless steel bowl (#304 series)
- Aluminum flat beater
- Stainless steel wire whip
- Aluminum spiral dough hook
- Polycarbonate splash cover with ingredient chute

Warranty

- *Two year parts and labor*

Optional Accessories/Attachments

- Stainless steel flat beater
- Stainless steel spiral dough hook
- Mixer table with undershelf
- Extended warranty

To select options, see complete list on back

NSF ETL Intertek AQ AutoQuotes

Approved by: _____ Date: _____

GLOBE FOOD EQUIPMENT COMPANY | Globe® 8 Quart Planetary Countertop Mixer SP08

2153 Dryden Rd., Dayton, OH 45439 | 937-299-5493 | 800-347-5423 | Fax: 937-299-4147 | www.globefoodequip.com

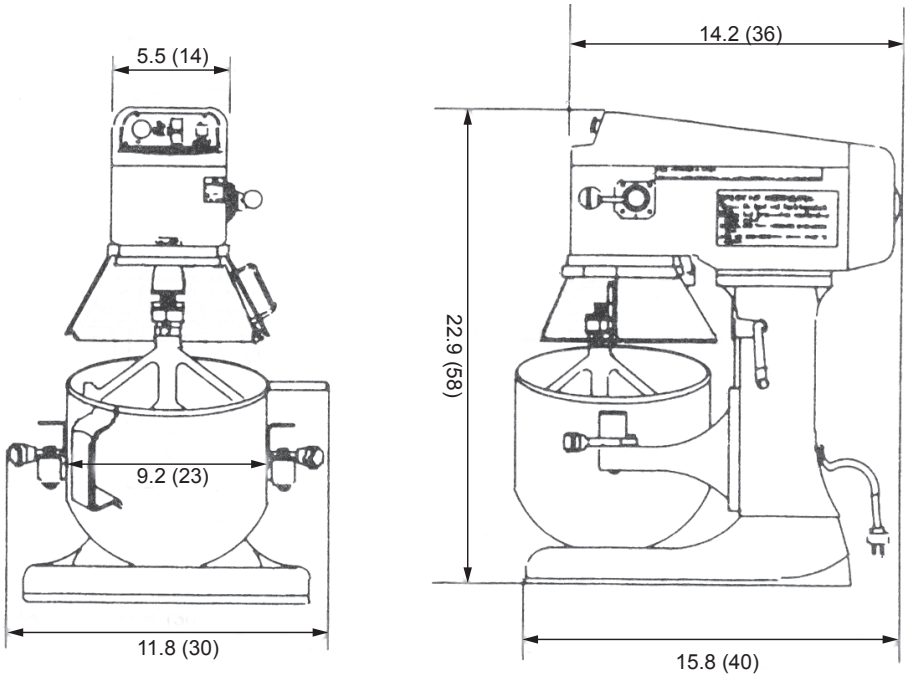
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NMSU Demonstration Kitchen

BID LOT 1

8 Quart Planetary Countertop Mixer

SP08



Drawings available through KCL at www.kclcad.com.

SPECIFICATIONS

Model	Motor	Volts	Amps	Transmission Type	Capacity	Controls	Agitator Speeds (RPMs) 1st	2nd	3rd
SP08	1/4 HP	115/60/1	5	Gear	8 qt 7.6 liter	Front-mounted digital controls & timer	132	234	421

Cord & Plug: Attached 6-foot flexible 3-wire cord with molded plug fits a grounded receptacle. NEMA 5-15P

DIMENSIONS | SHIPPING INFORMATION

Carton reinforced for shipping. The weight and dimensions of this reinforced carton are included below and may vary from shipment to shipment.

Model	Overall Dimensions	Net Wt	Shipping Dimensions	Shipping Wt
SP08	11.8" w x 15.8" d x 22.9" h (30 cm x 40 cm x 58 cm)	55 lbs (25 kg)	14" w x 18" d x 26" h (35 cm x 45 cm x 66 cm)	62 lbs (28 kg)

Mixer is constructed of a rigid cast aluminum body with 3 fixed speeds. Unit has a 1/4HP motor with thermal overload protection and a gear-driven, high torque, permanently lubricated transmission. Mixer comes with 8 qt. stainless steel bowl, flat beater, wire whip, dough hook and removable splash cover with ingredient chute. Mixer has safety interlocked bowl lift. Mixer is NSF and ETL listed. Two year parts and labor warranty.

OPTIONAL MIXER ACCESSORIES AND HUB ATTACHMENTS

MIXER:

- ❑ **XXBOWL-08** 8 qt stainless steel bowl
- ❑ **XXBEAT-08** Aluminum flat beater
- ❑ **XXBEAT-08SS** Stainless steel flat beater
- ❑ **XXHOOK-08** Aluminum dough hook
- ❑ **XXHOOK-08SS** Stainless steel dough hook
- ❑ **XXWHIP-08** Stainless steel wire whip
- ❑ **XTable** Stainless steel countertop mixer table with undershelf (30" w x 24" d x 24" h)

❑ **EXTENDED WARRANTY SP-XD58**
Extended warranty for SP08 mixer, extends factory warranty to 3 years. ***Available only at time of purchase.***

2153 Dryden Rd., Dayton, OH 45439 | 937-299-5493 | 800-347-5423 | Fax: 937-299-4147 | www.globefoodequip.com

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BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 24 - HAND SINK (2 EA REQ'D)

Advance Tabco 7-PS-58

Hand Sink, wall mounted with skirt, 9" wide x 9" front-to-back x 5" deep bowl, Deep Drawn™ sink bowl, 20 gauge 304 stainless steel, welded 7-3/4" H side splashes, heavy duty splash mounted faucet, knee valve, 1-1/2" flat-top strainer, keyhole wall mount bracket, NSF, cCSAus

ACCESSORIES

Mfr	Qty	Model	Spec
Advance Tabco	2	K-08	Low-flow aerator 0.5gpm, fits 55/64-27 male or 15/16-27 female thread on spout, conforms to California AB 1953
Advance Tabco	2	K-425	Thermostatic Mixing Valve, for knee pedal, foot pedal and electronic hand sinks and valves
Advance Tabco	2	7-PS-10	P-trap, heavy duty, 1-1/2", 17 gauge

BID LOT 1

STAINLESS STEEL

HAND SINKS

KNEE VALVE

Conforms To NSF 61/9 Lead Free Requirements



7-PS-62



7-PS-59

SPACE SAVERS



7-PS-58



7-PS-63



7-PS-30



7-PS-78



7-PS-82

Item #: _____ **Qty #:** _____

Model #: _____

Project #: _____

FEATURES:

One piece **Deep Drawn** sink bowl design.

7-PS-30 Sink bowl is 16" x 14" x 6".

7-PS-78 Sink bowl is 16" x 20" x 8".

7-PS-59, 7-PS-62, 7-PS-82 Sink bowl is 10" x 14" x 5".

7-PS-63 Sink bowl is 9" x 9" x 5".

7-PS-58 Sink bowl is 9" x 9" x 5". Includes two side splashes.

7-PS-59 Welded 7 3/4" high side splashes.

Stainless steel basket drain 1-1/2" IPS.

Knee valve operated faucet provides true hands-free operation.

All sink bowls have a large liberal radii with a minimum dimension of 2" and are rectangular in design for increased capacity.

Apron conceals plumbing on all three sides.

"Hands Free" splash mounted gooseneck faucet furnished with aerator.

Specific Features:

7-PS-82 has Towel Dispenser with hinged towel box. Unit uses standard C-fold towels. Liquid soap dispenser also included.

7-PS-63 "Hands Free" splash mounted 6" "D" Spout faucet furnished with aerator.

CONSTRUCTION:

All TIG welded.

Welded areas blended to match adjacent surfaces and to a satin finish.

Die formed Countertop Edge with a 3/8" No-Drip offset.

One sheet of stainless steel - No Seams.

MATERIAL:

Heavy gauge type 304 series stainless steel.

Wall mounting bracket is galvanized steel and of offset design.

All fittings are brass / chrome plated unless otherwise indicated.

MECHANICAL:

Spout supply is 1/2" IPS male thread.

Faucet Flow Rate: 1.0 GPM/3.8 LPM aerator. 60 PSI.
Knee Valve is barrel type and is activated by pedal.

(Contractor on site must connect faucet to knee operated valves.)

⚠ WARNING:

Equipment that includes a faucet may expose you to chemicals, including lead, that are known to the State of California to cause cancer or birth defects or other reproductive harm. For more Info.,visit www.p65warnings.ca.gov.

ADVANCE TABCO SMART FABRICATION™ www.advancetabco.com

Customer Service Available To Assist You 1-800-645-3166 8:30 am - 7:00 pm E.S.T.

For Orders & Customer Service:
Email: customer@advancetabco.com or Fax: 631-242-6900

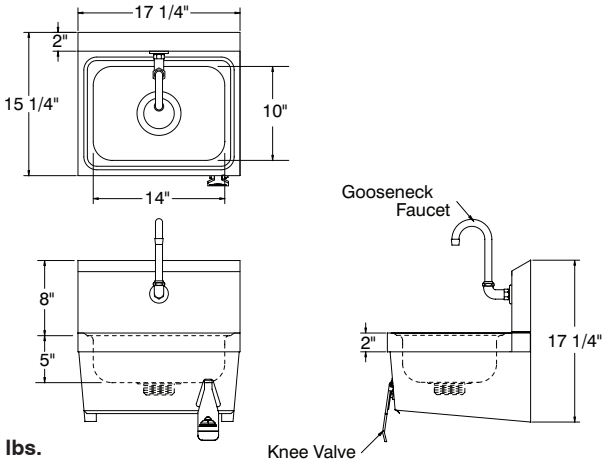
For Smart Fabrication™ Quotes:
Email: smartfab@advancetabco.com or Fax: 631-586-2933

BID LOT 1

DIMENSIONS and SPECIFICATIONS

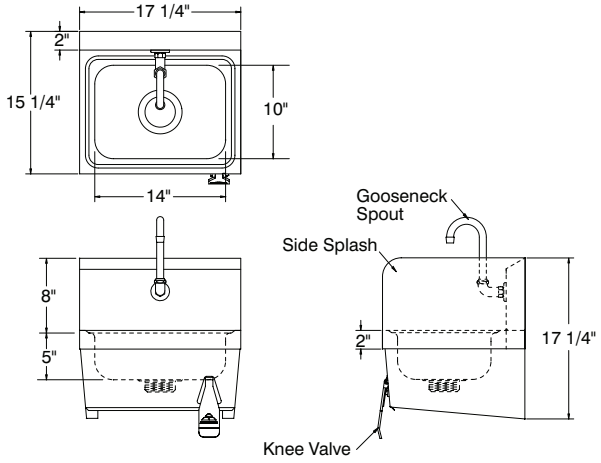
TOL Overall: ± .500" Interior: ± .250" **FITTINGS SUPPLIED AS SHOWN** **ALL DIMENSIONS ARE TYPICAL**

7-PS-62



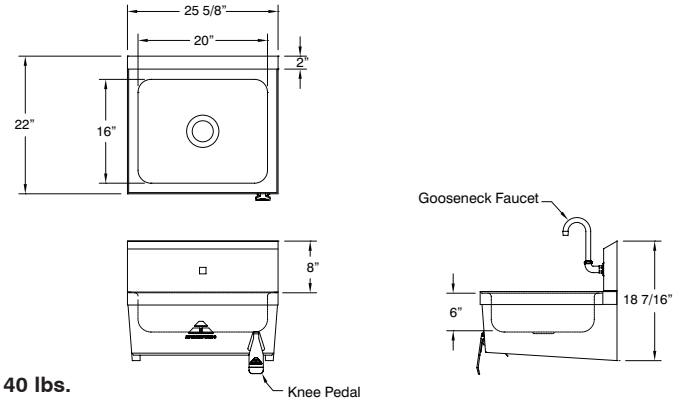
25 lbs.

7-PS-59



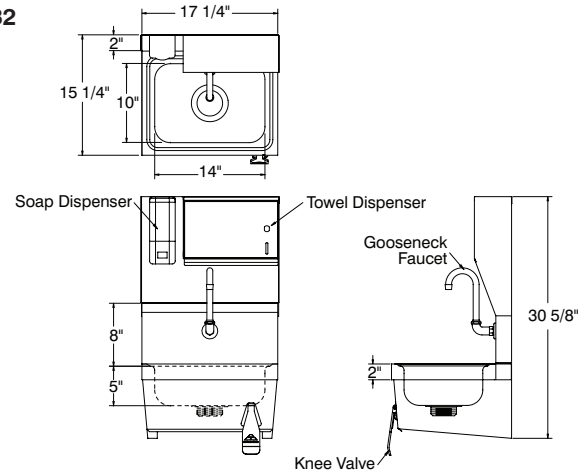
27 lbs.

7-PS-78



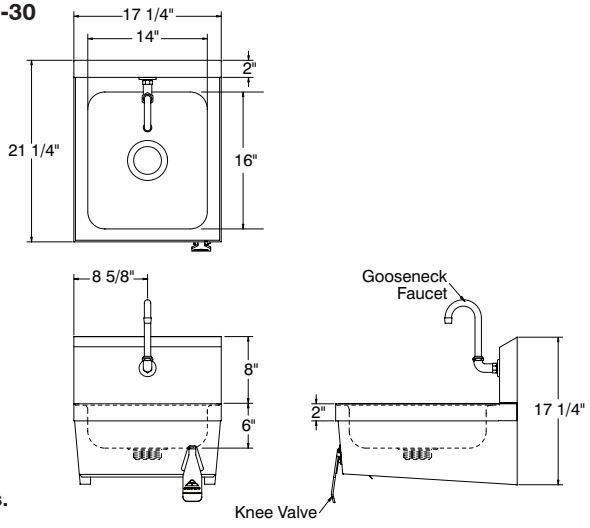
40 lbs.

7-PS-82



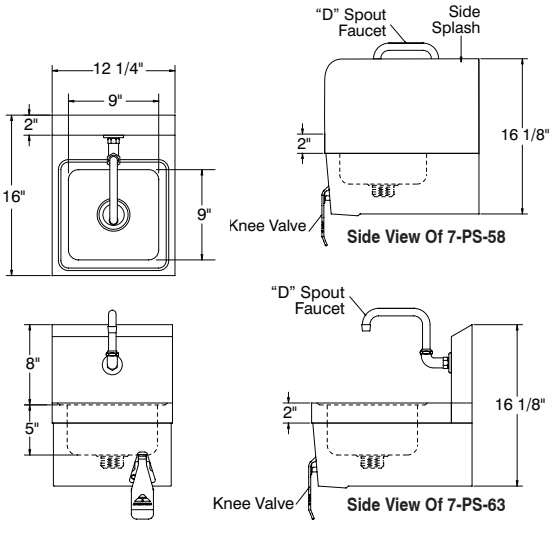
38 lbs.

7-PS-30



33 lbs.

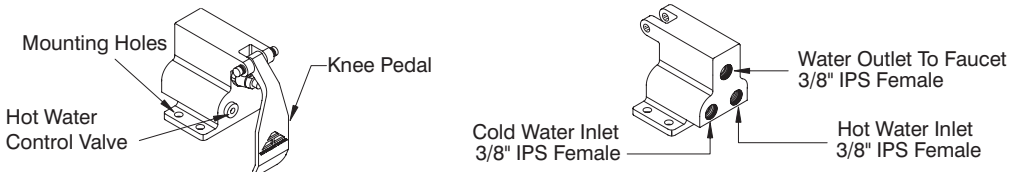
7-PS-63/ 7-PS-58



20 lbs.

KNEE VALVE DETAIL

3/8" IPS FEMALE



ADVANCE TABCO
SMART FABRICATION

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© ADVANCE TABCO, APRIL 2021

NMSU Demonstration Kitchen

BID LOT 1

FAUCET PARTS & ACCESSORIES

Faucet Repair Kit
For K-22, K-59, K-123, K-125, K-126, K-206 & K-316 Faucets
Includes 2 Cartridges and Handles

*Can Only Be Used On Faucets Purchased After January 2016. For Older Faucets, Consult Customer Service.

K-00A (Set of 2)



Faucet Repair Kit
For K-1, K-11, K-50, K-51, K-52, K-53, K-56, K-124, K-101, K-160, K-208 & K-240 Faucets
Includes 2 Cartridges and Handles

*Can Only Be Used On Faucets Purchased After January 2016. For Older Faucets, Consult Customer Service.

K-00B (Set of 2)





K-02 Filler Faucet Repair Kit
For K-54 & K-54A Faucets

*Can Only Be Used On Faucets Purchased From 2016 - 2019. For Older Faucets, See Below.



K-02A Filler Faucet Repair Kit
For K-54 & K-54A Faucets

*Can Only Be Used On Faucets Purchased Before January 2016 or After 2019.



Service Faucet Vacuum Breaker Repair Kit
For K-240 Faucet

*Can Only Be Used On Faucets Purchased After January 2016. For Older Faucets, Consult Customer Service.

K-03

Pedal/Knee Valve Replacement Parts

Replacement Bonnet for Pedal/Knee Valve
For K-103, K-104, 7-PS-32 & 7-PS-39

K-01



Replacement Check Valves
For K-103, K-104, 7-PS-32 & 7-PS-39

K-19



Thermostatic Mixing Valve
For K-103, K-104, 7-PS-32 & 7-PS-39

K-425



Mixing Valve & Retainer
For K-103, K-104, 7-PS-32 & 7-PS-39

K-19A



Faucet Options & Accessories

Hands-Free Wand





K-400

Low Flow Aerator



.5 GPM

K-08

Wrist Handles (Pair)



*Can Only Be Used On Faucets Purchased After January 2016. For Older Faucets, Consult Customer Service.

K-316-LU

Wrist Handles (Pair)
For Heavy Duty 8" O.C. Faucets



K-416-LU

Splash Mount Faucet Mounting Kit
K-1, K-11, K-101, K-105, K-112, K-119 & K-211



K-06

Faucet Wall Mounting Bracket
8" O.C.



K-30

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BID LOT 1

FAUCET PARTS & ACCESSORIES

Faucet Repair Kit
For K-22, K-59, K-123, K-125, K-126, K-206 & K-316 Faucets
Includes 2 Cartridges and Handles

*Can Only Be Used On Faucets Purchased After January 2016. For Older Faucets, Consult Customer Service.

K-00A (Set of 2)



Faucet Repair Kit
For K-1, K-11, K-50, K-51, K-52, K-53, K-56, K-124, K-101, K-160, K-208 & K-240 Faucets
Includes 2 Cartridges and Handles

*Can Only Be Used On Faucets Purchased After January 2016. For Older Faucets, Consult Customer Service.

K-00B (Set of 2)





K-02 Filler Faucet Repair Kit
For K-54 & K-54A Faucets

*Can Only Be Used On Faucets Purchased From 2016 - 2019. For Older Faucets, See Below.



K-02A Filler Faucet Repair Kit
For K-54 & K-54A Faucets

*Can Only Be Used On Faucets Purchased Before January 2016 or After 2019.



Service Faucet Vacuum Breaker Repair Kit
For K-240 Faucet

*Can Only Be Used On Faucets Purchased After January 2016. For Older Faucets, Consult Customer Service.

K-03

Pedal/Knee Valve Replacement Parts

Replacement Bonnet for Pedal/Knee Valve
For K-103, K-104, 7-PS-32 & 7-PS-39

K-01



Replacement Check Valves
For K-103, K-104, 7-PS-32 & 7-PS-39

K-19



Thermostatic Mixing Valve
For K-103, K-104, 7-PS-32 & 7-PS-39

K-425



Mixing Valve & Retainer
For K-103, K-104, 7-PS-32 & 7-PS-39

K-19A



Faucet Options & Accessories

Hands-Free Wand





K-400

Low Flow Aerator



.5 GPM

K-08

Wrist Handles (Pair)



*Can Only Be Used On Faucets Purchased After January 2016. For Older Faucets, Consult Customer Service.

K-316-LU

Wrist Handles (Pair)
For Heavy Duty 8" O.C. Faucets



K-416-LU

Splash Mount Faucet Mounting Kit
K-1, K-11, K-101, K-105, K-112, K-119 & K-211



K-06

Faucet Wall Mounting Bracket
8" O.C.



K-30

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BID LOT 1

P-TRAPS & CONTINUOUS WASTES

3 Compartment Continuous Waste



K-351

Chrome Plated P-Trap

STANDARD
22 Gauge - 1-1/2" IPS
7-PS-14

HEAVY DUTY
17 Gauge - 1-1/2" IPS
7-PS-10



Offset Tail Piece



K-46

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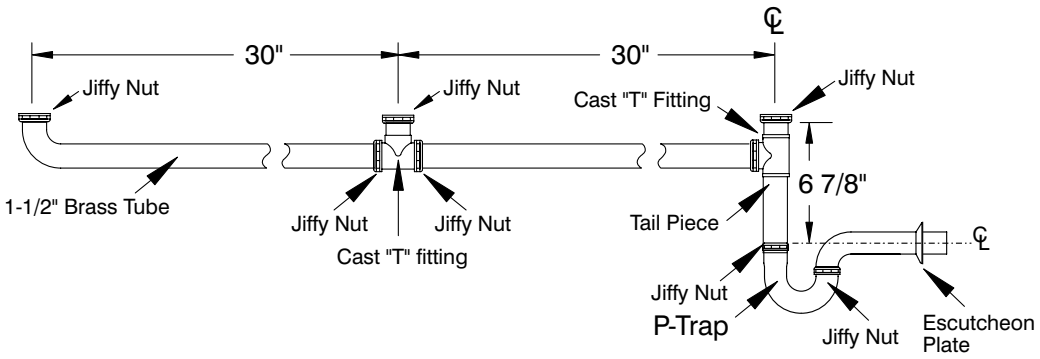
NEW YORK	GEORGIA	TEXAS	NEVADA
Fax: (631) 242-6900	Fax: (770) 775-5625	Fax: (972) 932-4795	Fax: (775) 972-1578

BID LOT 1

DIMENSIONS and SPECIFICATIONS

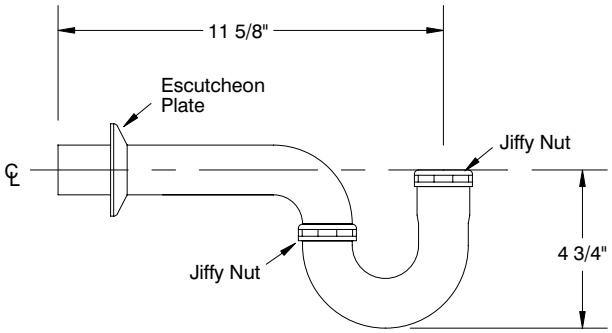
TOL ± .125" ALL DIMENSIONS ARE TYPICAL

3 Compartment Continuous Waste



K-351

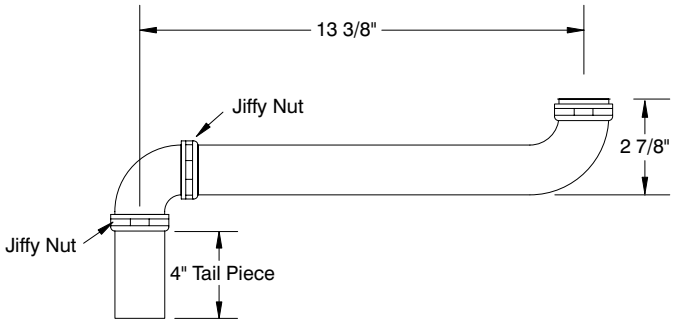
Chrome Plated P-Trap



STANDARD
22 Gauge - 1-1/2" IPS
7-PS-14

HEAVY DUTY
17 Gauge - 1-1/2" IPS
7-PS-10

Offset Tail Piece



K-46

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Submittal Sheet

04/16/2024

ITEM# 25 - SPARE NO.

<Spare No.>

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 26 - WORK TABLE, STAINLESS STEEL TOP (1 EA REQ'D)

Advance Tabco TKSS-363

Work Table, 36"W x 36"D, 14 gauge 304 stainless steel top with 5"H backsplash, stainless steel legs with side & rear crossrails, adjustable stainless steel bullet feet, NSF

BID LOT 1

STAINLESS STEEL

WORK TABLES

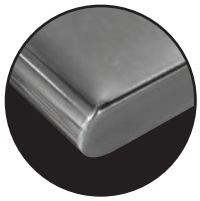
PREMIUM Series - 5" Backsplash - Open Base Style



Item #: _____ Qty #: _____

Model #: _____

Project #: _____



Rolled Rim Edges on Front & Back and Square Side Edges



CROSS-BRACING Ensure Stability

FEATURES:

Top is furnished with 1 5/8" sanitary rolled rim edge on front and square sides, and a 5" splash with a 1" return on the rear side.

24" wide tables supplied with TWO hat channels stud welded to reinforce and maintain a level working surface. 30" and 36" wide tables supplied with THREE hat channels.

Pre-engineered welded angle adapters insure ease of future drawer installation.y.

CONSTRUCTION:

All TIG welded. Exposed weld areas polished to match adjacent surfaces.

Entire top mechanically polished to a satin finish.

Top is sound deadened.

Roll formed embossed galvanized hat channels are secured to top by means of structural adhesive and weld studs.

Gussets welded to support hat sections.

MATERIAL:

TKSS-SERIES: Stainless Steel Legs - Open Base

TOP: 14 gauge stainless steel type "304" series.

CROSS-BRACING: Rear: 1 5/8" dia. tubular stainless steel.
Sides: 1 1/4" dia. tubular stainless steel.

LEGS: 1 5/8" diameter tubular, 16 gauge stainless steel type "304" series.
1" adjustable **stainless steel** bullet feet.
Stainless steel gussets.

TKLG-SERIES: Galvanized Legs - Open Base

TOP: 14 gauge stainless steel type "304" series.

CROSS-BRACING: Rear: 1 5/8" dia. tubular galvanized steel.
Sides: 1 1/4" dia. tubular galvanized steel.

LEGS: 1 5/8" diameter tubular, galvanized steel.
1" adjustable plastic bullet feet.
Galvanized steel gussets.

TKSS-Series: Stainless Steel Legs & Cros-Bracing

L	24" Wide	30" Wide	36" Wide
30"	TKSS-240	TKSS-300	
24"	TKSS-242	TKSS-302	TKSS-362
36"	TKSS-243	TKSS-303	TKSS-363
48"	TKSS-244	TKSS-304	TKSS-364
60"	TKSS-245	TKSS-305	TKSS-365
72"	TKSS-246	TKSS-306	TKSS-366
84"	TKSS-247	TKSS-307	TKSS-367
*96"	TKSS-248	TKSS-308	TKSS-368
*108"	TKSS-249	TKSS-309	TKSS-369
*120"	TKSS-2410	TKSS-3010	TKSS-3610
*132"	TKSS-2411	TKSS-3011	TKSS-3611
*144"	TKSS-2412	TKSS-3012	TKSS-3612

TKLG-Series: Galvanized Steel Legs & Cross-Bracing

L	24" Wide	30" Wide	36" Wide
30"	TKLG-240	TKLG-300	
24"	TKLG-242	TKLG-302	TKLG-362
36"	TKLG-243	TKLG-303	TKLG-363
48"	TKLG-244	TKLG-304	TKLG-364
60"	TKLG-245	TKLG-305	TKLG-365
72"	TKLG-246	TKLG-306	TKLG-366
84"	TKLG-247	TKLG-307	TKLG-367
*96"	TKLG-248	TKLG-308	TKLG-368
*108"	TKLG-249	TKLG-309	TKLG-369
*120"	TKLG-2410	TKLG-3010	TKLG-3610
*132"	TKLG-2411	TKLG-3011	TKLG-3611
*144"	TKLG-2412	TKLG-3012	TKLG-3612

*Units 8 ft. and larger are furnished with six (6) legs

Create Your Own Efficient Workstation with the Available Standard Accessories (Visit Section K)

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Email: smartfab@advancetabco.com or **Fax:** 631-586-2933

BID LOT 1

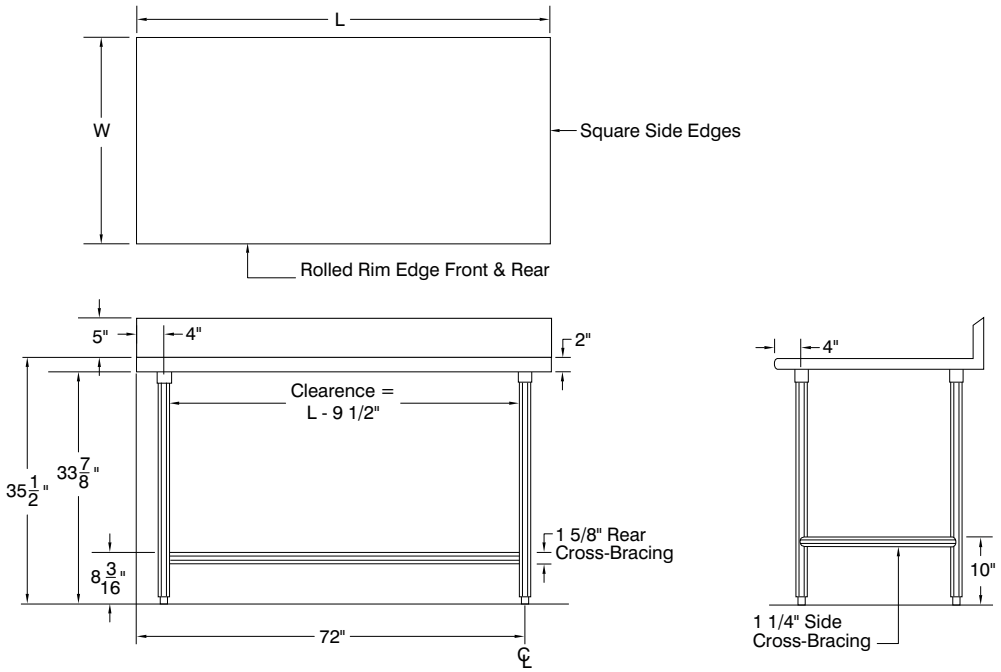
DETAILS and SPECIFICATIONS

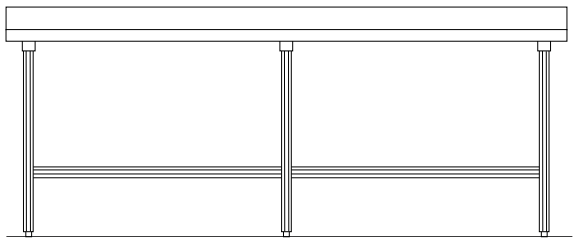
ALL DIMENSIONS ARE TYPICAL TOL ± .500”

All Units Shipped Unassembled (KD) for Reduced Shipping Costs.

PREMIUM Series - 5” Backsplash - Open Base Style

TKSS & TKLG Series





Units 8 ft. and larger are furnished with six (6) legs

TKSS-Series: Stainless Steel Legs & Cross-Bracing

L	24” Wide	Wt.	30” Wide	Wt.	36” Wide	Wt.
30”	TKSS-240	49 lbs.	TKSS-300	55 lbs.		
24”	TKSS-242	43 lbs.	TKSS-302	48 lbs.	TKSS-362	75 lbs.
36”	TKSS-243	55 lbs.	TKSS-303	62 lbs.	TKSS-363	80 lbs.
48”	TKSS-244	67 lbs.	TKSS-304	75 lbs.	TKSS-364	85 lbs.
60”	TKSS-245	77 lbs.	TKSS-305	89 lbs.	TKSS-365	99 lbs.
72”	TKSS-246	89 lbs.	TKSS-306	97 lbs.	TKSS-366	112 lbs.
84”	TKSS-247	107 lbs.	TKSS-307	118 lbs.	TKSS-367	131 lbs.
96”	TKSS-248	119 lbs.	TKSS-308	131 lbs.	TKSS-368	145 lbs.
108”	TKSS-249	135 lbs.	TKSS-309	150 lbs.	TKSS-369	165 lbs.
120”	TKSS-2410	234 lbs.	TKSS-3010	249 lbs.	TKSS-3610	268 lbs.
132”	TKSS-2411	258 lbs.	TKSS-3011	276 lbs.	TKSS-3611	298 lbs.
144”	TKSS-2412	273 lbs.	TKSS-3012	291 lbs.	TKSS-3612	313 lbs.

TKLG-Series: Galvanized Steel Legs & Cross-Bacing

L	24” Wide	Wt.	30” Wide	Wt.	36” Wide	Wt.
30”	TKLG-240	49 lbs.	TKLG-300	55 lbs.		
24”	TKLG-242	43 lbs.	TKLG-302	48 lbs.	TKLG-362	75 lbs.
36”	TKLG-243	55 lbs.	TKLG-303	62 lbs.	TKLG-363	80 lbs.
48”	TKLG-244	67 lbs.	TKLG-304	75 lbs.	TKLG-364	85 lbs.
60”	TKLG-245	77 lbs.	TKLG-305	89 lbs.	TKLG-365	99 lbs.
72”	TKLG-246	89 lbs.	TKLG-306	97 lbs.	TKLG-366	112 lbs.
84”	TKLG-247	107 lbs.	TKLG-307	118 lbs.	TKLG-367	131 lbs.
96”	TKLG-248	119 lbs.	TKLG-308	131 lbs.	TKLG-368	145 lbs.
108”	TKLG-249	135 lbs.	TKLG-309	150 lbs.	TKLG-369	165 lbs.
120”	TKLG-2410	234 lbs.	TKLG-3010	249 lbs.	TKLG-3610	268 lbs.
132”	TKLG-2411	258 lbs.	TKLG-3011	276 lbs.	TKLG-3611	298 lbs.
144”	TKLG-2412	273 lbs.	TKLG-3012	291 lbs.	TKLG-3612	313 lbs.

ADVANCE TABCO

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325 Wireless Boulevard, Hauppauge, NY 11788

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Submittal Sheet

04/16/2024

ITEM# 27 - SPARE NO.

<Spare No.>

Submittal Sheet

04/16/2024

ITEM# 28 - SPARE NO.

<Spare No.>

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 29 - SOILED DISHTABLE W/SCRAP SINK, PRE-RINSE, FAUCET, LEVER WAST (1 EA REQ'D)

Fabricator FAB-SDT & SCRAP SINK

SOILED DISHTABLE w/SCRAP SINK, PRE-RINSE, FAUCET, LEVER WAST, Custom Fabricated Stainless Steel, 304 14 ga S/S construction, straight design with 20" x 20" x 7" fully welded sink bowl with perforated scrap basket and rack glides. S/S legs and cross rail support base, 10" back splash.

SEE FS PLANS FOR SIZE & CONFIGURATION

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 30 - DISHTABLE SORTING SHELF (1 EA REQ'D)

Advance Tabco DT-6R-11

Sorting Shelf, wall mounted, traditional design, 22"W, accommodates (1) full size dish rack, solid end brackets, stainless steel, NSF

BID LOT 1

DISHTABLE SORTING SHELVES

ADVANCE TABCO® SMART FABRICATION™

Item #: _____ Qty #: _____

Model #: _____

Project #: _____



NSF

TRADITIONAL DESIGN

FEATURES:

A solid die formed wall mounted rack shelf with solid end brackets.

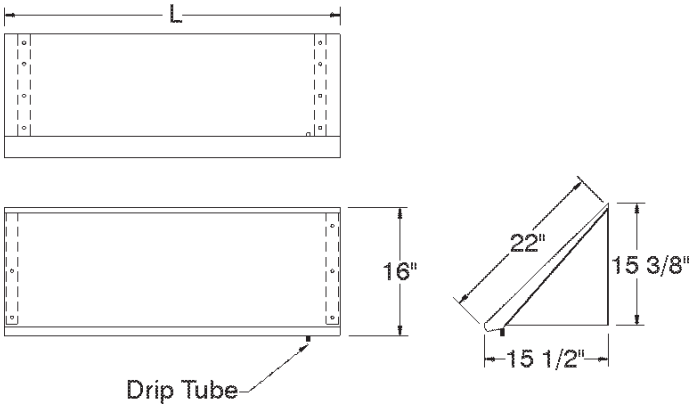
CONSTRUCTION:

TIG-welded with exposed areas blended to a satin finish.

MATERIAL:

Brackets are 16 gauge type 300 series stainless steel.

Shelf is 16 gauge type 300 series stainless steel.



MODEL #	# of Racks	L	Wt
DT-6R-11	1	22”	20 lbs.
DT-6R-12	2	42”	30 lbs.
DT-6R-13	3	62”	40 lbs.
DT-6R-14	4	82”	50 lbs.



KD TUBULAR DESIGN

FEATURES:

A dual purpose open tubular design wall mounted rack shelf with solid end brackets bolted in field. Unit completely knock down.

CONSTRUCTION:

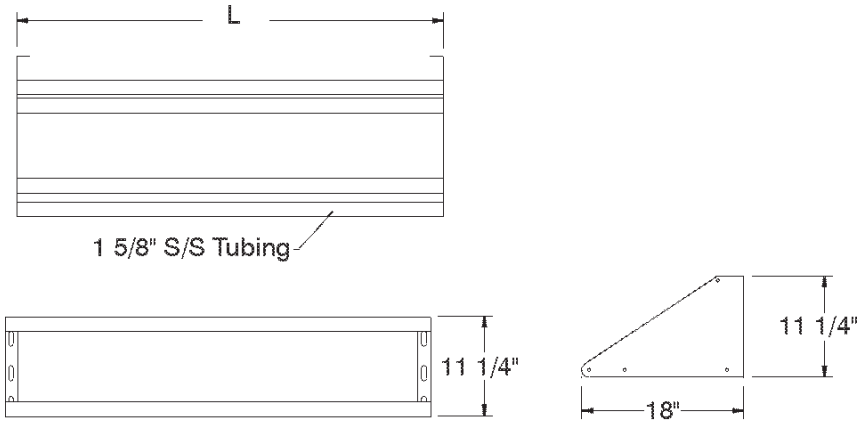
No welds. Unit is supplied with assembly hardware.

MATERIAL:

Brackets are 16 gauge type 300 series stainless steel.

Tubing is 1 5/8” diameter stainless steel 18 gauge tubing.

Stainless steel bolts (included).



MODEL #	# of Racks	L	Wt
DT-6R-21	1	22”	15 lbs.
DT-6R-22	2	42”	23 lbs.
DT-6R-23	3	62”	30 lbs.
DT-6R-24	4	82”	38 lbs.

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BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 31 - TRASH RECEPTACLE, INDOOR (1 EA REQ'D)

Rubbermaid FG354060GRAY

Slim Jim® Container, 23 gallon, 22"W x 11"D x 30"H, with venting channels, molded-in handles, general purpose waste, open type without lid, high-impact plastic construction, gray, Made in USA

BID LOT 1

SLIM JIM® CONTAINERS

The Slim Jim® container delivers the durability needed for commercial environments combined with brand new innovation to increase worker productivity. New product features and accessories deliver the most efficient solution for collection, transportation, and disposal of multi-stream waste and recyclables.

Features and Benefits:

- Venting channels make removing liners up to 80% easier, improving productivity and reducing the risk of worker injury
- Four bag cinches secure liners around the rim of the container and allow for quick, knot-free liner changes
- Handles at the base and rim of the container improve grip and control while lifting and emptying full containers
- Rim with rib-strengthened design increases strength and resists crushing
- Build a recycling station with a variety of dolly and lid options to meet any facility need

COLORS AVAILABLE

Blue, Green, Black, Beige, Brown, Gray, Yellow*, Red*

* 23-gallon only

Material Composition:

Injection molded with a high-quality resin blend.

Accessories:

STAINLESS STEEL DOLLIES

- Slim Jim® Single Dolly
- Slim Jim® Double Dolly
- Slim Jim® Triple Dolly
- Slim Jim® Quadruple Dolly

RESIN DOLLY

- Slim Jim® Trainable Dolly

LIDS

- Bottles and Cans Lid
- Paper Lid
- Mixed Recycling Lid
- Hinged Lid
- Swing Lid



23-Gallon Slim Jim® Container



16-Gallon Slim Jim® Container

BID LOT 1

SLIM JIM® CONTAINERS

SKU #	DESCRIPTION	COLOR	CAPACITY		LENGTH		WIDTH		HEIGHT		PACK SIZE
			GAL	L	IN	CM	IN	CM	IN	CM	
1971258	SLIM JIM® CONTAINER	GRAY	16	61	22"	55.88	11"	27.94	25"	63.50	4
1955959	SLIM JIM® CONTAINER	BLACK	16	61	22"	55.88	11"	27.94	25"	63.50	4
1971259	SLIM JIM® CONTAINER	BEIGE	16	61	22"	55.88	11"	27.94	25"	63.50	4
1956181	SLIM JIM® CONTAINER	BROWN	16	61	22"	55.88	11"	27.94	25"	63.50	4
1971257	SLIM JIM® CONTAINER	BLUE	16	61	22"	55.88	11"	27.94	25"	63.50	4
1955960	SLIM JIM® CONTAINER	GREEN	16	61	22"	55.88	11"	27.94	25"	63.50	4
FG354060GRAY	SLIM JIM® CONTAINER	GRAY	23	87	22"	55.88	11"	27.94	30"	76.20	4
FG354060BLA	SLIM JIM® CONTAINER	BLACK	23	87	22"	55.88	11"	27.94	30"	76.20	4
FG354060BEIG	SLIM JIM® CONTAINER	BEIGE	23	87	22"	55.88	11"	27.94	30"	76.20	4
1956187	SLIM JIM® CONTAINER	BROWN	23	87	22"	55.88	11"	27.94	30"	76.20	4
1956185	SLIM JIM® CONTAINER	BLUE	23	87	22"	55.88	11"	27.94	30"	76.20	4
1956186	SLIM JIM® CONTAINER	GREEN	23	87	22"	55.88	11"	27.94	30"	76.20	4
1956188	SLIM JIM® CONTAINER	YELLOW	23	87	22"	55.88	11"	27.94	30"	76.20	4
1956189	SLIM JIM® CONTAINER	RED	23	87	22"	55.88	11"	27.94	30"	76.20	4
FG354007BLUE	SLIM JIM® CONTAINER	BLUE (RECYCLING)	23	87	22"	55.88	11"	27.94	30"	76.20	4
FG354007GRN	SLIM JIM® CONTAINER	GREEN (RECYCLING)	23	87	22"	55.88	11"	27.94	30"	76.20	4

162707 | 123456

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8900 Northpointe Executive Park Drive, Huntersville, NC 28078

Rubbermaid® Commercial Products

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 32 - PRE-RINSE FAUCET ASSEMBLY (1 EA REQ'D)

Fisher 22100

Pre-Rinse Assembly, 8" adjustable centers, wall-mounted mixing valve, with spring action flexible gooseneck, with Ultra-Spray™/PLUS spray valve (1.15 gallons per minute @ 60 PSI), with wall bracket

BID LOT 1

SPEC. 2210 REV. E

APPLICATION:

PRODUCT NAME:

PRE-RINSE SPRING STYLE WALL MOUNT

JOB NAME:

QUANTITY: ITEM NO.

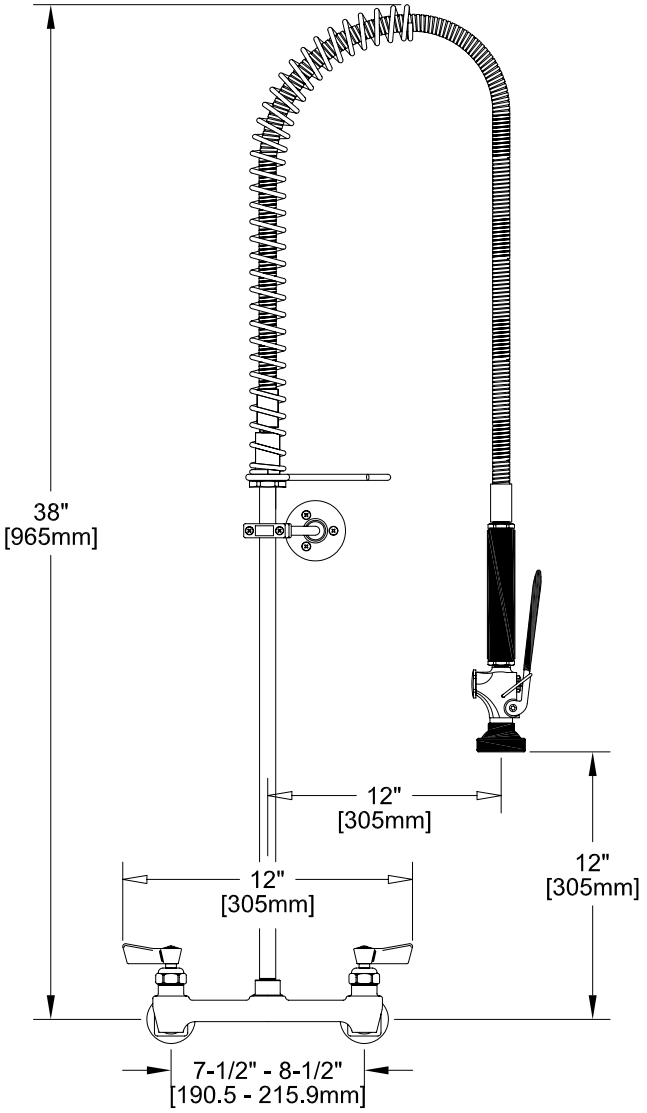
☐ _____ SPECIAL CONFIGURATION
CHECK BASE MODEL AND OPTIONS

MODEL:

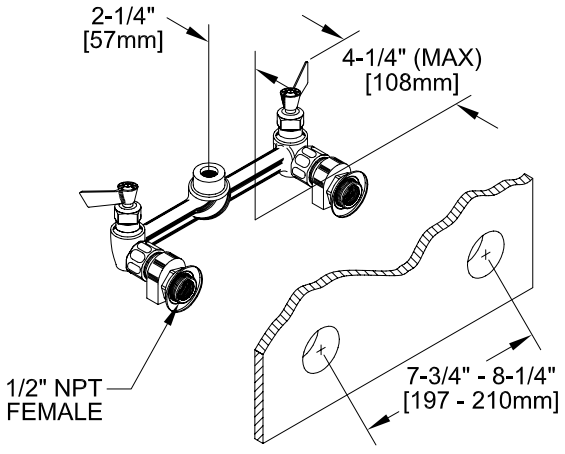
☐ 2210 ULTRA SPRAY VALVE, NO WALL BRACKET
☐ 2210-WB ULTRA SPRAY VALVE, WALL BRACKET

OPTIONS OR MODIFICATIONS:

☐ SUPPLY LINES (24" OR 36") CIRCLE LENGTH
☐ ADD-ON FAUCET (6", 8", 10", 12", 14", 16") CIRCLE
☐ IN-LINE DUAL CHECK VALVE
☐ BRUSH
☐ NIPPLES
☐ ELBOWS
☐ VANDAL RESISTANT KIT
☐ HANDLES (CROSS OR WRIST) CIRCLE STYLE
☐ OTHER _____



ROUGH-IN:



FEATURES

CONTROL VALVE
* ECCENTRICS ADJUST FROM 7-3/4" TO 8-1/4"
* INTERNAL SPRING LOADED CHECK VALVES
* SWIVELLING SEAT DISKS
* HOT SIDE STEM - RIGHT HAND
* COLD SIDE STEM - LEFT HAND
* STAINLESS STEEL SEATS
* STAINLESS STEEL SEAT SCREWS
* STAINLESS STEEL HANDLE SCREWS

HOSE
* 36" LENGTH
* STAINLESS STEEL END FITTINGS
* STAINLESS STEEL EXTERNAL JACKET
* 3 PLY FIBER REINFORCED INTERNAL RUBBER HOSE
* REPAIRABLE IN FIELD WITH SIMPLE TOOLS

ULTRA SPRAY VALVE
* LOWEST ENERGY USER - 1.15 GPM @ 60 PSI
* CLEANS FASTER - TEST PROVEN
* ENGINEERED TO LAST - NO 'O' RINGS TO LEAK
* INTERCHANGEABLE - FITS ALL BRANDS

WALL BRACKET
* ADJUSTS FROM 2" TO 12"

SYSTEM LIMITS
* TEMP: 40°F MIN. TO 140°F MAX.
* PRESSURE: 200 PSI MAX. STATIC

SHIPPING WEIGHT
* 12.0 LBS

EPAct 2005 Compliant ANSI/A112.18.1M

FISHER
FISHER MANUFACTURING COMPANY
TOLL FREE: 800-421-6162 - FAX: 800-832-8238
information@fisher-mfg.com - www.fisher-mfg.com

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 33 - DISPOSER (1 EA REQ'D)

Salvajor 200-SA-6-ARSS

Disposer, Sink Assembly, 6-1/2" sink collar, 2 Hp motor, start/stop push button, drain/flush/time delay, automatic reversing & water saving ARSS control, includes fixed nozzle, chrome plated vacuum breaker, solenoid valve, sink stopper & flow control, heat treated aluminum alloy housing, UL, CSA, CE

ACCESSORIES

Mfr	Qty	Model	Spec
Salvajor	1		208v/60/1-ph, 12.1 amps
Salvajor	1	980105	Mounting bracket for ARSS-2, ARSS, ARSS-LD & WSP
Salvajor	1	LSA8	Disposer support leg, for 3/4 HP - 2 HP disposers
Salvajor	1	DP	Stainless steel dejamming prong

BID LOT 1

SALVAJOR® Food Waste Disposer 2 HP - Model 200

JOB: _____ **Item No.:** _____



SPECIFICATIONS:

CORROSION RESISTANT BODY
Permanent molded from heat treated aluminum alloy.

EXTENDED LIP WATER SEAL
Protects the motor from damage by water.

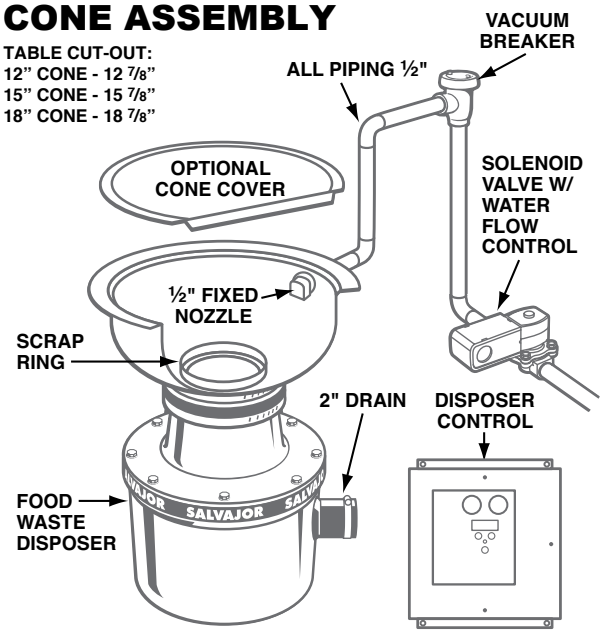
TAPERED ROLLER BEARING
Provides longer motor life, quiet operation and shock absorbing.

WATER COOLED MOTOR
Provides maximum efficiency and longer life.

QUIET OPERATION
Extra thick rubber mounting adaptor and drain outlet isolates sound and eliminates vibration.

CONE ASSEMBLY

TABLE CUT-OUT:
12" CONE - 12 7/8"
15" CONE - 15 7/8"
18" CONE - 18 7/8"



NOTE: INSTALL PER ALL APPLICABLE CODES

NEMA 4 Watertight Controls



MSS



MRSS



ARSS-2



ARSS

Optional Line Disconnect (LD) available on MSS, MRSS, & ARSS

FULL LOAD AMPS

❑	115 Volts	1 Phase	24 Amps
❑	208 Volts	1 Phase	12.1 Amps
❑	230 Volts	1 Phase	12.0 Amps
❑	208 Volts	3 Phase	6.6 Amps
❑	230 Volts	3 Phase	6.0 Amps
❑	460 Volts	3 Phase	3.0 Amps

◆ SPECIFY EXACT OPERATING VOLTAGE ◆

Model 200 Food Waste Disposer

2 HP - 1 Phase & 3 Phase

SPECIFICATIONS:

MOUNTING – Rubber adaptor above grind chamber and rubber drain outlet isolates sound and eliminates vibration. No metal to metal contact.

EXTERIOR HOUSING – Permanent molded from heat treated, corrosion resistant aluminum alloy then computer machined to a smooth polished finish. Paint free.

SHREDDER – 8 inch diameter, machined high strength, wear resistant hardened carbide alloy.

ROTOR – 8 inch diameter with 2 cutter bars, machined high strength, wear resistant hardened carbide alloy.

MOTOR – 1 HP totally enclosed. Water cooled for efficiency and longer life. Built-in manual reset thermal overload protection. Available in 208 volts or 115/230 volts, 60 cycle, 1 phase and 208-230/460 volts, 60 cycle, 3 phase.

BEARINGS – Tapered roller (top)
Sealed ball (bottom)

SEAL – Extended Lip Water Seal.

WATER REQUIREMENT – 5 gallons of cold water per minute.

WASTE OUTLET – Rubber drain accepts 2" piping.

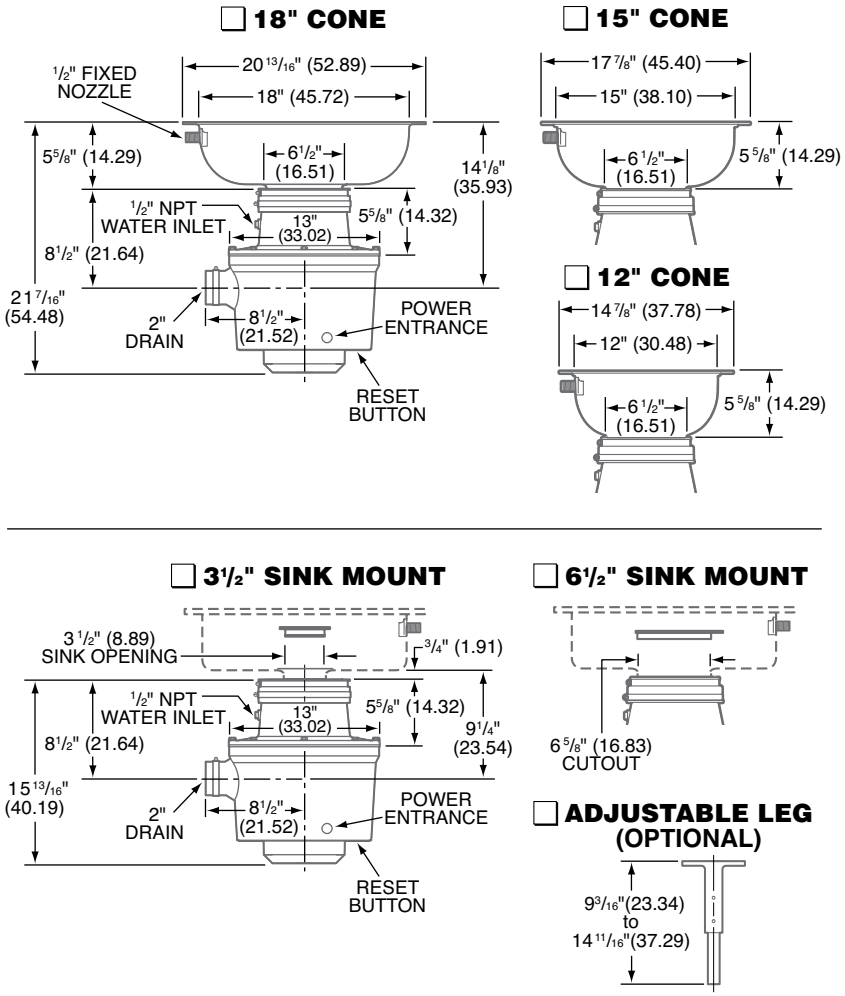
DUAL DIRECTION GRINDING – Designed to operate in either direction. Direction of rotation can be controlled when installed with automatic reversing controls. ***Reversing rotation can double cutting teeth life.***

LEG SUPPORT (Optional) – Single leg, adjustable.

ASSEMBLIES: **(See Specification Sheet)**
CA – Cone Assembly with 12", 15" or 18" Cone
SA – Sink Assembly with 3½" or 6½" Sink Collar

DISPOSER CONTROLS: **(See Specification Sheet)**
MSS: (Non Reversing)
MRSS: (Manual Reversing)
ARSS-2: (Automatic Reversing)
ARSS: (Automatic Reversing with Water Saver)

DIMENSIONS



NOTE: Dimensions in parenthesis are in centimeters
(Specifications subject to change without notice)
Current specification details may be found online at www.salvajor.com

SAMPLE SPECIFICATION

200-CA-18		MSS	(230/60/3)
Model	Cone Size	Disposer Control	Electrical Specs.
	Assembly		

◆ SPECIFY EXACT OPERATING VOLTAGE ◆

SALVAJOR

Manufacturers of Commercial Food Waste Solutions - *Since 1944*

4530 East 75th Terrace Kansas City, MO 64132-2081, USA
816.363.1030 | Toll Free: 1.800.725.8256 | Service: 1.888.725.8256 | Fax: 1.800.832.9373
sales@salvajor.com | service@salvajor.com | **www.salvajor.com**

Printed in USA
Form No.S200 (05-18)

SALVAJOR® Pre-Wired Control Panels

For Food Waste Disposer Models 100 - 200 - 300 - 500

MSS



NON-REVERSING

1-PHASE
115V, 208V, 230V

3-PHASE
208V, 230V, 460V

For use in small to medium kitchens, vegetable prep areas, pot sink and soiled dish tables.

SPECIFICATIONS:
- NEMA 4 Stainless Steel Corrosion-Resistant Enclosure
- Magnetic Contactor
- START/STOP Push Buttons
- Terminal Strip Connections

ACCESSORIES:
- Safety Line Disconnect (LD)
- **P** - Mounted Solenoid Valve and Flow Control
- **PP** - Mounted Solenoid Valve, Flow Control and Pressure Switch
- **#980104** - Mounting Bracket

MRSS



MANUAL REVERSING

1-PHASE
115V, 208V, 230V

3-PHASE
208V, 230V, 460V

For use in small to medium kitchens, vegetable prep areas, pot sink and soiled dish tables.

SPECIFICATIONS:
- NEMA 4 Stainless Steel Corrosion-Resistant Enclosure
- Manual Reversing Magnetic Contactors
- START/STOP Push Buttons
- Forward/Reverse Switch

ACCESSORIES:
- Safety Line Disconnect (LD)
- **P** - Mounted Solenoid Valve and Flow Control
- **PP** - Mounted Solenoid Valve, Flow Control and Pressure Switch
- **#980104** Mounting Bracket

ARSS-2



AUTOMATIC REVERSING

1-PHASE
115V, 208V, 230V

3-PHASE
208V, 230V, 460V

For use in medium to large kitchens, all prep areas and soiled dish tables.

SPECIFICATIONS:
- NEMA 4 Stainless Steel Watertight Enclosure
- 24 Volt Safety Circuitry
- Automatic Reversing Magnetic Contactors
- Terminal Strip Connections
- START/STOP Push Buttons

ACCESSORIES:
- **P** - Mounted Solenoid Valve and Flow Control
- **PP** - Mounted Solenoid Valve, Flow Control and Pressure Switch
- **#980105** Mounting Bracket

ARSS



AUTOMATIC REVERSING

1-PHASE
115V, 208V, 230V

3-PHASE
208V, 230V, 460V

For use in medium to large kitchens, all prep areas and soiled dish tables.

SPECIFICATIONS:
- NEMA 4 Stainless Steel Watertight Enclosure
- Solid State Control Circuit
- 24 Volt Safety Circuitry
- 20 Second Drain Flush
- Automatic Reversing Magnetic Contactors
- Terminal Strip Connections
- START/STOP Push Buttons
- Energy/Water-Saving Mode
- 3 Second Reversing Safety Delay
- User Adjustable Run Time
- LCD Status Readout
- Operator Sensor Capable

ACCESSORIES:
- Safety Line Disconnect (LD)
- **P** - Mounted Solenoid Valve and Flow Control
- **PP** - Mounted Solenoid Valve, Flow Control and Pressure Switch
- **#980105** Mounting Bracket
- **#980609** Operator Sensor Includes Low Flow Solenoid Valve

Product configurations protected by U.S. Pat. No. 7,815,134 when used with sensor

SAFETY FEATURE:

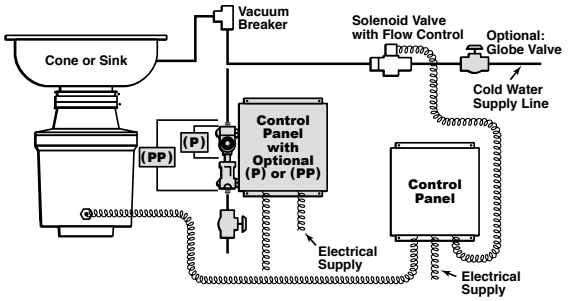
All Salvajor Controls include an operator safety feature that prevents automatic starting of the disposer after a power interruption.

ALL SALVAJOR CONTROLS ARE:

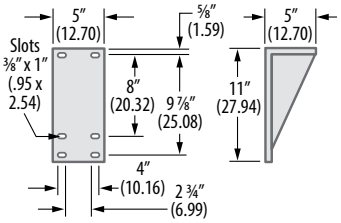
Disposer Controls

DETAILS AND DIMENSIONS

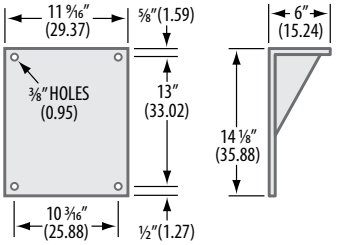
Typical Installation of a Salvajor Disposer with: MSS, MRSS, ARSS-2 or ARSS Control



980104 Optional Mounting Bracket



980105 Optional Mounting Bracket

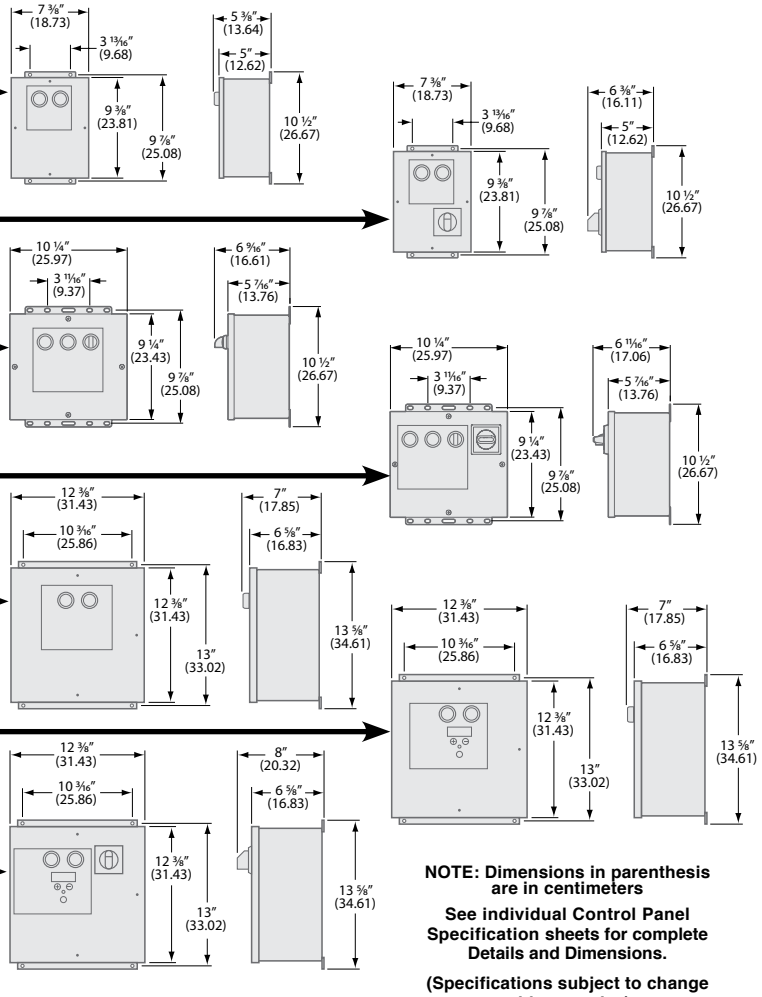


ITEM NUMBERS FOR ORDERING

CONTROL MODEL	VOLTS	PHASE	ITEM NO.
MSS	115	1	MSS4
	208-230	1	MSS5
	208-230	3	MSS7
	460	3	MSS9
MSS-LD	115	1	MSSLD4
	208-230	1	MSSLD5
	208-230	3	MSSLD7
	460	3	MSSLD9
MRSS	115	1	MRSS4
	208-230	1	MRSS5
	208-230	3	MRSS7
	460	3	MRSS9
MRSS-LD	115	1	MRSSLD4
	208-230	1	MRSSLD5
	208-230	3	MRSSLD7
	460	3	MRSSLD9
ARSS-2	115	1	ARSS24
	208-230	1	ARSS25
	208-230	3	ARSS27
	460	3	ARSS29
ARSS	115	1	ARSS4
	208-230	1	ARSS5
	208-230	3	ARSS7
	460	3	ARSS9
ARSS-LD	115	1	ARSSLD4
	208-230	1	ARSSLD5
	208-230	3	ARSSLD7
	460	3	ARSSLD9

◆ SPECIFY EXACT OPERATING VOLTAGE ◆

DIMENSIONS



NOTE: Dimensions in parenthesis are in centimeters

See individual Control Panel Specification sheets for complete Details and Dimensions.

(Specifications subject to change without notice)

Current specification details may be found online at www.salvajor.com

SALVAJOR®

Manufacturers of Commercial Food Waste Solutions - *Since 1944*

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Printed in USA
Form No. CCP (05-18)

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 34 - DISHWASHER, DOOR TYPE, VENTLESS (1 EA REQ'D)

Hobart AM16VLT-BAS-2

Ventless Dishwashing Machine, tall chamber (27”), door type, energy recovery, high temp sanitizing, 208-240/60/3 (field convertible to single phase), internal condensing system, 40 racks/hour, straight-thru or corner installation, user-friendly smart touchscreen controls, Wi-Fi connectivity with SmartConnect app,Sense-A-Temp™ booster, electric tank heat, X-shaped wash arms, scrap screen and basket, door actuated start, door lock, stainless steel tank, tank shelf, chamber, trim panels, frame & feet, cULus, NSF, ENERGY STAR®. Factory Startup - Free for installations within 100 miles of a Hobart Service Office during normal business hours with appropriate notice; installation beyond 100 miles will be quoted by Service.

ACCESSORIES

Mfr	Qty	Model	Spec
Hobart	1		Oversized units with crated shipping dimensions greater or equal to 72" in length and/or 90" in height. If delivery is to a facility without a standard height dock, additional shipping charges will apply depending on the service requested. consult Factory.
Hobart	1		Standard warranty - 1-Year parts, labor & travel time during normal working hours within the USA
Hobart	1	DWT2-AM16	Drain water tempering (dual valve) kit with Pumped Drain Air Gap for VL-BAS and VLT-BAS models
Hobart	1	ACC-INSTALL-HOB	Accessory Installation - for installation within 100 miles of a Hobart Service Office during normal business hours with appropriate notice; installation beyond 100 miles will be quoted by Service. Includes installation of this item only, final electrical or plumbing connections by others. Recommendation: coordinate accessory installation with machine assembly/ installation (NET)
Hobart	1	WTRHAMARREST-AM16	Water Hammer Arrestor – Assembly includes ¾” brass pressure regulator, pressure gauge, shock arrestor and garden hose adapter
Hobart	1		NOTE: For water of 3-grains of hardness or more, Hobart suggests adding a water softener.

BID LOT 1

HOBART

Project _____

AIA # _____ SIS # _____

Item # _____ Quantity _____ C.S.I. Section 114000

COMMERCIAL DISHWASHERS

AM16VLT-BAS
TALL BASE ELECTRIC
High Temperature Ventless
Door-Style Dishwashing Machine



STANDARD FEATURES

+ .67 gallons per rack pumped final rinse
+ 40 racks per hour – hot water sanitizing
+ Ventless energy recovery
+ User-friendly smart touchscreen controls
+ WiFi connectivity
+ SmartConnect app and cloud with machine status, temperature logs, error code reporting, and cost, consumption and usage analysis
+ Two stage filtration
+ Pillarless opening
+ 3-sided hood
+ Single point electrical connection standard, field convertible to dual point connection
+ 3 phase standard, field convertible to single phase
+ Temperature and chemical lock outs (with Hobart equipped chemical pumps)
+ Pumped drain
+ Door lock
+ Timed wash cycles for 1, 2, 4 or 6 minutes
+ NSF pot and pan rating for 2-, 4- & 6- minute cycles
+ Sense-A-Temp™ 70°F rise electric booster heater
+ Self-draining, high efficiency wash pump with stainless steel impeller
+ 27" door opening for 18" x 26" sheet pans or 60-quart mixing bowl
+ Stainless steel drawn tank, tank shelf, chamber, trim panels, frame and feet
+ Spring counterbalanced chamber with UHMW guides
+ X-shaped revolving, interchangeable upper and lower anticlogging wash arms
+ Revolving, interchangeable upper and lower rinse arms
+ Slanted, self-locating, one-piece scrap screen and basket system
+ Automatic fill
+ Door actuated start
+ AutoClean
+ Factory startup
+ Service diagnostics
+ Straight-through or corner installation
+ Delime cycle with notification (field activated)
+ Sheet pan rack

SPECIFIER STATEMENT

Specified unit will be a Hobart AM16 Tall Base electric high temperature ventless dishwashing machine. Features include 3-sided pillarless hood, ventless operation & energy recovery, door lock, touchscreen controls with WiFi connectivity, NSF pot and pan rating for 2-, 4- & 6-minute cycles, 27" door opening, pumped drain, auto door start with auto fill, interchangeable stainless steel rinse arms and X-shaped wash arms, delime cycle, advanced diagnostics and service connection, up to 40 racks per hour, .67 U.S. gallons per rack pumped final rinse.

1 year parts and labor warranty.

OPTIONS & ACCESSORIES (Available at extra cost)

- ❑ Peg, combination and wine rack
- ❑ Chemical pumps
- ❑ Splash shield for corner installations
- ❑ Flanged and seismic feet
- ❑ Water hammer arrestor kit
- ❑ Rapid fill kit
- ❑ Sink integration kit
  - – Sink saddle & 3" leg extension
  - – Sink rail kit
  - – Fold down table
- ❑ Drain water tempering kit
- ❑ Prison package
- ❑ Marine package
- ❑ Pumped drain air gap kit

AM16 SERIES – AM16VLT-BAS TALL BASE ELECTRIC VENTLESS

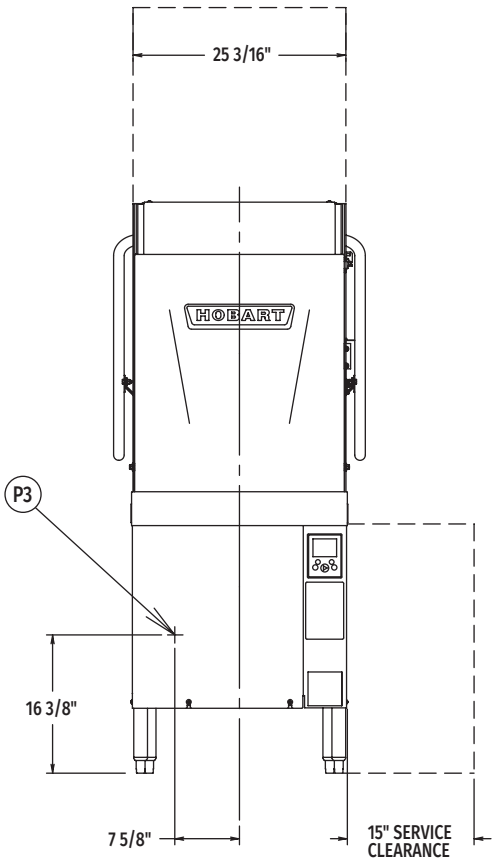
Approved by _____ Date _____ Approved by _____ Date _____

NMSU Demonstration Kitchen

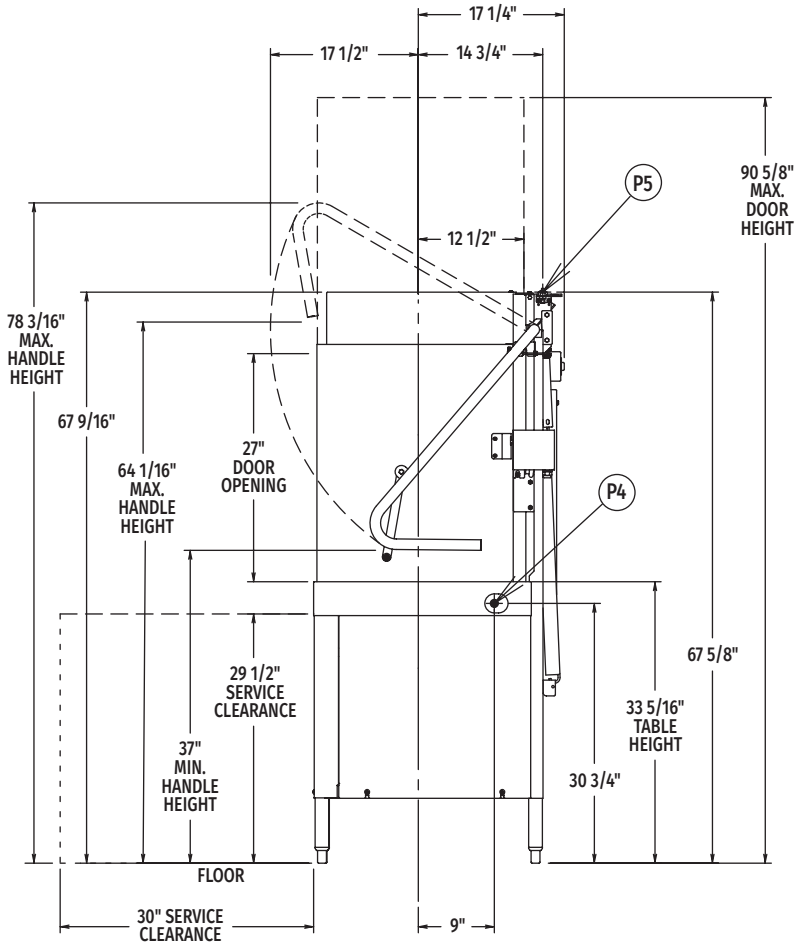
BID LOT 1

AM16VLT-BAS TALL BASE ELECTRIC

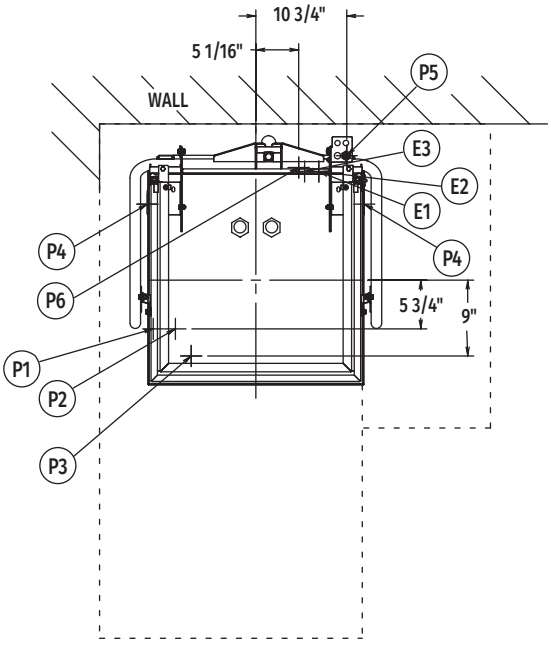
High Temperature Ventless Door-Style Dishwashing Machine



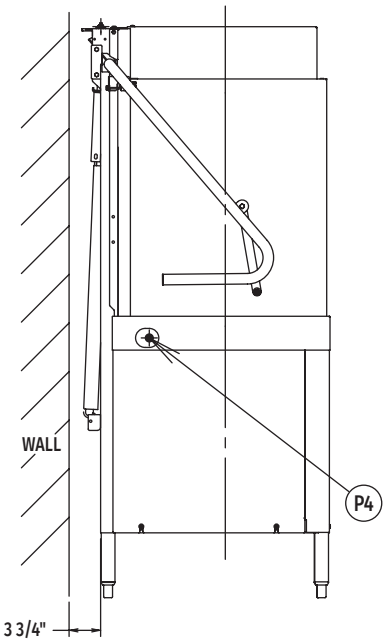
Front View



Right Side View



Top View



Left Side View

MODEL:
AM16VLT-BAS
E-950440

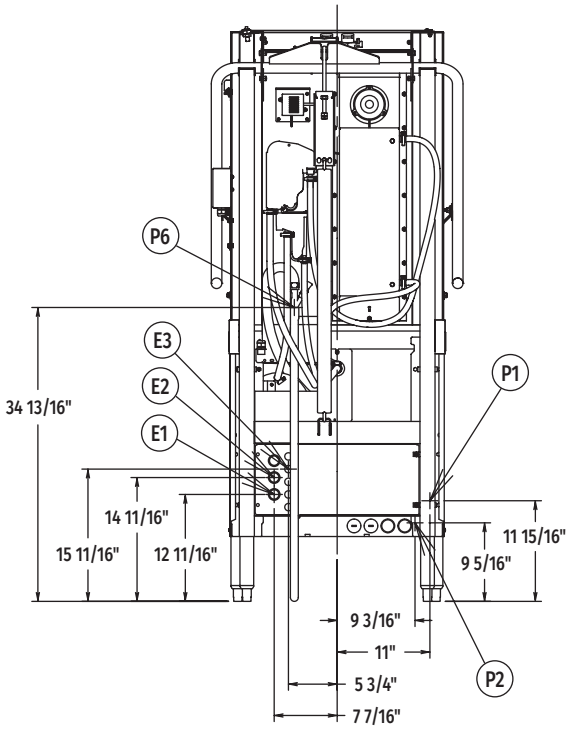
BID LOT 1

AM16VLT-BAS TALL BASE ELECTRIC

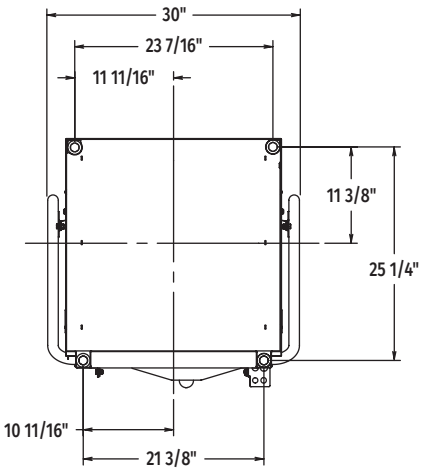
High Temperature Ventless Door-Style Dishwashing Machine

WARNING: Electrical and grounding connections must comply with the applicable portion of the National Electrical Code and/or other local electrical codes.

Plumbing connections must comply with applicable sanitary, safety, and plumbing codes.



Rear View



Bottom View

LEGEND

Electrical Connections	
E1	Electrical connection: wash pump motor & sump heater, 1" or 3/4" conduit hole; 12-11/16" AFF.
E2	Electrical connection: electric booster & controls only or single point electrical connection (3PH only), 1" or 3/4" conduit hole; 14-11/16" AFF.
E3	Electrical connection: detergent & rinse agent feeders, (DPS1 & DPS2) 1.5 amps @ nameplate supply voltage, (RPS1 & RPS2) 1.5 amps @ nameplate supply voltage; 1/2" conduit hole, 15-11/16" AFF.
Plumbing Connections	
P1	Common water connection including booster heater: 55°F water minimum; 15-65 PSI recommended; 3/4" female garden hose fitting on 6' long hose supplied with machine; 11-15/16".
P2	Optional – hot water connection: 110°F water minimum (rapid fill accessory - when ordered); 3/4" female garden hose fitting on 6' long hose; 9-5/16" AFF.
P3	Detergent probe sensor: remove cap and stud assembly to access 7/8" hole; 16-3/8" AFF.
P4	Detergent feeder: two locations available. Remove cap and stud assembly to access 7/8" hole; 30-3/4" AFF.
P5	Rinse agent feeder: remove 1/8" NPT pipe plug to access 1/8" NPT tapped hole; 67-5/8" AFF.
P6	Drain connection: 5/8" barb fitting with 6' long hose supplied with machine; 34-13/16" AFF. Maximum height 40" AFF.

SPECIFICATIONS

Capacities

Racks Per Hour (maximum) 40
Dishes per Hour (average 25 per rack) 1,000
Glasses per Hour (average 45 per rack) 1,800
Wash Tank (U.S. gallons) 10.5

Motor Horsepower

Rinse Pump 0.18
Wash Pump 2
Drain Pump 0.21
Blower 0.05

Rinse

Gallons per Rack 0.67
Gallons per Hour (maximum consumption) 26.8

Peak Rate of Drain Flow

Gallons per Minute (initial rate with full tank) 18.5

Heating

Electric Booster (kW) 7.1
Electric Heating Unit (kW) 5.4

Shipping Weight (approximate) . . . . . 372 lbs.

Crated Dimensions . . . . . 73.75"H x 36.5"W x 36.5"L

BID LOT 1

AM16VLT-BAS TALL BASE ELECTRIC

High Temperature Ventless Door-Style Dishwashing Machine

E1	AM16 with Electric Heat (When Field Converted to Dual Point)		
Voltage	Rated Amps	Minimum Supply Circuit Ampacity	Maximum Protective Device
208-240/60/1	39.6	50	50
208-240/60/3	26.9	30	30
480/60/3	10.5	15	15

E2	Booster & Controls Ampacity Ratings (When Field Converted to Dual Point)		
Voltage	Rated Amps	Minimum Supply Circuit Ampacity	Maximum Protective Device
208-240/60/1	43.5	50	50
208-240/60/3	26.8	30	30
480/60/3	13.5	15	15

E2	AM16 Single Point Electrical Service Connection as Shown Below		
Voltage	Rated Amps	Minimum Supply Circuit Ampacity	Maximum Protective Device
208-240/60/3	53.7	60	60
480/60/3	24.0	30	30

Approximate Heat Gain to Space without Vent Hood	
Type	BTU/Hr.
Latent	6,800
Sensible	5,000

Miscellaneous Notes: All dimensions taken from floor line may increase 7/8" or decrease 3/8" depending on leg adjustment.

Vent hood (if required) to provide a minimum 450 CFM exhaust (ref installation instructions).

Net weight of machine including booster: 355 lbs.
Domestic shipping weight including booster: 375 lbs.

Size of racks – 19¾" x 19¾".

Backflow prevention provided by NSF-approved air gap device.

Plumbing Notes: Water hammer arrestor (meeting ASSE-1010 standard or equivalent) to be supplied (by others) in common water supply line at service connection.

Recommended water hardness to be 3 grains or less for best results.

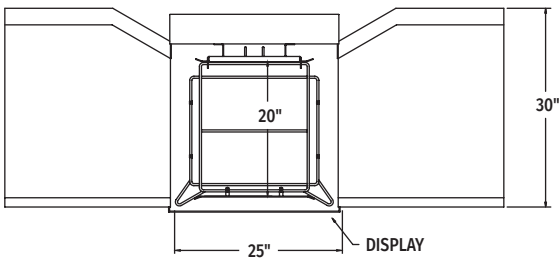
Note: Electric heating unit & booster (kW) calculated at 208V.

Recommended building flowing water pressure to the dishwasher at or above 20PSI. Pressures lower than 20 PSI may affect machine fill/start-up times.

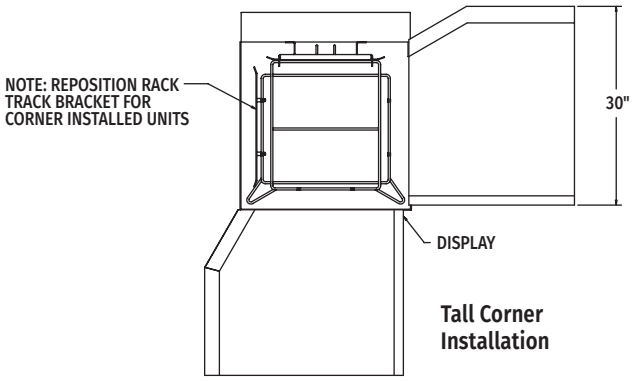
This is a pumped rinse machine. Pressure regulating valve is not necessary on hot or cold lines.

For convenience when cleaning, water tap should be installed near machine with heavy duty hose and squeeze valve.

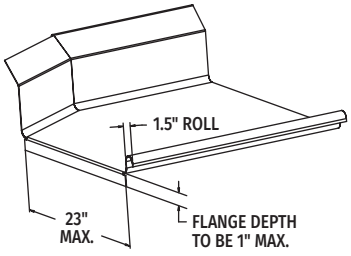
AM16VLT-BAS TABLING CONFIGURATIONS AND TRACK DESIGN



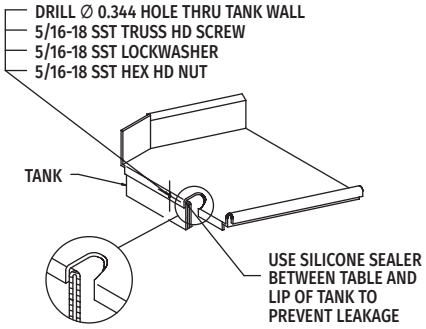
Pass Thru Installation



Tall Corner Installation



Suggested Table Design



As continued product improvement is a policy of Hobart, specifications are subject to change without notice.

Oversized Equipment Quick Reference Guide

Oversized units with crated shipping dimensions greater or equal to 72" in length and/or 90" in height. If delivery is to a facility without a standard height dock, additional shipping charges will apply depending on the service requested.

HOBART

DOOR TYPES
- AM15T
- AM15VLT



CONVEYOR TYPES (CL, FT)
- CL44*e*N-ADV
- CL44*e*NVL
- All 54" Models or Greater
- All FT Models



PREP WASHERS
- PW10*e*R
- PW20*e*R
- PWV*e*R



TURBOWASHERS (TW), TOTEWASHERS (CL64T) WASTE PULPERS (WPS)
- All Models



WRAPPING SYSTEM (NGW)
- All Models



Traulsen

centerline by Traulsen

G, R and A SERIES
- All Roll-In & Roll-Thru Models
- All Three Section Models



UNDERCOUNTERS (UHT, UHD, ULT, TU)
- All 72" Models or Greater



PREP TABLES (UST, USD, UPT, UPD, TS, TB)
- TB - 60" Models or Greater
- TS - 66" Models or Greater
- All 72" Models or Greater



EQUIPMENT STANDS (TE)
- All Models 48" or Greater



UNDERCOUNTERS (CLUC) & PREP TABLES (CLPT)
- All 72" Models or Greater



THE INFORMATION PROVIDED IS TO BE USED AS A QUICK REFERENCE QUIDE ONLY. PLEASE CONSULT ITW FEG CUSTOMER CARE FOR UNITS NOT LISTED OR ANY QUESTIONS SURROUNDING DELIVERY OPTIONS.

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 35 - S/S WALL FLASHING (1 EA REQ'D)

Fabricator FAB-WF

S/S WALL FLASHING, Custom Fabricated Stainless Steel
304 18 ga S/S construction from cove base to ceiling with "T" trim strip moldings.

SEE FS PLAN FOR SIZE & CONFIGURATION
Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 36 - CLEAN DISH TABLE W/ 3 COMP SINK (1 EA REQ'D)

Fabricator FAB-SINK-3 COMPT

Custom Fabricated Stainless Steel

Fabricated Sink, 3-compartment, 20" right & left drainboards, bowl size 18" x 18" x 14" deep, 14 gauge 304 stainless steel, 3" sanitary rolled edge, 10" back splash, 8" OC faucet holes, stainless steel legs with 1" adjustable stainless steel bullet feet. Provide with lever waste with overflow and support brackets, NSF.

Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

Submittal Sheet

04/16/2024

ITEM# 37 - SPARE NO.

<Spare No.>

Submittal Sheet

04/16/2024

ITEM# 38 - SPARE NO.

<Spare No.>

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 39 - POT RACK (1 EA REQ'D)

Advance Tabco SW-84

Pot Rack, wall-mounted, double bar design, 84"W x 12"D, constructed of 1/4" x 2" stainless steel, includes: (18) plated double pot hooks, NSF

BID LOT 1

ADVANCE TABCO
SMART FABRICATION™

STAINLESS STEEL

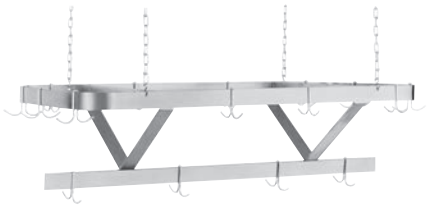
POT RACKS

Item #: _____ Qty #: _____

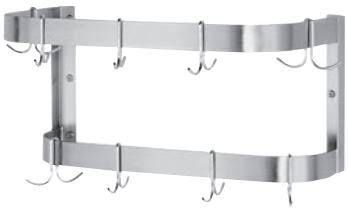
Model #: _____

Project #: _____

CEILING MOUNTED



WALL MOUNTED



SHELF w/ POT RACK



Ceiling Mounted

L	S/S	# of Hooks	Wt
36”	SC-36	12	42 lbs.
48”	SC-48	12	48 lbs.
60”	SC-60	18	54 lbs.
72”	SC-72	18	60 lbs.
84”	SC-84	18	66 lbs.
96”	SC-96	18	80 lbs.
108”	SC-108	18	86 lbs.
120”	SC-120	18	92 lbs.
132”	SC-132	18	98 lbs.
144”	SC-144	18	104 lbs.

Wall Mounted NSF

L	S/S	# of Hooks	Wt
24”	SW-24	12	18 lbs.
36”	SW-36	12	22 lbs.
48”	SW-48	12	26 lbs.
60”	SW-60	18	30 lbs.
72”	SW-72	18	34 lbs.
84”	SW-84	18	44 lbs.
96”	SW-96	18	48 lbs.
108”	SW-108	18	52 lbs.
120”	SW-120	18	56 lbs.
132”	SW-132	18	60 lbs.
144”	SW-144	18	64 lbs.

Shelf with Pot Rack NSF

L	12” Wide	Wt	15” Wide	Wt	18” Wide	Wt	# of Hooks
36”	PS-12-36	20 lbs.	PS-15-36	25 lbs.	PS-18-36	30 lbs.	6
48”	PS-12-48	30 lbs.	PS-15-48	35 lbs.	PS-18-48	40 lbs.	6
60”	PS-12-60	40 lbs.	PS-15-60	45 lbs.	PS-18-60	50 lbs.	9
72”	PS-12-72	50 lbs.	PS-15-72	55 lbs.	PS-18-72	60 lbs.	9
84”	PS-12-84	60 lbs.	PS-15-84	65 lbs.	PS-18-84	70 lbs.	9
96”	PS-12-96	70 lbs.	PS-15-96	75 lbs.	PS-18-96	80 lbs.	9
108”	PS-12-108	80 lbs.	PS-15-108	85 lbs.	PS-18-108	90 lbs.	9
120”	PS-12-120	90 lbs.	PS-15-120	95 lbs.	PS-18-120	100 lbs.	9
132”	PS-12-132	100 lbs.	PS-15-132	105 lbs.	PS-18-132	110 lbs.	9
144”	PS-12-144	110 lbs.	PS-15-144	115 lbs.	PS-18-144	120 lbs.	9

Units 8 ft. and larger are furnished with three (3) sets of supports brackets.

FEATURES: (Ceiling Mounted)

Ceiling suspension with chain hangers. Optional stainless steel Flat Bar in lieu of Chain available. Use **TA-98**.

MATERIAL:

Flat steel bar is 2” x 1/4”, stainless steel.

Pot hooks are plated.

24” long chain hangers are plated.

CONSTRUCTION:

All welded stainless steel units are blended to a satin finish.

FEATURES: (Wall Mounted)

Secured to wall by means of bolts through welded brackets. (Hardware not provided)

MATERIAL:

Flat steel bar is 2” x 1/4”, stainless steel.

Pot hooks are plated.

CONSTRUCTION:

All welded stainless steel units are blended to a satin finish.

FEATURES: (Shelf/Pot Rack)

A dual purpose unit for shelf and utensil storage.

Secured to wall by means of bolts through welded brackets. (Hardware not provided)

MATERIAL:

Flat stainless steel bar is 2” x 1/4”.
Pot hooks are plated.
Type “430” stainless steel shelf.

CONSTRUCTION:

All welded stainless steel units are blended to a satin finish.

ADVANCE TABCO
SMART FABRICATION™
www.advancetabco.com

Customer Service Available To Assist You 1-800-645-3166 8:30 am - 7:00 pm E.S.T.

For Orders & Customer Service:
Email: customer@advancetabco.com or **Fax:** 631-242-6900

For Smart Fabrication™ Quotes:
Email: smartfab@advancetabco.com or **Fax:** 631-586-2933

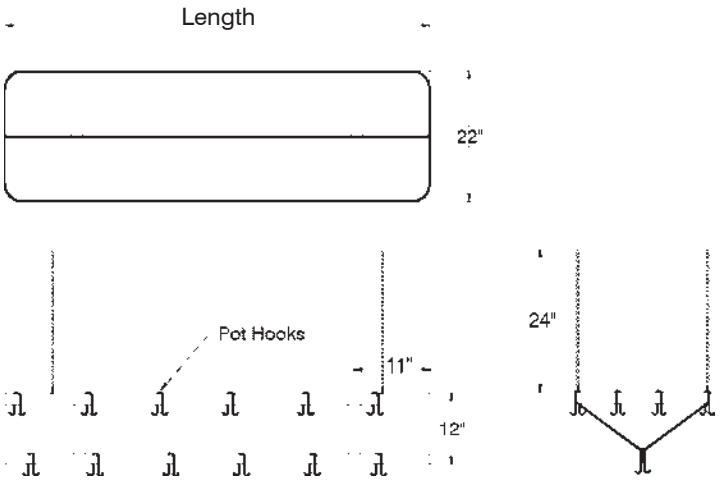
BID LOT 1

DETAILS and SPECIFICATIONS

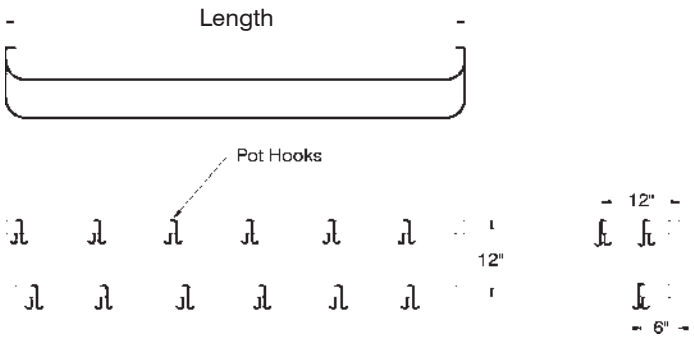
TOL ± .500”

ALL DIMENSIONS ARE TYPICAL

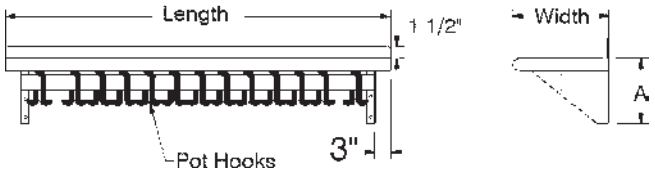
Ceiling Mounted



Wall Mounted



Shelf with Pot Rack



Width	A
12”	10 1/2”
15”	13 1/2”
18”	16 1/2”

Load Capacity = 20 lbs. per sq. ft.

(Evenly Distributed Weight)

ADVANCE TABCO is constantly engaged in a program of improving our products. Therefore, we reserve the right to change specifications without prior notice.

© ADVANCE TABCO, SEPTEMBER 2022

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 40 - WIRE SHELVING UNIT (1 EA REQ'D)

Metro CHROME

Super Erecta® Starter Shelving Unit, (4) posts, chrome plated finish, KD, NSF. Provide with casters (2 locking). See FS Plan for size & configuration.

ACCESSORIES

Mfr	Qty	Model	Spec
Metro	2	5M	Quick Ship - Super Erecta® Stem Caster, swivel, 5" dia., 1-1/4" face, 200 lb. capacity, resilient rubber flat wheel tread, includes bumper
Metro	2	5MB	Quick Ship - Super Erecta® Stem Caster, swivel (with foot operated brake), 5" dia., 1-1/4" face, 200 lb. capacity, resilient rubber flat wheel tread, includes bumper

BID LOT 1

We put space to work.

Item # _____

Job _____

Metro® Stem Casters - Super Erecta®

Metro Stem-Type Casters are designed to fit Super Erecta® Shelf posts to form shelf carts and other mobile units. Bumpers are included with most casters as noted.

Plated Casters with High Modulus treads

- Non marking high modulus donut tread and polyolefin hub. Plated horns, stems, axles, and brakes (optional) are appropriate for dry environments and for medium duty applications. Ball bearing swivel and axle. NSF listed. Bumpers included. Brake style: pedal brake.
- TPR tread (70 shore): Quieter than polyurethane and resilient rubber caster options.

Wheel Diameter (in.)	Wheel Diameter (mm)	Face (in.)	Face (mm)	Load Rating (lbs.)	Load Rating (kg.)	Type	Wheel Tread	Temperature range (Continuous usage) (Fahrenheit)	Temperature range (Continuous usage) (Celsius)	Apprx. Pkd. Wt. (lbs.)	Apprx. Pkd. Wt. (kg.)	Super Erecta Cat. No.
5	127	1.25	32	250	113	Stem/Swivel	High Modulus Donut	-20° - 180°	-29° - 82°	2.1	1.0	**5MDA**
5	127	1.25	32	250	113	Stem/Brake	High Modulus Donut	-20° - 180°	-29° - 82°	2.3	1.0	**5MDBA**
5	127	1.25	32	250	113	Stem/Rigid	High Modulus Donut	-20° - 180°	-29° - 82°	2.1	1.0	**5MDRA**

Note: Rigid connecting channel (stainless steel): Cat. No. 14RS, 18RS, 21RS, 24RS, 30RS, or 36RS.



5MDA



5MDBA



5MDRA

For all rigid casters.

Rigid stem casters improve tracking and handling of mobile units over long distances. Rigid caster channels are selected at the time of order.

How to Order:

Order (2) Rigid Casters

Select Rigid Channel based on the depth of the shelving. (Provided at no charge)

Bumpers included with each caster.



Plated Casters with Polyurethane Tread

- Chrome plated horns, stems, axles, and brakes (optional) are appropriate for dry environments and for medium duty applications. Non marking polyurethane flat tread and polyethylene hub. Ball bearing swivel and axle. NSF listed. Bumpers included. Brake style: side brake.

Wheel Diameter (in.)	Wheel Diameter (mm)	Face (in.)	Face (mm)	Load Rating (lbs.)	Load Rating (kg.)	Type	Wheel Tread	Temperature range (Continuous usage) (Fahrenheit)	Temperature range (Continuous usage) (Celsius)	Apprx. Pkd. Wt. (lbs.)	Apprx. Pkd. Wt. (kg.)	Cat. No.
5	127	1.25	32	300	135	Stem/Swivel	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.4	1	**5MP**
5	127	1.25	32	300	135	Stem/Brake	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.6	1	**5MPB**
5	127	1.25	32	300	135	Stem/Rigid	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.1	1	**5MPR**
6	152	1.5	38	400	182	Stem/Swivel	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.25	1.1	**6MP**
6	152	1.5	38	400	182	Stem/Brake	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.5	0.9	**6MPB**
6	152	1.5	38	400	182	Stem/Rigid	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.5	1	**6MPR**

Note: Rigid connecting channel (stainless steel): Cat. No. 14RS, 18RS, 21RS, 24RS, 30RS, or 36RS.



5MP



5MPB



5MPR



6MP



6MPB



6MPR

All Metro Catalog Sheets are available on our website: **www.metro.com**

InterMetro Industries Corporation
North Washington Street, Wilkes-Barre, PA 18705
Product Information. U.S. and Canada: 1.800.992.1776
Outside U.S. and Canada: www.metro.com/contactus

L02-041
Printed in U.S.A. 5/23

Information and specifications are subject to change without notice. Please confirm at time of order.

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Stem Casters - Super Erecta

Plated Casters with resilient rubber treads

- Solid resilient rubber material. Plated horns, stems, axles, and brakes (optional) are appropriate for dry environments and for medium duty applications. Ball bearing swivel. NSF listed. Bumpers included. Brake style: side brake.
- "LD" models have a plated hub cover.

Wheel Diameter (in.)	(mm)	Face (in.)	(mm)	Load Rating (lbs.)	(kg.)	Type	Wheel Tread	Temperature range (Continuous usage) (Fahrenheit)	(Celsius)	Apprx. Pkd. Wt. (lbs.)	(kg.)	Cat. No.
4	102	15/16	24	125	56	Stem/Swivel	Resilient Donut	-20° - 160°	-29° - 71°	1-1/2	0.6	**4LD**
4	102	15/16	24	125	56	Stem/Brake	Resilient Donut	-20° - 160°	-29° - 71°	2	0.9	**4LDB**
5	127	15/16	24	125	56	Stem/Swivel	Resilient Donut	-20° - 160°	-29° - 71°	2	0.9	**5LD**
5	127	1-1/4	32	200	90	Stem/Swivel	Resilient, Flat	-20° - 160°	-29° - 71°	2.8	1.3	**5M**
5	127	1-1/4	32	200	90	Stem/Brake	Resilient, Flat	-20° - 160°	-29° - 71°	3.0	1.4	**5MB**
5	127	1-1/4	32	200	90	Stem/Rigid	Resilient, Flat	-20° - 160°	-29° - 71°	2.8	1.3	**5MR**

Note: Rigid connecting channel (stainless steel): Cat. No. 14RS, 18RS, 21RS, 24RS, 30RS, or 36RS.


4LD


4LDB

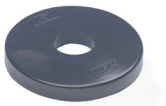

5LD


5M


5MB


5MR

Bumpers are included with each caster.



Low Profile 3" Threaded Stem Casters - For Super Erecta

- Threaded stem installs into the base of a standard stationary post.
- Resilient rubber tread. Bumpers not included.

Wheel Diameter (in.)	(mm)	Face (in.)	(mm)	Load Rating (lbs.)	(kg.)	Type	Wheel Tread	Temperature range (Continuous usage) (Fahrenheit)	(Celsius)	Apprx. Pkd. Wt. (lbs.)	(kg.)	Super Erecta Cat. No.
3	76	.94	24	100	45	Stem/Swivel	Resiliant Rubber	-20° - 130°	-29° - 71°	1.0	0.45	**3TM**
3	76	.94	24	100	45	Stem/Brake	Resiliant Rubber	-20° - 130°	-29° - 71°	1.1	0.50	**3TMB**

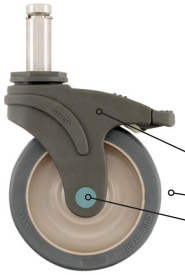

3TM


3TMB

Stem Casters - Super Erecta

Polymer & Stainless Total-Guard Caster

- High rust protection: Reinforced nylon rig with Stainless Steel stem and hardware.
- Maintenance Free: Sealed swivel SS ball bearings and Delrin axle bearings.
- Swivel and Total Lock Brake options.
- Pedal brake locks the wheel and the swivel motion. More control than conventional stem casters with wheel brakes only.
- Non-marking Thermoplastic Elastomer [TPE] tread (70 shore) is quieter and more shock absorbent than a TPU tread.



Outer rig consists of rust proof polymers, reinforced nylon, TPE wheel, and Polypropylene wheel hub.

Wheel Diameter (in.)	Wheel Diameter (mm)	Face (in.)	Face (mm)	Load Rating (lbs.)	Load Rating (kg)	Type	Wheel Tread	Temperature range (continuous) (Fahrenheit)	Temperature range (continuous) (Celsius)	Apprx. Pkd. Wt. (lbs.)	Apprx. Pkd. Wt. (kg)	Super Erecta Model No.
5	127	1.25	32	250	113	Stem/Swivel	TPE, Flat	-20° - 120°	-29° - 49°	1.7	0.8	**5PSTE**
5	127	1.25	32	250	113	Stem/Brake	TPE, Flat	-20° - 120°	-29° - 49°	1.9	0.9	**5PSTEB**

Best uses...
- Best suited for use with MetroMax and Metroseal shelving
- Best tread for high humidity controlled environments
- Excellent Corrosion Resistance
- Excellent Chemical Resistance
- Best option for aquatic facilities (environments with high salt exposure)
- Low magnetism: Best option for MRI and RFID applications
- A good option for cart wash chamber cleaning processes.

Where not to use...
- Tread not suited for exposure to acids or petroleum based chemicals.



5PSTE
Swivel



5PSTEB
Total Lock

Standard Polymer Casters

- Basic corrosion protection: Reinforced nylon rig with chromate plated stem and swivel raceway
- Maintenance Free: Sealed swivel ball bearings and Delrin axle bearings
- Swivel, Total-Lock Brake, and Rigid options
- Pedal brake locks the wheel and swivel motion
- Non-marking polyurethane (TPU) tread
- Optional Models with built-in antimicrobial TPU tread

Wheel Diameter (in.)	Wheel Diameter (mm)	Face (in.)	Face (mm)	Load Rating (lbs.)	Load Rating (kg)	Type	Wheel Tread	Temperature range (continuous) (Fahrenheit)	Temperature range (continuous) (Celsius)	Apprx. Pkd. Wt. (lbs.)	Apprx. Pkd. Wt. (kg)	Super Erecta Model No.
5	127	1.25	32	300	135	Stem/Swivel	Polyurethane, Flat	-20° - 120°	-49° - 49°	2.0	0.9	**5PC**
5	127	1.25	32	300	135	Stem/Brake	Polyurethane, Flat	-20° - 120°	-49° - 49°	2.2	1.0	**5PCB**
5	127	1.25	32	300	135	Stem/Rigid	Polyurethane, Flat	-20° - 120°	-49° - 49°	2.0	0.9	**5PCR**
5	127	1.25	32	300	135	Stem/Swivel	Polyurethane, Flat	-20° - 120°	-49° - 49°	2.0	0.9	**5PCM**
5	127	1.25	32	300	135	Stem/Brake	Polyurethane, Flat	-20° - 120°	-49° - 49°	2.2	1.0	**5PCBM**

Tread with built-in antimicrobial.

Note: Rigid connecting channel (aluminum): Cat. No. P14RC, P18RC, P21RC, P24RC, P30RC, or P36RC.

Best uses...
- Basic Corrosion Protection versus common industrial casters
- Good Chemical Resistance

Where not to use...
- Not suited for areas with spray sterilization processes on regular basis
- Not suited for high humidity controlled environments
- Not suited for high temperature cart wash chambers



5PC
Swivel



5PCB
Swivel & Brake



5PCM
Antimicrobial Tread Swivel



5PCBM
Antimicrobial Tread Swivel Brake

Job _____

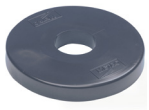
Stem Casters - Super Erecta

We put space to work.

Premium Type 304 Stainless Steel Casters

- Type 304 Stainless Steel Rig, Hardware and SS bearings.
- Non-marking Treads
- Swivel, Brake, and Rigid Options
- Pedal brake locks the wheel

Bumpers are included with each caster.



Polyurethane (TPU) Tread Models

Wheel Diameter (in.)	Wheel Diameter (mm)	Face (in.)	Face (mm)	Load Rating (lbs.)	Load Rating (kg)	Type	Wheel Tread	Temperature range (continuous) (Fahrenheit)	Temperature range (continuous) (Celsius)	Apprx. Pkd. Wt. (lbs.)	Apprx. Pkd. Wt. (kg)	Super Erecta Model No.
5	127	1.25	32	300	135	Stem/Swivel	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.2	1.0	**5MPGSA**
5	127	1.25	32	300	135	Stem/Brake	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.4	1.1	**5MPBGSA**
5	127	1.25	32	300	135	Stem/Rigid	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.2	1.0	**5MPRGSA**

Note: Rigid connecting channel (stainless steel): Cat. No. 14RS, 18RS, 21RS, 24RS, 30RS, or 36RS.



5MPGSA **5MPBGSA** **5MPRGSA**

Best uses...
- Best suited for high temperature cart wash chambers up to 180F (82C) when paired with Stainless Steel Shelving.
- Moving heavy loads regularly (90 shore TPU tread)
- High impact mobile uses (elevators, thresholds, ramps)
- Excellent Corrosion Resistance
- Excellent Chemical Resistance

Thermoplastic Rubber (TPR) Tread Models

Wheel Diameter (in.)	Wheel Diameter (mm)	Face (in.)	Face (mm)	Load Rating (lbs.)	Load Rating (kg)	Type	Wheel Tread	Temperature range (continuous) (Fahrenheit)	Temperature range (continuous) (Celsius)	Apprx. Pkd. Wt. (lbs.)	Apprx. Pkd. Wt. (kg)	Super Erecta Model No.
5	127	1.25	32	250	113	Stem/Swivel	TPR donut	-20° - 180°	-29° - 82°	2.3	1.0	**5MDGSA**
5	127	1.25	32	250	113	Stem/Brake	TPR donut	-20° - 180°	-29° - 82°	2.5	1.1	**5MDBGSA**
5	127	1.25	32	250	113	Stem/Rigid	TPR donut	-20° - 180°	-29° - 82°	2.3	1.0	**5MDRGSA**



5MDGSA **5MDBGSA** **5MDRGSA**

Best uses...
- Best tread for high humidity controlled environments
- Excellent Corrosion Resistance
- Excellent Chemical Resistance
- Softer TPR donut tread (70 shore) is more shock absorbent than TPU

Where not to use...
- Tread not suited for exposure to acids or petroleum based chemicals.

Maintenance - Stainless Casters
- TPU tread swivel and swivel/brake models: Swivel raceway has a grease fitting. The axle has sealed bearings that do not require additional lubrication.
- TPR tread swivel and swivel/brake models: swivel raceway and axles have grease fittings. Rigid caster model has an axle with a grease fitting.
- User should determine the frequency of maintenance based on their usage conditions.

11.20

Job _____

METRO®

We put space to work.

Stem Casters - Super Erecta

- **Swivel and Swivel/Brake casters** rotate a full 360 degrees for easy maneuvering.
- **Brakes:** Wheel brakes are foot operated.
- **Bumpers:** Non Phtalate vinyl material is strong yet flexible to protect walls from damage. Each caster, except where noted, includes a 3-1/2" (89mm) diameter bumper. Optional 5" (127mm) diameter bumpers are available.
- **Weight Load Capacity** of a cart (evenly distributed): Caster Load Rating x 3.
- **TableWorx** All casters in this spec sheet (Except 3TM and 3TMB on Page 2) are compatible with the larger 1-5/8" diameter mobile-ready TableWorx posts, which feature built-in adapters.

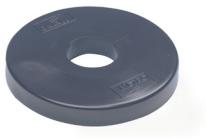
Caster Wheel Material Guide

Caster Tread	Grease/Oil Resistance	Floor Protection	Load Rating	Key Advantage
Resilient Rubber	Low	High	200 lbs. (90kg)	Basic mobility.
High Modulus Rubber	High	High	250 lbs. (113kg)	Quieter than resilient rubber and polyurethane. Well suited for environments with constant exposure to moisture and/or high humidity.
Polyurethane	High	High	300 lbs. (135kg)	Easiest to move heavy loads.

Replacement Bumpers

Non Phthalate Vinyl

Diameter (in.)	Diameter (mm)	Height (in.)	Height (mm)	Super Erecta Cat. No.
3.5	89	.75	19	**9992DB**
5.5	140	.81	21	**9992N**



Rigid Caster Channels

- Typically used opposite two swivel style casters to create carts that are easy to steer over long distances.

  Note: A type 304 stainless rigid caster channel is included at no charge with each two rigid plated or SS casters. An aluminum rigid channel is included with each two polymer horn rigid casters (model 5PCR).



Rigid Caster Channel **Swivel Casters**

For shelf depth (in.)	For shelf depth (mm)	Cat. No.	(For use with 5PCR) Cat. No.
14"	355	**14RS**	**P14RC**
18"	457	**18RS**	**P18RC**
21"	530	**21RS**	**P21RC**
24"	610	**24RS**	**P24RC**
30"	760	**30RS**	**P30RC**
36"	910	**36RS**	**P36RC**



24RS



P24RC

All Metro Catalog Sheets are available on our website www.metro.com.

BID LOT 1

Item # _____

Job _____

We put space to work.

Metro® Stem Casters - Super Erecta®

Metro Stem-Type Casters are designed to fit Super Erecta® Shelf posts to form shelf carts and other mobile units. Bumpers are included with most casters as noted.

Plated Casters with High Modulus treads

- Non marking high modulus donut tread and polyolefin hub. Plated horns, stems, axles, and brakes (optional) are appropriate for dry environments and for medium duty applications. Ball bearing swivel and axle. NSF listed. Bumpers included. Brake style: pedal brake.
- TPR tread (70 shore): Quieter than polyurethane and resilient rubber caster options.

Wheel Diameter (in.)	Wheel Diameter (mm)	Face (in.)	Face (mm)	Load Rating (lbs.)	Load Rating (kg.)	Type	Wheel Tread	Temperature range (Continuous usage) (Fahrenheit)	Temperature range (Continuous usage) (Celsius)	Apprx. Pkd. Wt. (lbs.)	Apprx. Pkd. Wt. (kg.)	Super Erecta Cat. No.
5	127	1.25	32	250	113	Stem/Swivel	High Modulus Donut	-20° - 180°	-29° - 82°	2.1	1.0	**5MDA**
5	127	1.25	32	250	113	Stem/Brake	High Modulus Donut	-20° - 180°	-29° - 82°	2.3	1.0	**5MDBA**
5	127	1.25	32	250	113	Stem/Rigid	High Modulus Donut	-20° - 180°	-29° - 82°	2.1	1.0	**5MDRA**

Note: Rigid connecting channel (stainless steel): Cat. No. 14RS, 18RS, 21RS, 24RS, 30RS, or 36RS.



5MDA



5MDBA



5MDRA

For all rigid casters.

Rigid stem casters improve tracking and handling of mobile units over long distances. Rigid caster channels are selected at the time of order.

How to Order:

Order (2) Rigid Casters

Select Rigid Channel based on the depth of the shelving. (Provided at no charge)

Bumpers included with each caster.



Plated Casters with Polyurethane Tread

- Chrome plated horns, stems, axles, and brakes (optional) are appropriate for dry environments and for medium duty applications. Non marking polyurethane flat tread and polyethylene hub. Ball bearing swivel and axle. NSF listed. Bumpers included. Brake style: side brake.

Wheel Diameter (in.)	Wheel Diameter (mm)	Face (in.)	Face (mm)	Load Rating (lbs.)	Load Rating (kg.)	Type	Wheel Tread	Temperature range (Continuous usage) (Fahrenheit)	Temperature range (Continuous usage) (Celsius)	Apprx. Pkd. Wt. (lbs.)	Apprx. Pkd. Wt. (kg.)	Cat. No.
5	127	1.25	32	300	135	Stem/Swivel	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.4	1	**5MP**
5	127	1.25	32	300	135	Stem/Brake	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.6	1	**5MPB**
5	127	1.25	32	300	135	Stem/Rigid	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.1	1	**5MPR**
6	152	1.5	38	400	182	Stem/Swivel	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.25	1.1	**6MP**
6	152	1.5	38	400	182	Stem/Brake	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.5	0.9	**6MPB**
6	152	1.5	38	400	182	Stem/Rigid	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.5	1	**6MPR**

Note: Rigid connecting channel (stainless steel): Cat. No. 14RS, 18RS, 21RS, 24RS, 30RS, or 36RS.



5MP



5MPB



5MPR



6MP



6MPB



6MPR

All Metro Catalog Sheets are available on our website: **www.metro.com**

InterMetro Industries Corporation
North Washington Street, Wilkes-Barre, PA 18705
Product Information. U.S. and Canada: 1.800.992.1776
Outside U.S. and Canada: www.metro.com/contactus

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Information and specifications are subject to change without notice. Please confirm at time of order.

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Stem Casters - Super Erecta

Plated Casters with resilient rubber treads

- Solid resilient rubber material. Plated horns, stems, axles, and brakes (optional) are appropriate for dry environments and for medium duty applications. Ball bearing swivel. NSF listed. Bumpers included. Brake style: side brake.
- "LD" models have a plated hub cover.

Wheel Diameter (in.)	Wheel Diameter (mm)	Face (in.)	Face (mm)	Load Rating (lbs.)	Load Rating (kg.)	Type	Wheel Tread	Temperature range (Continuous usage) (Fahrenheit)	Temperature range (Continuous usage) (Celsius)	Apprx. Pkd. Wt. (lbs.)	Apprx. Pkd. Wt. (kg.)	Cat. No.
4	102	15/16	24	125	56	Stem/Swivel	Resilient Donut	-20° - 160°	-29° - 71°	1-1/2	0.6	**4LD**
4	102	15/16	24	125	56	Stem/Brake	Resilient Donut	-20° - 160°	-29° - 71°	2	0.9	**4LDB**
5	127	15/16	24	125	56	Stem/Swivel	Resilient Donut	-20° - 160°	-29° - 71°	2	0.9	**5LD**
5	127	1-1/4	32	200	90	Stem/Swivel	Resilient, Flat	-20° - 160°	-29° - 71°	2.8	1.3	**5M**
5	127	1-1/4	32	200	90	Stem/Brake	Resilient, Flat	-20° - 160°	-29° - 71°	3.0	1.4	**5MB**
5	127	1-1/4	32	200	90	Stem/Rigid	Resilient, Flat	-20° - 160°	-29° - 71°	2.8	1.3	**5MR**

Note: Rigid connecting channel (stainless steel): Cat. No. 14RS, 18RS, 21RS, 24RS, 30RS, or 36RS.


4LD


4LDB

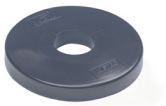

5LD


5M


5MB


5MR

Bumpers are included with each caster.



Low Profile 3" Threaded Stem Casters - For Super Erecta

- Threaded stem installs into the base of a standard stationary post.
- Resilient rubber tread. Bumpers not included.

Wheel Diameter (in.)	Wheel Diameter (mm)	Face (in.)	Face (mm)	Load Rating (lbs.)	Load Rating (kg.)	Type	Wheel Tread	Temperature range (Continuous usage) (Fahrenheit)	Temperature range (Continuous usage) (Celsius)	Apprx. Pkd. Wt. (lbs.)	Apprx. Pkd. Wt. (kg.)	Super Erecta Cat. No.
3	76	.94	24	100	45	Stem/Swivel	Resiliant Rubber	-20° - 130°	-29° - 71°	1.0	0.45	**3TM**
3	76	.94	24	100	45	Stem/Brake	Resiliant Rubber	-20° - 130°	-29° - 71°	1.1	0.50	**3TMB**

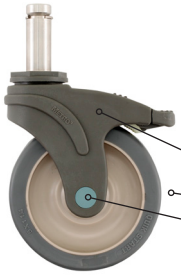

3TM


3TMB

Stem Casters - Super Erecta

Polymer & Stainless Total-Guard Caster

- High rust protection: Reinforced nylon rig with Stainless Steel stem and hardware.
- Maintenance Free: Sealed swivel SS ball bearings and Delrin axle bearings.
- Swivel and Total Lock Brake options.
- Pedal brake locks the wheel and the swivel motion. More control than conventional stem casters with wheel brakes only.
- Non-marking Thermoplastic Elastomer [TPE] tread (70 shore) is quieter and more shock absorbent than a TPU tread.



Outer rig consists of rust proof polymers, reinforced nylon, TPE wheel, and Polypropylene wheel hub.

Wheel Diameter (in.)	Wheel Diameter (mm)	Face (in.)	Face (mm)	Load Rating (lbs.)	Load Rating (kg)	Type	Wheel Tread	Temperature range (continuous) (Fahrenheit)	Temperature range (continuous) (Celsius)	Apprx. Pkd. Wt. (lbs.)	Apprx. Pkd. Wt. (kg)	Super Erecta Model No.
5	127	1.25	32	250	113	Stem/Swivel	TPE, Flat	-20° - 120°	-29° - 49°	1.7	0.8	**5PSTE**
5	127	1.25	32	250	113	Stem/Brake	TPE, Flat	-20° - 120°	-29° - 49°	1.9	0.9	**5PSTEB**

Best uses...
- Best suited for use with MetroMax and Metroseal shelving
- Best tread for high humidity controlled environments
- Excellent Corrosion Resistance
- Excellent Chemical Resistance
- Best option for aquatic facilities (environments with high salt exposure)
- Low magnetism: Best option for MRI and RFID applications
- A good option for cart wash chamber cleaning processes.

Where not to use...
- Tread not suited for exposure to acids or petroleum based chemicals.



5PSTE
Swivel



5PSTEB
Total Lock

Standard Polymer Casters

- Basic corrosion protection: Reinforced nylon rig with chromate plated stem and swivel raceway
- Maintenance Free: Sealed swivel ball bearings and Delrin axle bearings
- Swivel, Total-Lock Brake, and Rigid options
- Pedal brake locks the wheel and swivel motion
- Non-marking polyurethane (TPU) tread
- Optional Models with built-in antimicrobial TPU tread

Wheel Diameter (in.)	Wheel Diameter (mm)	Face (in.)	Face (mm)	Load Rating (lbs.)	Load Rating (kg)	Type	Wheel Tread	Temperature range (continuous) (Fahrenheit)	Temperature range (continuous) (Celsius)	Apprx. Pkd. Wt. (lbs.)	Apprx. Pkd. Wt. (kg)	Super Erecta Model No.
5	127	1.25	32	300	135	Stem/Swivel	Polyurethane, Flat	-20° - 120°	-49° - 49°	2.0	0.9	**5PC**
5	127	1.25	32	300	135	Stem/Brake	Polyurethane, Flat	-20° - 120°	-49° - 49°	2.2	1.0	**5PCB**
5	127	1.25	32	300	135	Stem/Rigid	Polyurethane, Flat	-20° - 120°	-49° - 49°	2.0	0.9	**5PCR**
5	127	1.25	32	300	135	Stem/Swivel	Polyurethane, Flat	-20° - 120°	-49° - 49°	2.0	0.9	**5PCM**
5	127	1.25	32	300	135	Stem/Brake	Polyurethane, Flat	-20° - 120°	-49° - 49°	2.2	1.0	**5PCBM**

Tread with built-in antimicrobial.

Note: Rigid connecting channel (aluminum): Cat. No. P14RC, P18RC, P21RC, P24RC, P30RC, or P36RC.

Best uses...
- Basic Corrosion Protection versus common industrial casters
- Good Chemical Resistance

Where not to use...
- Not suited for areas with spray sterilization processes on regular basis
- Not suited for high humidity controlled environments
- Not suited for high temperature cart wash chambers



5PC
Swivel



5PCB
Swivel & Brake



5PCM
Antimicrobial Tread Swivel



5PCBM
Antimicrobial Tread Swivel Brake

Job _____

Stem Casters - Super Erecta

We put space to work.

Premium Type 304 Stainless Steel Casters

- Type 304 Stainless Steel Rig, Hardware and SS bearings.
- Non-marking Treads
- Swivel, Brake, and Rigid Options
- Pedal brake locks the wheel

Bumpers are included with each caster.



Polyurethane (TPU) Tread Models

Wheel Diameter (in.)	Wheel Diameter (mm)	Face (in.)	Face (mm)	Load Rating (lbs.)	Load Rating (kg)	Type	Wheel Tread	Temperature range (continuous) (Fahrenheit)	Temperature range (continuous) (Celsius)	Apprx. Pkd. Wt. (lbs.)	Apprx. Pkd. Wt. (kg)	Super Erecta Model No.
5	127	1.25	32	300	135	Stem/Swivel	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.2	1.0	**5MPGSA**
5	127	1.25	32	300	135	Stem/Brake	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.4	1.1	**5MPBGSA**
5	127	1.25	32	300	135	Stem/Rigid	Polyurethane, Flat	-20° - 180°	-29° - 82°	2.2	1.0	**5MPRGSA**

Note: Rigid connecting channel (stainless steel): Cat. No. 14RS, 18RS, 21RS, 24RS, 30RS, or 36RS.



5MPGSA **5MPBGSA** **5MPRGSA**

Best uses...
- Best suited for high temperature cart wash chambers up to 180F (82C) when paired with Stainless Steel Shelving.
- Moving heavy loads regularly (90 shore TPU tread)
- High impact mobile uses (elevators, thresholds, ramps)
- Excellent Corrosion Resistance
- Excellent Chemical Resistance

Thermoplastic Rubber (TPR) Tread Models

Wheel Diameter (in.)	Wheel Diameter (mm)	Face (in.)	Face (mm)	Load Rating (lbs.)	Load Rating (kg)	Type	Wheel Tread	Temperature range (continuous) (Fahrenheit)	Temperature range (continuous) (Celsius)	Apprx. Pkd. Wt. (lbs.)	Apprx. Pkd. Wt. (kg)	Super Erecta Model No.
5	127	1.25	32	250	113	Stem/Swivel	TPR donut	-20° - 180°	-29° - 82°	2.3	1.0	**5MDGSA**
5	127	1.25	32	250	113	Stem/Brake	TPR donut	-20° - 180°	-29° - 82°	2.5	1.1	**5MDBGSA**
5	127	1.25	32	250	113	Stem/Rigid	TPR donut	-20° - 180°	-29° - 82°	2.3	1.0	**5MDRGSA**



5MDGSA **5MDBGSA** **5MDRGSA**

Best uses...
- Best tread for high humidity controlled environments
- Excellent Corrosion Resistance
- Excellent Chemical Resistance
- Softer TPR donut tread (70 shore) is more shock absorbent than TPU

Where not to use...
- Tread not suited for exposure to acids or petroleum based chemicals.

Maintenance - Stainless Casters
- TPU tread swivel and swivel/brake models: Swivel raceway has a grease fitting. The axle has sealed bearings that do not require additional lubrication.
- TPR tread swivel and swivel/brake models: swivel raceway and axles have grease fittings. Rigid caster model has an axle with a grease fitting.
- User should determine the frequency of maintenance based on their usage conditions.

11.20

Job _____

METRO®

We put space to work.

Stem Casters - Super Erecta

- **Swivel and Swivel/Brake casters** rotate a full 360 degrees for easy maneuvering.
- **Brakes:** Wheel brakes are foot operated.
- **Bumpers:** Non Phtalate vinyl material is strong yet flexible to protect walls from damage. Each caster, except where noted, includes a 3-1/2" (89mm) diameter bumper. Optional 5" (127mm) diameter bumpers are available.
- **Weight Load Capacity** of a cart (evenly distributed): Caster Load Rating x 3.
- **TableWorx** All casters in this spec sheet (Except 3TM and 3TMB on Page 2) are compatible with the larger 1-5/8" diameter mobile-ready TableWorx posts, which feature built-in adapters.

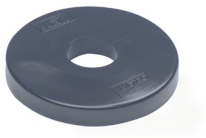
Caster Wheel Material Guide

Caster Tread	Grease/Oil Resistance	Floor Protection	Load Rating	Key Advantage
Resilient Rubber	Low	High	200 lbs. (90kg)	Basic mobility.
High Modulus Rubber	High	High	250 lbs. (113kg)	Quieter than resilient rubber and polyurethane. Well suited for environments with constant exposure to moisture and/or high humidity.
Polyurethane	High	High	300 lbs. (135kg)	Easiest to move heavy loads.

Replacement Bumpers

Non Phthalate Vinyl

Diameter (in.)	Diameter (mm)	Height (in.)	Height (mm)	Super Erecta Cat. No.
3.5	89	.75	19	**9992DB**
5.5	140	.81	21	**9992N**



Rigid Caster Channels

- Typically used opposite two swivel style casters to create carts that are easy to steer over long distances.

  Note: A type 304 stainless rigid caster channel is included at no charge with each two rigid plated or SS casters. An aluminum rigid channel is included with each two polymer horn rigid casters (model 5PCR).



Rigid Caster Channel **Swivel Casters**

For shelf depth (in.)	For shelf depth (mm)	Cat. No.	(For use with 5PCR) Cat. No.
14"	355	**14RS**	**P14RC**
18"	457	**18RS**	**P18RC**
21"	530	**21RS**	**P21RC**
24"	610	**24RS**	**P24RC**
30"	760	**30RS**	**P30RC**
36"	910	**36RS**	**P36RC**



24RS



P24RC

All Metro Catalog Sheets are available on our website www.metro.com.

Submittal Sheet

04/16/2024

ITEM# 41 - SPARE NO.

<Spare No.>

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 42 - SPARE NO.

<Spare No.>

Submittal Sheet

04/16/2024

ITEM# 43 - SPARE NO.

<Spare No.>

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 44 - EXHAUST HOOD (1 EA REQ'D)

Captive-Aire 6030ND-2-PSP-F

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 45 - FIRE SUPPRESSION SYSTEM (1 EA REQ'D)

Captive-Aire TANK

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 46 - ELECTRICAL CONTROL PACKAGE (1 EA REQ'D)

Captive-Aire DCV-21111

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 47 - S/S WALL FLASHING (1 EA REQ'D)

Custom FAB-WF

S/S WALL FLASHING, Custom Fabricated Stainless Steel
304 18 ga S/S construction from cove base to ceiling with "T" trim strip moldings.

SEE FS PLAN FOR SIZE & CONFIGURATION
Provide and install in location shown on plan and per manufactures recommendations complying with all local codes and regulations. Item should be provided with all accessories listed and meet utility requirements listed on rough-in plans.

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 48 - RANGE, 36", 6 OPEN BURNERS (1 EA REQ'D)

Imperial (Middleby) IR-6-C

Pro Series Restaurant Range, gas, 36", (6) open burners, convection oven, 1/2 HP blower motor, porcelain interior, (3) chrome racks, removable crumb tray, stainless steel front, sides, backguard, landing ledge & kick plate, 6" legs, adjustable feet, 222,000 BTU, 65kW, NSF, CE, CSA Flame, CSA Star

ACCESSORIES

Mfr	Qty	Model	Spec
Imperial (Middleby)	1		Limited one year parts and labor warranty, standard
Imperial (Middleby)	1		Natural gas (must specify elevation if over 2000 ft)
Imperial (Middleby)	1		120v/1-ph, 6.0 amps, standard
Imperial (Middleby)	1		Stainless steel backguard with shelf standard
Imperial (Middleby)	1		Swivel casters (set of 4) two with brakes, per set
Imperial (Middleby)	1		Quick disconnect & flex hose with restraining device, 3/4" N.P.T. x 48"

BID LOT 1

GAS
PRO SERIES | 36" RANGES





IR-6
Shown with optional casters

Model Numbers

IR-6	IR-2-G24	IR-4-G12	IR-G36	IR-4-S18
IR-6-C	IR-2-G24-C	IR-4-G12-C	IR-G36-C	IR-4-S18-C
IR-6 -XB	IR-2-G24-XB	IR-4-G12-XB	IR-G36-XB	IR-4-S18-XB

STANDARD OVENS

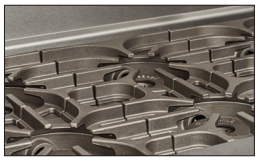
- Linear burner provides even heating throughout the oven.
- Unique burner baffle distributes heat flow to provide even temperatures throughout the oven cavity.
- Exclusive heat deflector reflects heat into the oven, not the floor.100% safety pilot.
- Chef Depth interior is 26-1/2" w x 26" d x 14" h (673 w x 660 d x 356 h mm) and accommodates 18" x 26" (457 x 660 mm) sheet pans left-to-right and front-to-back. Chef Depth is 35,000 BTU (10 KW).
- Porcelainized sides, rear, deck and door lining for easy cleaning. Heavy duty door hinge.
- Stamped inner door liner provides extra strength while optimizing heat retention.
- One chrome oven rack is included.

CONVECTION OVENS

- 30,000 BTU/hr. (9 KW) convection oven with 1/2 hp blower motor cooks products quickly and evenly with less shrinkage.
- Convection oven interior dimensions 26-1/2" w x 22-1/2" d x 14" h (673 x 572 x 356 mm).
- Three position switch for cooking or cool down. Fan shuts off automatically when door is open.
- Porcelainized sides, rear, deck and door lining for easy cleaning. Heavy duty door hinge.
- Three chrome oven racks are included.
- Electronic ignition system with electronic timer countdown.



ROUND STAINLESS STEEL "CHEFS" HANDLE



NEW TWO PIECE TOP GRATE DESIGN

OPEN BURNERS

- PyroCentric™ 32,000 BTU (9 KW) anti-clogging burner with a 7,000 BTU/hr. (2 KW) low simmer feature. Two rings of flame for even heating.
- Cast iron PyroCentric burners are standard on all IR Series Ranges.
- Burners are anti-clogging and lift-off and separate for easy cleaning. No gaskets or screws.
- One standing pilot per burner for instant ignition.

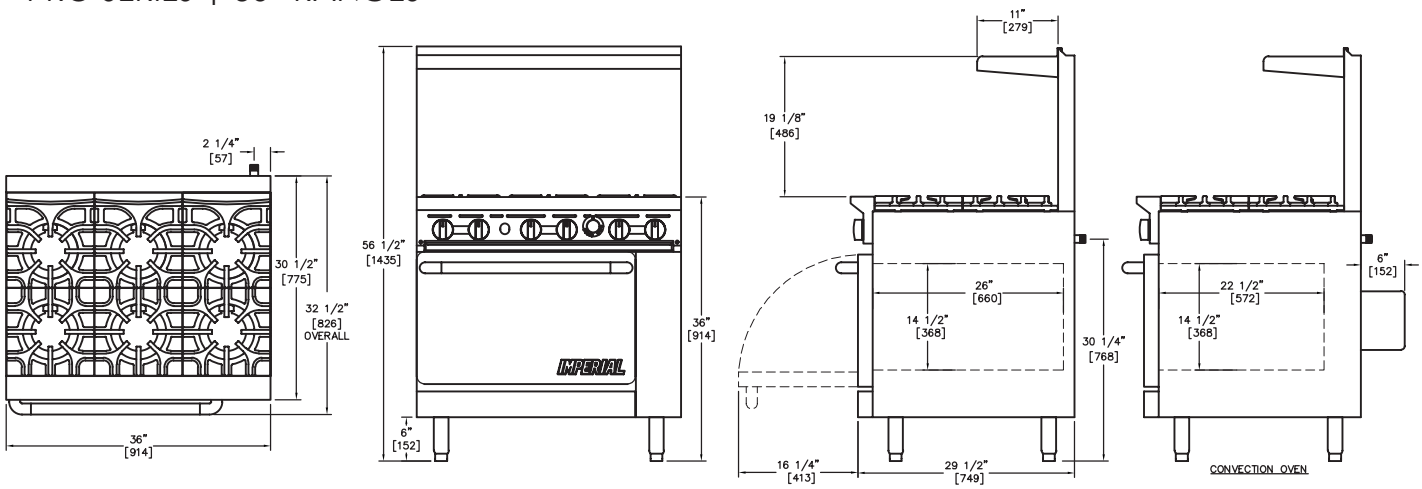
GRATES

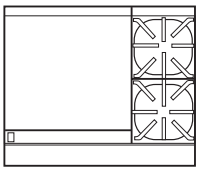
- Front grates measure 12" x 12" (305 x 279 mm). Back grates are 12" x 13" (305 x 330 mm).
- Back grates are sized for positioning large stock pots directly over burner and feature a hot air dam.
- Pots slide easily from section to section and onto landing ledge.
- Grates are cast iron for a long service life.
- All stainless steel upper burner box, top grate supports front and rear.

GRIDDLE

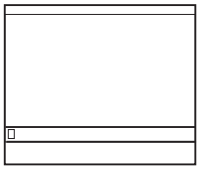
- Highly polished 3/4" (19 mm) steel plate. 21" (533 mm) plate depth.
- Burners have 20,000 (6 KW) BTU/hr. output with a heat deflector every 12" (305) for even heating.
- 3" (76 mm) wide grease trough and removable grease can for easy cleaning.
- Large griddle grease can and full width broiler drip tray are removable for easy cleaning.

GAS
PRO SERIES | 36" RANGES

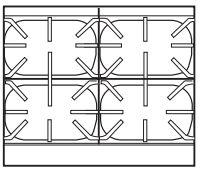




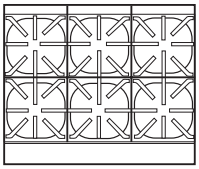
MODEL	GAS OUTPUT		OPEN BURNERS	GRIDDLE WIDTH	SHIP WEIGHT	
	BTU	KW			KG	LBS
IR-2-G24	139,000	41	2	24" (610 MM)	288	635
IR-2-G24-C	134,000	39	2	24" (610 MM)	314	695
IR-2-G24-XB	104,000	30	2	24" (610 MM)	260	575



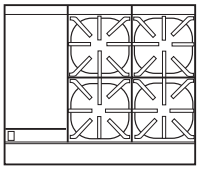
MODEL	GAS OUTPUT		OPEN BURNERS	GRIDDLE WIDTH	SHIP WEIGHT	
	BTU	KW			KG	LBS
IR-G36	95,000	28	N/A	36" (914 MM)	297	520
IR-G36-C	90,000	26	N/A	36" (914 MM)	319	705
IR-G36-XB	60,000	18	N/A	36" (914 MM)	269	595



MODEL	GAS OUTPUT		OPEN BURNERS	GRIDDLE WIDTH	SHIP WEIGHT	
	BTU	KW			KG	LBS
IR-4-S18	163,000	48	4	N/A	272	600
IR-4-S18-C	158,000	46	4	N/A	298	660
IR-4-S18-XB	128,000	38	4	N/A	244	540



MODEL	GAS OUTPUT		OPEN BURNERS	GRIDDLE WIDTH	SHIP WEIGHT	
	BTU	KW			KG	LBS
IR-6	227,000	67	6	N/A	274	511
IR-6-C	222,000	65	6	N/A	301	604
IR-6-XB	192,000	56	6	N/A	246	545



MODEL	GAS OUTPUT		OPEN BURN-ERS	GRIDDLE WIDTH	SHIP WEIGHT	
	BTU	KW			KG	LBS
IR-4-G12	183,000	54	4	12" (305 MM)	283	625
IR-4-G12-C	178,000	52	4	12" (305 MM)	310	685
IR-4-G12-XB	148,000	43	4	12" (305 MM)	256	565

MANIFOLD PRESSURE		
NATURAL GAS	PROPANE GAS	MANIFOLD SIZE
5.0" W.C.	10.0" W.C.	3/4" (19 MM)

CONVECTION OVEN ELECTRICAL REQUIREMENT		
VOLTAGE	PHASE	AMPS
120	1	6

Crated Dimensions:

38-1/2" w x 39" d x 35" h (998 x 991 x 889 mm)

Dimensions:

36" w x 31-1/2" d x 56-1/2" h (914 x 800 x 1435 mm)

Measurements in ( ) are metric equivalents.

EXTERIOR

- Stainless steel front, sides, backguard, shelf, landing ledge and kick plate
- Welded and polished stainless steel seams
- Large 3.5" (127 mm) stainless steel landing ledge
- Control knobs are durable cast aluminum.
- Full width, removable crumb tray under open burners for easy cleaning
- 6" (152 mm) heavy duty legs with adjustable feet
- One year parts and labor warranty

OPTIONS AND ACCESSORIES

- Reinforcement channels for mounting cheese melter and salamander
- 6" and 11" (152 and 279 mm) stainless steel backguards. Stubback available
- 10" (254 mm) stainless steel wok ring
- Saute burner head, interchangeable
- Wok burner head, interchangeable
- 220V motor and transformer for convection oven
- Extra oven racks
- Thermostatic griddle control
- Grooved griddle plate
- Chrome griddle plate
- Griddle safety valve
- Gas shut off valve 3/4" (19 mm)
- Quick disconnect and flexible gas hose
- 6" (152 mm) casters

CLEARANCE REQUIREMENTS

For use only on non-combustible floors. Legs or casters are required for non-combustible floors; or 2" (51 mm) overhang is required when curb mounted. Provide 0" clearance from non-combustible surfaces and 8" (203 mm) from combustible surfaces.

Notes:

"C" specifies (1) 26 ½" (673) Convection Oven
"XB" specifies (1) Cabinet Base
"G" specifies Griddle Top, griddle on left is standard

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 49 - TILTING SKILLET BRAISING PAN, ELECTRIC (1 EA REQ'D)

RATIONAL IVARIOPRO L 208/240V 3PH (LMX100CE)

(WX9ENRA.0002215) iVario Pro L Multifunctional Cooking Center, (1) 26 gallon pan,integrated iVarioBoost energy management system, 85° to 480°F temperature range, iZoneControl with up to (4) individually controlled heating zones, iCookingSuite intelligent cooking system, 6-point sensor core temperature probe, AutoLift (baskets and arm required for use), portioned water dispenser, retractable hand shower, Ethernet interface, WiFi enabled, includes stand with plastic feet, 208/240v/60/3-ph, 23.0 kw, CE, ETL, NSF, IPX5

ACCESSORIES

Mfr	Qty	Model	Spec
RATIONAL	1		NOTE: All discounts subject to approval by manufacturer
RATIONAL	1		2 years parts and labor warranty, standard
RATIONAL	1	CAP	Chef Assistance Program, a RATIONAL certified Chef conducts 4 hours/location specialized application training with personnel, no charge
RATIONAL	1	9999.2221	RCI RATIONAL Certified Installation, new certified installation for each iVario L or XL, 100 miles (200 round-trip) included. (See attached installation flyer for details) THIS ITEM IS NON-DISCOUNTABLE, USA ONLY (NET)
RATIONAL	1	8730.1565US	Installation Kit, includes parts for: water connection, electric hardwiring, & copper drain line, for iVario size 2-S (208/240v), L (208/240v & 440/480v) and XL (440/480v) THIS ITEM IS NON-DISCOUNTABLE, USA ONLY (NET)
RATIONAL	1	60.74.500	Feet Kit, (4) adjustable stainless steel feet, for size L and XL
RATIONAL	1	60.74.865	Storage Cabinet for Base, open front, (2) compartments, for storing GN accessories, for iVario L models
RATIONAL	1	60.73.349	VarioMobil® Cart, for transporting 12" x 20" hotel pans, height adjustable, for size 2-XS and 2-S
RATIONAL	1	87.00.743	Accessory Package, includes: (1) spatula, (1) AutoLift arm, (2) boiling baskets, (1) strainer, (2) pan base rack, & (1) cleaning scrub, for size L
RATIONAL	1	60.71.643	Scraper 25, spatula, stainless steel

Datasheet

iVario® Pro L with base



Capacity
> Usable capacity: 26 gal
> 611 sq. in., 4.2 sq. ft. Cooking surface area

Manual mode
> Boil: 85°F – boiling temperature
> Pan-fry: 85°F – 480°F
> Deep-fry: 85°F – 355°F

iVario

The iVario is one of the world's most cutting-edge appliances when it comes to maximizing productivity, flexibility and ease of use when searing, deep-frying, boiling, or pressure cooking, so it replaces nearly all other conventional appliances. Its one-of-a-kind heating technology offers unparalleled precision and performance, and with proactive support from its intelligent cooking assistants, you'll get exceptional results every time, without the hassle of constantly supervising the process. It works up to four times faster than conventional appliances, while using up to 40% less energy and all while saving space, so it pays for itself in just a few months.

Intelligent assistant

iVarioBoost iCookingSuite iZoneControl

iVarioBoost
iVarioBoost is our patented heating technology using ceramic elements that are attached to the heat-conductive, scratch resistant pan base.
This means that the iVario heats up the pan base evenly to 392°F (200 °C) in just 3 minutes and reduces the temperature quickly if required.
The iVario also has plenty of reserve power, so it can rapidly compensate for sudden temperature changes when large amounts of food or liquid are added at once. What does that mean for you? Exceptional performance. The device delivers great results and boosts productivity by as much as fourfold, while reducing cooking losses by 17% and energy consumption by 40%.

iCookingSuite
The iCookingSuite is your iVario's intelligent cooking assistant - it makes operating the system easy, and offers you the best possible assistance when cooking. Intelligent sensors in the pan base automatically detect load quantities, piece sizes, and food condition, and adjust the cooking path continuously in response. Whenever there's something you need to do, the iCookingSuite immediately notifies you. For you, this means maximum safety and a high quality standard. And you also save on time, effort, raw ingredients, and energy in the process.

iZoneControl
iZoneControl allows you to divide the pan base into individual heating zones and operate them at different temperatures or cooking paths. Zones that are not in use are not heated. So you can create up to four mini-iVarios from one large iVario. Just specify the results you want and start the cooking path for the zones you're using. You'll save time and enjoy great flexibility while always having an eye on everything.

Programming mode
With the program management function, manual programs can be set intuitively and intelligent cooking paths can be saved with their individual settings and managed with optimal overview.

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Unit description and functions

Intelligent functions
> Intelligent energy and temperature management with high power reserves and precise heat distribution over the entire pan surface
> Intelligent cooking path control for automatic adjustment of the cooking process to the defined desired result, e.g. browning and cooking level, to ensure that the desired result is achieved reliably and efficiently, regardless of the operator, size of the food being cooked and the feed volume
> Intelligent, automatic removal of boiling and deep-frying baskets for perfect cooking results, optimal ergonomics and efficient use of resources
> Precise monitoring and calculation down to the exact second so that optimal cooking results can be reproduced
> Changes to intelligent cooking paths or switching from intelligent cooking to à la carte mode for maximum flexibility
> Individual, intuitive programming of up to 1,200 cooking programs with up to 12 steps via drag-and-drop
> Easy transfer of the programs to other cooking systems via secure Cloud connection with ConnectedCooking or via USB stick
> Self-learning operation, which adapts to the usage behavior, such as intelligent sorting of frequently used recipes
> Automatic resumption and optimal ending of a cooking process despite power failures

Cooking functions
> Core temperature probe with 6 measuring points, magnetic core temperature probe holder and ergonomic handle, as well as automatic error correction in the event of incorrect readings
> Automatic water filling, accurate to the exact quart (unit can be set in liters or gallons)
> Cooking or cleaning water is drained directly through the integrated pan drain (without tilting, without a front floor trough)
> Pan is controlled via an electric motor, controlled via the display
> Fast-reaction, scratch resistant, high-performance pan base
> Integrated hand shower with automatic retraction; spray and jet modes
> Delta-T cooking for extremely gentle preparation with minimal cooking losses
> Digital temperature displays that can be set in °C or °F, target and actual value display
> 24 hour real-time clock with automatic summer/winter time switching when connected with ConnectedCooking
> Adjustable language display
> Digital timer 0-24 hrs. with continuous mode, optional hours/minutes or minutes/seconds settings.
> 24-hour real-time clock
> Free hotline for technical and application questions (ChefLine)

Pressure cooking (optional)
> The pressure cooking option can be used to prepare a wide variety of dishes even more quickly, yet still gently. Uniform, optimal pressure levels are assured using iVario technology, which preserves the cellular structure of the food while cooking up-to 35% faster. This is a reliable and low maintenance system. Maximum pressure: 4.4 PSI.

Networking
> Integrated WiFi interface for wireless connection to the cloud-based networking solution ConnectedCooking (depending on country-specific regulations)
> Integrated Ethernet interface for wired connection to the cloud-based networking solution ConnectedCooking
> Integrated USB interface for local data exchange
> Central device management, recipe, shopping basket and program management, HACCP data management, maintenance management through ConnectedCooking

Occupational and operating safety
> Cooking or cleaning water is drained directly through the integrated pan drain (without tilting, without floor drain)
> Operating and warning display, e.g. hot oil for deep-frying
> Electronic safety temperature limiter
> Contact temperature of the pan exterior max. 163°F (73°C)
> HACCP data storage and output via USB or optional storage and management in the cloud-based networking solution ConnectedCooking
> Cooking system approved for unsupervised operation (e.g. overnight cooking)
> Integrated on-screen display lock to prevent accidental operation
> Motorized pan lifting offers additional safety

Installation, maintenance and environment
> Rear in-direct floor drain with air gap is required, and should be supplied in alignment with local code.

> Cold water connection (incl. water supply hose 59 in)
> Professional installation by RATIONAL-certified technicians recommended (not included)
> Stand with adjustable plastic or stainless steel feet, casters, for base installation or electrically height-adjustable (up to 8 in) for optimal working conditions at all times (optional)
> Water softener optional
> No front floor trough required
> Class IPX 5 protection against splashing and spraying water
> Adaptation to height above sea level
> Service diagnostic system with automatic messages, self test function for actively testing cooking system functions
> Remote diagnosis via ConnectedCooking by certified RATIONAL service partners
> Regular maintenance is recommended. Maintenance according to manufacturer recommendations available from RATIONAL service partners

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> 2-year RATIONAL warranty* (incl. parts and labor)
> Energy efficiency tested in accordance with DIN 18873 and consumption values published in HKICert database (https://grosskuechen.cert.hki-online.de/en)
> * Terms and conditions apply, see manufacturer warranty statement (https://www.rational-online.com/o/media/pictures_from_subsidaries/en_sg_1/en_us__news_1/RATIONAL_USA_WARRANTY_June_2019.pdf)

Operation

> 10.1" TFT color display and high-resolution, capacitive touchscreen with self-explanatory symbols for simple, intuitive operation using touch gestures
> Central dial with Push function for intuitive selection and confirmation of entries
> Acoustic prompts and visual messages when user action is required
> Application and operating manual can be called up on the unit display depending on the action
> The height-adjustable base (optional) is operated easily via the display
> User interface and help function can be set to over 44 languages
> Specially adapted cooking parameters for international or country-specific dishes can be selected and started regardless of unit language settings
> Comprehensive search function with the search assistant in all help topics
> Display of help topics with reference to content and direct launch of application examples from the help
> Easy selection of cooking paths via cooking processes
> Easy multi-step programming of manual cooking parameters using modular principle with drag-and-drop function
> Cockpit function to display information on the progress of a cooking path
> Function for personalized control of user profiles and access rights to prevent operator errors

Cleaning and care

> Stainless steel interior and exterior
> Hygienic setup with an existing curb for easy, safe cleaning when installed on a base (optional)
> Joint-free easy to clean pan with rounded edges (NSF approved)
> Easily cleanable glass and stainless steel surfaces, as well as IPX 5-class protection against splashing and spraying water

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Technical specifications

Notes
Observe all local and country-specific standards and regulations regarding the installation and operation of commercial cooking appliances. (IEC364 or country-specific version of IEC364)

Dimensions and capacity with base

Usable volume	26 gal
Internal pan size [WxDxH]	27 in x 22 in x 11 in
Pan surface	611 in^2
Maximum level for deep-frying	7.92 gal
Width	41 in
Depth	35 in
Net weight	475 lb
Gross weight	553 lb
Net weight pressure version	517 lb
Gross weight pressure version	588 lb
Sound emission	≤70 dBA

Electrical information

Voltages (50/60hz)	Power	Running amps	Circuit breaker **	Cable size**
3ph 208V	23 kW	64 A	70 A	6 AWG
3ph 240V	22 kW	53 A	70 A	6 AWG
3ph 440V	25 kW	33 A	45 A	8 AWG
3ph 480V	29 kW	35 A	45 A	8 AWG

** The specified values apply for a maximum cable length of 78 ¾ in. Adapt the values to your cable length accordingly.

Connection conditions exhaust air

	Recommended exhaust air output* (air volume required device free in the room)	Latent heat load	Sensible heat emission
3ph 208V	815 ft^3/min	6,348 W	794 W
3ph 240V	780 ft^3/min	6,072 W	759 W
3ph 440V	886 ft^3/min	6,900 W	863 W
3ph 480V	1,028 ft^3/min	8,004 W	1,001 W

* During normal operation in accordance with VDI 2052. Application mix 60% boiling, 38% pan-frying, 2% deep-frying. If system usage will deviate from this, consult RATIONAL before designing ventilation system.

Connection conditions water

Water supply	¾“ GHT
Water pressure (flow pressure)	22 – 87 PSI
Water drain (outer diameter)	2 in

Minimum distances at installation

	Left	Behind	Right
Default	2 in	0	0**
To heat sources	14 in	20 in	20 in
To open flames	20 in	20 in	20 in
To open water sources when used as a deep-fryer	35 in	35 in	35 in

** With the lockable control panel option, a minimum distance of 20 mm must be maintained on the right side.

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Options

> Pressure cooking (available from 2021 onward - not to be combined with base with casters)
> Base with plastic feet
> Base with stainless-steel feet
> Base with casters (not to be combined with pressure cooking)
> Base with height-adjustable feet
> Rear panel
> Storage cabinet
> Locked deep-fry mode (can be unlocked)
> 400V units on request
> Without WiFi module
> Lockable control panel

Approvals

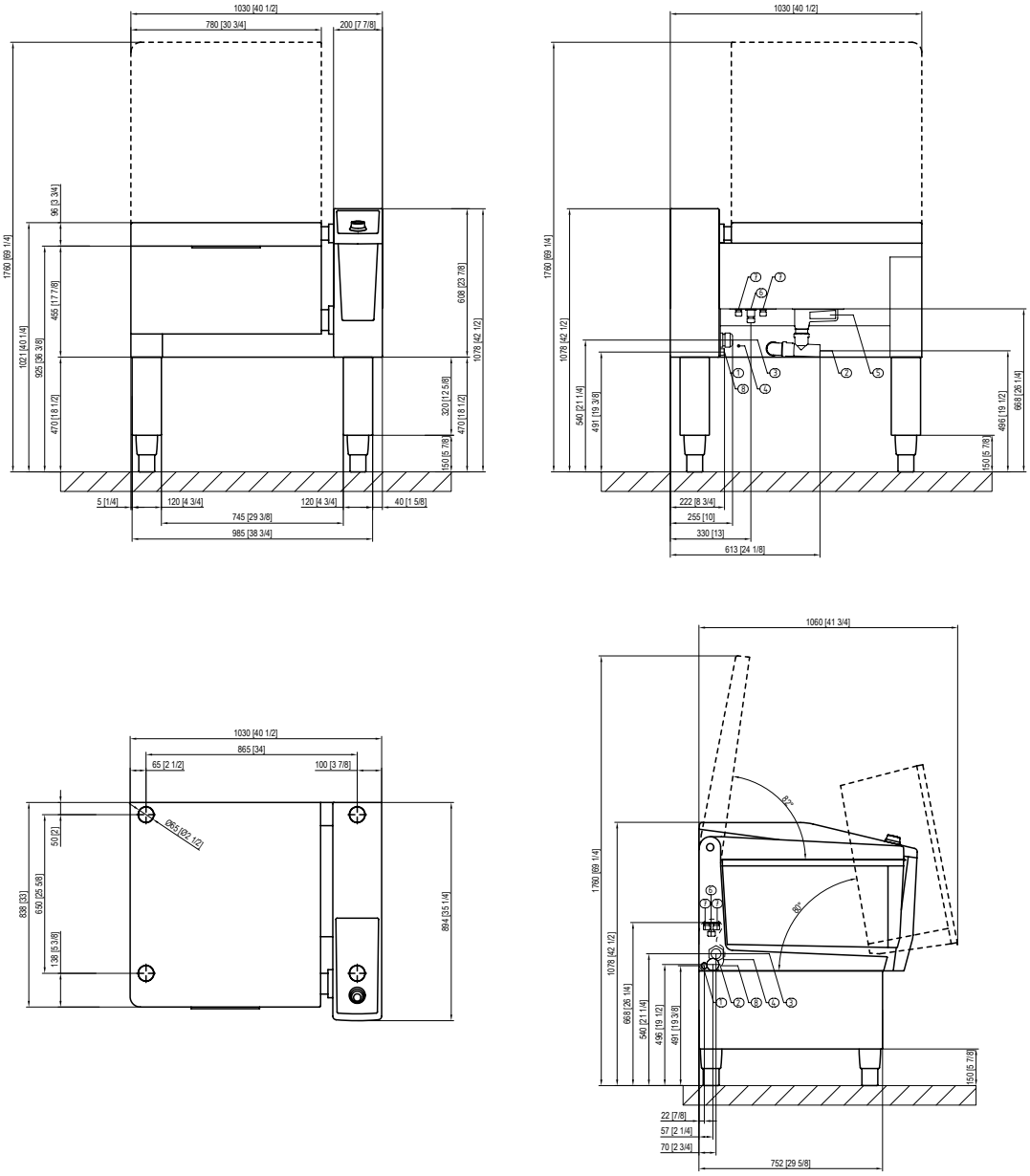
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Accessories

> 60.73.586 Perforated scoop Model 2-XS, 2-S, L, XL
> 60.73.348 Solid scoop Model 2-XS, 2-S, L, XL
> 60.75.909 Arm for automatic raising/lowering Model L
> 60.74.983 Boiling basket Model L, XL (Recommended quantity 2 pc for Model L, 3 pc for Model XL)
> 60.75.391 Frying basket Model L, XL (Recommended quantity 2 pc for Model L, 3 pc for Model XL)
> 60.75.975 Strainer Model L
> 60.74.663 Pan base rack Model 2-S, L, XL (Recommended quantity 1 pc per pan for Model 2-S, 2 pc for Model L, 3 pc for Model XL)
> 60.70.107 VarioMobil® 2/1 GN Model L, XL
> 60.73.612 Basket cart Model 2-XS, 2-S, L, XL
> 60.72.905 Floor anchoring kit Model L, XL
> 60.73.920 Masterkit cleaning
> 60.71.643 Spatula 25 Model 2-XS, 2-S, L, XL
> 60.77.042 Spatula 33 Model 2-XS, 2-S, L, XL

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Technical drawings



1	Water supply cold	5	Safety overflow (no connection)
2	Drain	6	Ethernet interface (option)
3	Electrical connection	7	Connections for options
4	Equipotential bonding		

Planner	RATIONAL USA Inc.
	1701 Golf Road, Suite C-120, Commercium Rolling Meadows, IL 60008 Toll Free: 888-320-7274 Fax: 847-755-9583 Email: info@rational-online.com Visit us on the internet: www.rational-online.com

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Installation Information Form.

To ensure maximum customer satisfaction and proper future service support.
Dealer is responsible for completing this form.

Submit this form with every PO.

Project Name (required)

Phone Number Project Location (required)

Street Address (required)

City/State/Zip Code (required)

Location Contact Name (required)

Phone Number Location Contact (required)

Location Contact Email (required)

RATIONAL PO Number

Please select one of the options below.

- ☐ This PO includes a Pre-Installation Site Consultation and/or RATIONAL Certified Installation(RCI). Commissioning is included with RCI. Commissioning that can not be completed at the time of installation can incur additional costs.
- ☐ This PO includes Commissioning. RSP information will be emailed to Signee & Location Contact. They are responsible to contact RSP to schedule the Commissioning visit after the installation is completed. Commissioning that can not be completed due to improper installations can incur additional costs
- ☐ Installation and/or Commissioning will be purchased directly from a RATIONAL Service Partner.
- ☐ Installation and/or Commissioning by a RATIONAL Service Partner is **declined**. An Installation Manual is delivered with every RATIONAL unit. RATIONAL will not warranty service calls related to improper installation. All gas units must be calibrated via a flue gas analysis.

List your preferred RATIONAL Service Provider, or RATIONAL will select an RSP based on location.

☐ New Construction

Approximate Pre-Installation Site Consultation Date (If Purchased):

☐ Replacement

Approximate Installation Date:

Dealer:

Contact at Dealer:

Phone Number:

Email:

Signature:

Date:

The ship date will be the date indicated on the sales confirmation. This date may be subject to change.

1701 Golf Road Suite C-120, Commercium Rolling Meadows, IL 60008
Phone (224) 366-3500 Fax (847) 755-9583

21.736 · V-01 · DP/Ad · 08/22 · en_US

Installation kit 8730.1565US



Article number:
8730.1565US

Features:
- To connect iVario to water, drain water and power.
- Compatible with:
- iVario Pro 2-S (208/240/60/3ph)
- iVario Pro L (208/240/60/3ph & 440/480/3ph)
- iVario Pro XL (440/480/60/3ph)

Technical data:
- Scope of delivery:
- 1 x THHN 4 AWG black stranded wire length 40 ft
- 1 x THHN 6 AWG green stranded wire length 12 ft
- 1 x 1" SEALTITE flexible conduit length 10 ft
- 1 x 2" minnies
- 1 x 1" SEALTITE conn straight w/o ins
- 1 x 1" SEALTITE conn 90 degree w/o ins
- 1 x 3/4" water connector hose, 5/8" ID, 3/4" female hose thread both ends, 60" long rubber coated, NSF approved
- 1 x fresh water elbow 90 degree
- 2 x 2" copper pipe length 4 ft (total 8 ft)
- 2 x 2" copper pipe elbow 90 degree
- 1 x 2" copper pipe elbow 45 degree
- 1 x 2" copper pipe coupling
- Weight: 27.6 lb

Specification/Data sheet

Storage cabinet model L - USA/CANADA

Article number:
60.74.865



Features:
- The storage compartment in the substructure offers support rails for storing GN containers and accessories.
- 6 pairs of support rails. Side panels, top panel and rear closed.

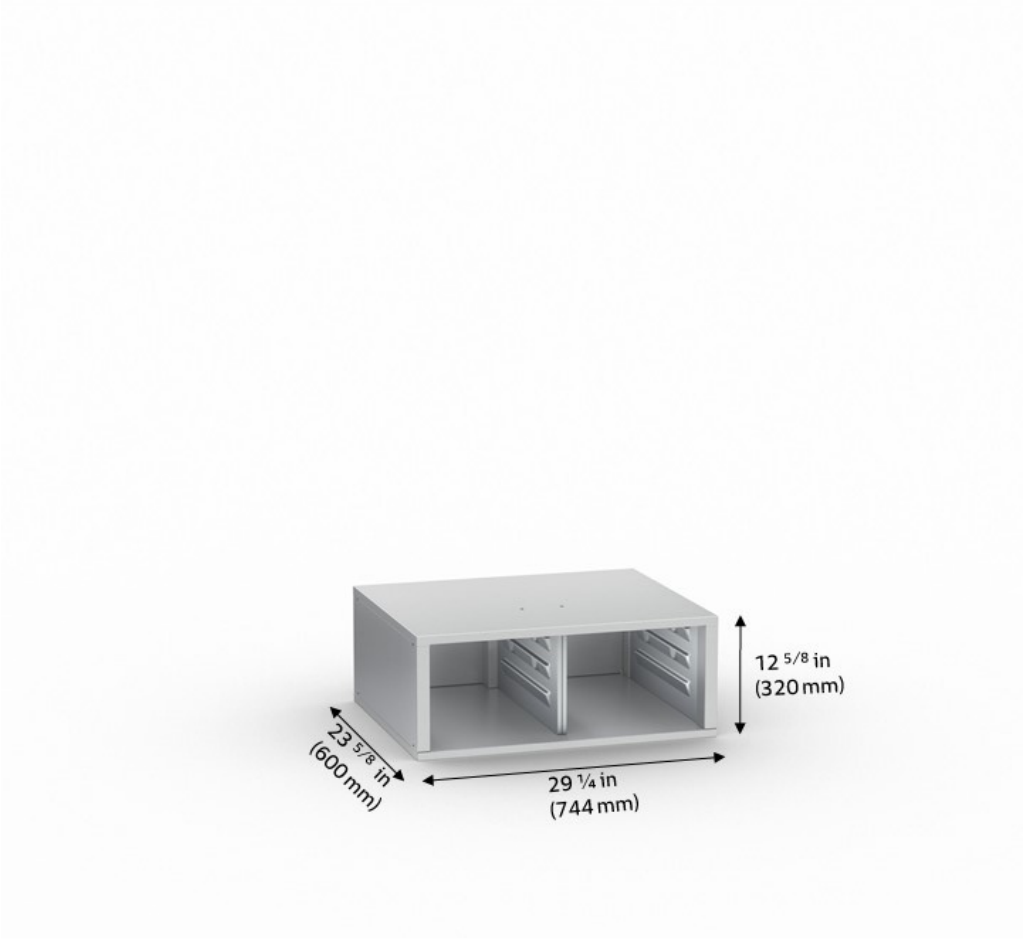
Technical data:
- Dimensions: 29 1/4 in (744 mm) x 23 5/8 in (600 mm) x 12 5/8 in (320 mm)
- Weight: 50.5 lb (22,9 kg)
- Material: Stainless steel

Additional accessories:
- Module base
- 60.74.983 - Boiling basket model L, XL
- 60.75.391 - Frying basket model L, XL
- 60.74.663 - Pan base rack model 2-S, L, XL
- Standard GN container

Additional information:
- It is compatible with all substructure variants.
- It cannot be combined with the "rear panel".
- Max. Total load capacity: 176.4 lb (80 kg) (2x 88.2 lb (40 kg))
- Tip: Distribute the weight across the support rails.

Specification/Data sheet

Storage cabinet model L - USA/CANADA



BIDLOT 1

Specifications/data sheets

Scraper model 2-XS, 2-S, L, XL

Article number:
60.71.643



Features:
- To facilitate simple and ergonomic turning and removal of products in the iVario. The intelligent design ensures a light and practical scraper.

Technical data:
- Dimensions: 250 mm (9,8 in) x 167 mm (6,6 in) x 80 mm (3,1 in)
- Weight: 0.5 kg (1,1 lb)
- Material: Stainless steel 1.4310
- Cleaning: Dishwasher-safe

Additional accessories:
- 60.73.348 - Unperforated scoop model 2-S, L, XL
- 60.73.586 - Perforated scoop model 2-S, L, XL

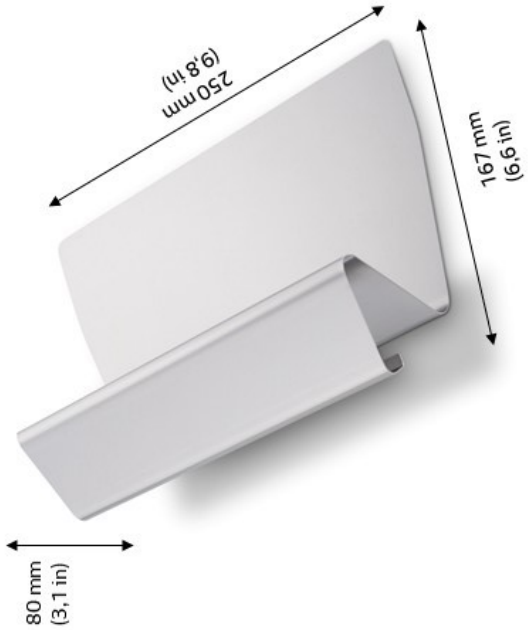
RATIONAL Austria GmbH
Münchner Bundesstrasse 10, A-5020 Salzburg
Tel.: +43 (0) 662-832799
Fax.: +43 (0) 662-83279910

Besuchen Sie uns im Internet: www.rational-online.at

Technische Änderungen, die dem Fortschritt dienen, vorbehalten

Specifications/data sheets

Scraper model 2-XS, 2-S, L, XL



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Technische Änderungen, die dem Fortschritt dienen, vorbehalten

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 50 - COMBI OVEN, GAS (1 EA REQ'D)

RATIONAL ICP 10-FULL NG 208/240V 1 PH (LM100EG)

(CE1GRRA.0000240) iCombi Pro® 10-Full Size Combi Oven, natural gas, (10) 18" x 26" sheet pan or (20) 12" x 20" steam pan or (10) 2/1 GN pan capacity, (5) stainless steel grids included, intelligent cooking system with (4) assistants; iDensityControl, iCookingSuite, iProductionManager, & iCareSystem, (6) operating modes, (5) cooking methods, (3) manual operating modes, 85° to 572°F temperature range, quick clean, care control, eco mode, 6-point core temperature probe, retractable hand shower, Ethernet interface, Wi-Fi enabled, 152,000 BTU, 208/240v/60/1-ph, 6 ft. cord, 1.5 kW, CE, IPX5, cCSAus, NSF, ENERGY STAR®

ACCESSORIES

Mfr	Qty	Model	Spec
RATIONAL	1		NOTE: All discounts subject to approval by manufacturer
RATIONAL	1		2 years parts and labor, 5 years steam generator warranty
RATIONAL	1	CAP	Chef Assistance Program, a RATIONAL certified Chef conducts 4 hours/location specialized application training with personnel, no charge
RATIONAL	1	9999.2211	RCI RATIONAL Certified Installation, new certified installation for each individual gas table-top iCombi on a stand or counter, 100 miles (200 round-trip) included. (Do not use for Combi-Duo, See attached installation flyer for details) THIS ITEM IS NON-DISCOUNTABLE, USA ONLY (NET)
RATIONAL	1	9999.2110	Commissioning iCombi Gas– for one(1) gas iCombi when not installed and commissioned by trained technicians. This is required for gas flue analysis and operational function testing. Includes 100 miles (200 miles round-trip). THIS ITEM IN NON-DISCOUTNABLE, USA ONLY (NET)
RATIONAL	1	8720.1561US	Installation Kit, for gas iCombi/SCC/CMP 102G (208-240/60/1ph); gas iCombi/SCC/CMP 201G (120/60/1ph); gas iCombi/SCC/CMP 202G (208-240/60/1ph) THIS ITEM IS NON-DISCOUNTABLE, USA ONLY (NET)
RATIONAL	1	1900.1154US	Water Filtration Single Cartridge System, for any iVario, single Combi model, or XS or half-size Combi-Duos, includes: (1) single head with pressure gauge, R95-CL filter & filter installation kit
RATIONAL	1	9999.2271	RCI RATIONAL Certified Installation, additional installation cost for a RATIONAL Water Filter System is available when purchased with Certified Installation of RATIONAL unit THIS ITEM IS NON-DISCOUNTABLE, USA ONLY (NET)
RATIONAL	1		NOTE: The RATIONAL Water Filtration Systems helps provide consistent high quality water to your RATIONAL cooking systems. The patented carbon block technology reduces the effects of sediment, chloramines and chlorine while providing the required flow rates
RATIONAL	1	1900.1155US	Water Filtration Cartridge, replacement or add on with additional Modular Head to Double Cartridge System, includes: (1) R95-CL filter
RATIONAL	1	56.00.562	Care Tabs, bucket of 150 packets for all iCombi Pro/Classic models and SelfCooking Center®

BID LOT 1

			units from 10/2008, with CareControl - Serial SG, SH or SI series (minimum order quantity: 2pcs, unless ordered with a unit) (NET)
RATIONAL	1	60.31.087	Stand II Stationary Oven Stand, 26-3/8"H, (14) supporting rails, side panels and top closed, rear panel open, stainless steel construction, for 6- and 10-full size Classic/Pro

BID LOT 1

Spec sheet

iCombi® Pro 10-full size E/G



Capacity
> Ten (10) Full-size sheet pans or Twenty (20) Steam table pans or Ten (10) 2/1 GN accessories
> Removable standard hinging rack with 2 5/8 inch rack spacing (68 mm)
> Large selection of accessories for various cooking procedures, such as grilling, braising or baking
> For use with 2/1, 1/1, 2/4 GN accessories

Combi-steamer mode
> Steaming 86 °F - 266 °F
> Convection 86 °F – 572 °F
> Combination of steam and convection 86 °F – 572 °F

Description

Intelligent, connectable cooking system with the operating modes poultry, meat, fish, egg dishes/desserts, side dishes/vegetables, baked goods and finishing as well as the cooking methods roasting, cooking, baking and grilling.
> Combi steamer as per DIN 18866 (in manual mode).
> For most cooking processes used in commercial kitchens.
> For using steam and convection, individually, one after the other, or combined.

Ventilation approvals: The electrical appliance conforms to the EPA 202 test in accordance with ANSI/NFPA 96 "Ventilation Control and Fire Protection of Commercial Cooking Operations" Refer to UL Listing KNLZ.E148536 (America) or KNLZ7.E148536 (Canada).
The following intelligent assistants are available:

Intelligent assistant

iDensityControl iProductionManager iCookingSuite iCareSystem

iDensityControl
iDensityControl is the iCombi Pro's intelligent climate management. The interaction among intelligent sensors, a high-performance heating system and fresh steam generator, and active dehumidification ensures that the right cooking cabinet climate is always available. Intelligent air circulation ensures the best possible energy input into the food. Consequently, this ensures extraordinary productivity while maintaining high levels of food quality, even cooking and minimum energy consumption.

iCookingSuite
The iCookingSuite is the iCombi Pro's cooking intelligence. The user starts by selecting the right cooking path for the food, choosing from among 6 operating modes and / or 5 cooking methods. Users also specify the desired cooking result. The unit suggests settings for browning and degree of doneness. Intelligent sensors detect the size, quantity and condition of the food. While the cooking path is in progress, the system adjusts key parameters like cooking cabinet temperature, airspeed, and cooking time accurately to the second. The selected desired results are achieved, yielding the best possible quality in the shortest possible time. It is possible to optionally influence the cooking sequence and adapt the cooking result. Users can change to iProductionManager or manual mode at any time. Thanks to iCookingSuite you can simply save time, raw materials, and energy while maintaining a standardized food quality without having to check the procedure.

iProductionManager
iProductionManager intelligently and flexibly organizes the production process. This includes which products can be prepared together on different trays, the ideal sequence of dishes, and monitoring the cooking sequence. iProductionManager supports users with prompts to load or unload dishes. Depending on kitchen processes you can freely position orders (up to two per level) or schedule them on the basis of a certain target time. iProductionManager arranges the sequence of dishes accordingly and automatically specifies the correct settings. Users decide whether dishes are cooked based on optimum energy consumption or a certain target time. Simple monitoring activities are no longer required, saving you working time and energy.

iCareSystem
The iCareSystem is the intelligent iCombi Pro cleaning and descaling system. It recommends the amount of chemicals and ideal cleaning stage from the nine available programs based on usage and any limescale in the steam generator. Ultra-fast interim cleaning cleans iCombi Pro in only 12 minutes, all cleaning programs can also run overnight without the need for supervision. The iCareSystem is particularly efficient and environmentally friendly, consuming small quantities of phosphate-free care products, water, and energy. This means that the iCombi Pro is always hygienically clean without manual work and at minimal costs.

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Unit description and functions

Intelligent functions
> Intelligent climate management that measures, adjusts and controls the humidity down to the exact percentage
> The actual measured humidity in the cooking cabinet can be adjusted and viewed
> Dynamic air turbulence in the cooking cabinet thanks to two intelligent, reversible, high-performance fan wheels with five fan wheel speeds, intelligently actuated and manually programmable
> Intelligent cooking path regulation and automatic adjustment of cooking steps in order to achieve the target results, e.g., browning and degree of doneness, safely and efficiently - regardless of product size, load quantity, or who is using the unit
> Monitoring accurate to the second and calculation of browning on the basis of the Maillard reaction to reproduce ideal cooking results
> Adjust intelligent cooking methods or switch between iCookingSuite and iProductionManager for maximum flexibility
> Intelligent cooking step to proof baked goods
> Individual, intuitive programming of up to 1,200 cooking programs with up to 12 steps using drag-and-drop.
> Easy transfer of cooking programs to other cooking systems through secure cloud connection with ConnectedCooking or via USB stick
> iProductionManager, the automated, intelligent planning and controlling tool, organizes multiple cooking processes and mixed loads perfectly. Automatic closing of planning gaps. Automatic time or energy optimization in planning; target time preparation to start or end cooking dishes at the same time
> Visual indication of loading and removal requests using energy-saving LED lighting
> Automatically resumes and optimally completes cooking processes following power outages lasting less than 15 minutes
> Intelligent cleaning system suggests cleaning programs and the required amount of care products based on the degree of soiling within the cooking system
> Display of the current cleaning and descaling status
> Intelligent VarioSmokers control (accessory) by the cooking methods
> Condensation/exhaust air hoods (accessories) with situational adjustment of the extraction performance and transfer of service messages.

Cooking functions
> High-performance steam generator for optimal steaming performance even at low temperatures below 212°F
> Power-steam function: increased steaming power available for Asian applications
> Integrated, maintenance-free grease separation system without an additional grease filter
> Cool-down function to quickly cool down the cooking cabinet; additional fast cooling using internal water nozzle
> Core temperature probe with six measuring points and automatic error correction in the event of incorrect positioning. Optional positioning tool for soft or very small cooking products (accessory)
> Delta-T cooking for extremely gentle preparation with minimal cooking losses
> Precise burst-steam injection; water quantities can be set to 4 different levels within a temperature range of 85°F – 500°F for convection or steam-convection combination modes
> Digital temperature display, can be set to °C or °F, displays target and actual values
> Cooking cabinet humidity and time displayed digitally; displays target and actual values
> Time can be set to display in 12- or 24-hour format
> 24-hour real-time clock with automatic adjustment for daylight savings time when connected to ConnectedCooking
> Automatic pre-selected starting time with variable date and time
> Integrated hand shower with automatic retraction and switchable spray/jet function
> Energy-saving, long-lasting LED lighting in the cooking cabinet, with excellent color fidelity to allow quick determination of cooking progress
> No-charge 4-hour RATIONAL certified chef assistance program

Occupational and operating safety
> Electronic safety temperature limiter for steam generator and convection heating
> Integrated fan wheel brake
> Contact temperature of the cooking cabinet door max. 163 °F
> Use of Active Green cleaning tabs and Care tabs (solid cleaning agent) for ideal occupational safety levels
> HACCP data storage and output via USB or optional storage and management in the cloud-based networking solution ConnectedCooking
> Tested according to national and international standards for unsupervised operation
> Maximum tray height must not exceed 63 inch when using a RATIONAL stand
> Ergonomic door handle with right- / left-handed door opening and swing-shut function

Networking
> Integrated, IP-protected Ethernet interface for wired connection to the cloud-based ConnectedCooking networking solution
> Integrated Wi-Fi interface for wireless connection to the cloud-based networking solution ConnectedCooking
> Integrated USB interface for local data exchange
> Cloud-based ConnectedCooking solution allows central unit management; recipe, shopping cart and program management; HACCP data management; maintenance management

Cleaning and care
> Automatic, water pressure-independent cleaning and maintenance system for cooking cabinet and steam generator
> Nine cleaning programs for unsupervised cleaning, also overnight, with automatic cleaning and removal of limescale deposits within the steam generator
> Ultrafast cleaning in only 12 minutes for practically uninterrupted, hygienic production
> Automatic cleaning routine following power outages, ensuring that cooking cabinet remains free of cleaning agents even after the cleaning process has been canceled
> Phosphate- and phosphorus-free Active Green Cleaner and Care tabs. The tabs are also free of microplastic additives

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> Hygienic setup that is flush with the counter without feet for simple, safe cleaning
> Triple glass pane cooking cabinet door with rear ventilation, thermally reflecting special coating and swiveling glass panes for easy cleaning
> Inside and outside material: stainless steel DIN 1.4301, seamless hygienic cooking cabinet with rounded corners and optimized air flow
> Glass and stainless steel surfaces allow easy, safe external cleaning; IPX5-class protection against spraying water in all directions
> Monitoring option for automatic cleaning using the cloud-based ConnectedCooking networking solution

Operation
> High-resolution 10.1 inch TFT color display and capacitative touchscreen with self-explanatory icons for simple, intuitive operation with gestures like swiping and dragging
> Acoustic prompts and visual messages when user action is required
> Central dial with Push function for intuitive selection and confirmation of entries
> User interface and help function can be set to over 55 languages
> Basic national cuisine preferences can be selected regardless of language settings. Possible to select additional, local cuisine
> Specially adapted cooking parameters for international or country-specific dishes can be selected and started regardless of unit language settings
> Extensive search function including all cooking paths, application examples and settings
> Context-sensitive support that always shows the current help content for the displayed screen content
> Start application examples from help file
> Simple selection of cooking paths using six operating modes and/or five cooking methods
> Cockpit function to display information about the processes within a cooking path
> Customization and control of user profiles to prevent operator errors
> Interactive notifications regarding cooking paths, requested actions, intelligent functions and warnings thanks to Messenger

Installation, maintenance and environment
> Professional installation by RATIONAL-certified technicians recommended
> Rear in-direct floor drain with air gap is required, and should be supplied in alignment with local code.
> Adaptation to the installation site (height above sea level) through automatic calibration
> Operation without water softener and without additional manual descaling possible
> Installation flush with the floor and wall through connection in the base area *
> Service diagnostic system with automatic messages, self test function for actively testing cooking system functions
> Remote diagnosis via ConnectedCooking by certified RATIONAL service partners
> 2-year RATIONAL warranty including parts, labor, and travel**
> Regular maintenance is recommended. Servicing by RATIONAL service partner according to manufacturer recommendations
> Energy efficiency in accordance with ENERGY STAR tested and passed. Published at www.energystar.gov

* See the installation or planner manual for details
** Terms and conditions apply, see manufacturer warranty statement at www.rational-online.com

Options
> Cooking cabinet door, left-hinged
> MarineLine - marine version
> SecurityLine – prison / security version
> MobilityLine – mobile variant
> HeavyDutyLine – particularly heavy-duty version
> Integrated fat drain
> Mobile oven rack package
> Protection for control panel
> Safety door lock
> Lockable control panel

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Technical specifications

Dimensions and weights

Dimensions (W x H x D)	
Cooking system (body)	42 1/4 x 39 7/8 x 38 3/8 inches
Cooking system (total).	42 1/4 x 41 7/8 x 41 inches
Cooking system with packaging	46 1/4 x 49 1/4 x 45 1/2 inches
Maximum working height of top level*	≤ 5 ft. 2 7/8 inches

*when using a corresponding RATIONAL stand

Weights	
Maximum load size per level	66 lb
Maximum total load capacity	198 lb
Weight - electric unit without packaging	381 lb
Weight - electric unit with packaging	450 lb
Weight - gas unit without packaging	423 lb
Weight - gas unit with packaging	492 lb

Electrical connection conditions

Voltage 3 ph 208 V / 240 V	
Connected loads - electric	37.4 kW
Steam power	36 kW
Convection power	36 kW
Breaker	125 A
Connection impedance	0.09 Ω
Running AMPS	103.8 A (208 V) / 90 A (240 V)
Cable diameter	AWG 2 194°F
Voltage 3 ph 440 V / 480 V	
Connected loads - electric	37.4 kW
Steam power	36 kW
Convection power	36 kW
Breaker	60 A
Connection impedance	0.09 Ω
Running AMPS	49.1 A (440 V) / 45 A (480 V)
Cable diameter	AWG 4 140°'F

Not supplied with cable connection

Connected loads - gas

Natural gas G20	
Nominal heat load, total	152000 BTU
Nominal heat load, Steam mode	152000 BTU
Nominal heat load, Hot Air mode	152000 BTU
Required connection flow pressure	6.5 – 10 inch w.c.
Liquid gas	
Nominal heat load, total	148500 BTU
Nominal heat load, Steam mode	148500 BTU
Nominal heat load, Hot Air mode	148500 BTU
Required connection flow pressure	10 – 15 inch w.c.

1" female NPT gas shut-off valve
Additional gas types and voltages available on request

Connected loads - gas

Voltage 1 ph 208 V	
Connected loads - gas	1.5 kW
Breaker	15 A
Running AMPS	7.2 A

All gas units are supplied with a 6 ft cord.

Connection conditions water

Water inlet (pressure hose), each	3/4"
Water pressure (flow pressure), each	14.5-87.0 psi
Maximum flow rate per cooking system	3 gal/min
Water drain, each	2" OD
Max short-term amount of wastewater	0.11 gal/sec

Use only high-temperature resistant drain pipe

Water quality requirements

Untreated water can be 0 to 24.5 gr/gal (0 to 420ppm) hardness. We do not recommend treated water hardness < 5 gr/gal (86ppm) because the water could be corrosive. Sodium ion exchangers are not recommended; H+ Ion exchange systems are recommended. Water that does not meet the following minimum standards will require the proper conditioning

Contaminant	Water Requirements	If > than recommended
Sand / Particles	< 15 µm	Particle filter
Chlorine (Cl2)	< 0.012 gr/gal (0.2 ppm)	Active carbon filter
Chloride (Cl-)	< 4.68 gr/gal (80 ppm)	RO

Connected loads - exhaust air and thermal load

Latent heat load	6018 BTU
Sensible heat emission	7565 BTU
Sound level (electric)	58 dBA
Sound level (gas)	63 dBA

Connection loads - data

LAN data interface	RJ45
WiFi data interface	IEEE 802.11 a/g/n

Minimum distances at installation

Clearance Requirements
To facilitate servicing, we recommend leaving a 20" (500 mm) gap on the left-hand side of the unit. If there is not 20" (500 mm) left side clearance available, provisions for moving the unit to the left for service access must be made. Such provisions include, but are not limited to, having quick connections (water, gas, etc.) and lengthened electrical connections with flexible cords.
If there are no external heat sources acting on the unit, there should be at least 2" (50 mm) of clearance on either side of the unit. On the back, single units and electric Combi-Duo vent pipe can be mounted flush with the wall. 2" rear clearance from the gas Combi-Duo exhaust gas box.
If a high temperature heat source is on the left or right side of the unit, clearance of at least 14" (350 mm) must be maintained on the respective side. This clearance may be reduced to 2" (50 mm) if a heat shield is used (see accessories).
Recommended clearance from unobstructed rear exhaust pipes and any surface collecting grease or flammable material; 16" (400 mm) gas, 10" (254 mm) electric. It is recommended to have a hood overhang of 6" (150 mm) to 18" (450 mm) at the front of the unit and 6" (150 mm) on the sides if installed at the end of the cooking line. Please refer to the Installation Manual for additional technical data and for instructions on installation and setup.

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Installation conditions

> Observe all local and country-specific standards and regulations regarding the installation and operation of commercial cooking appliances. The local standards and regulations for interior ventilation systems must also be taken into account.
> To use ConnectedCooking, an RJ45 network socket or a WLAN connection option (IEEE 802.11 a/g/n) must be in place on-site. For optimal performance, a data rate of at least 100 MB/s is required.

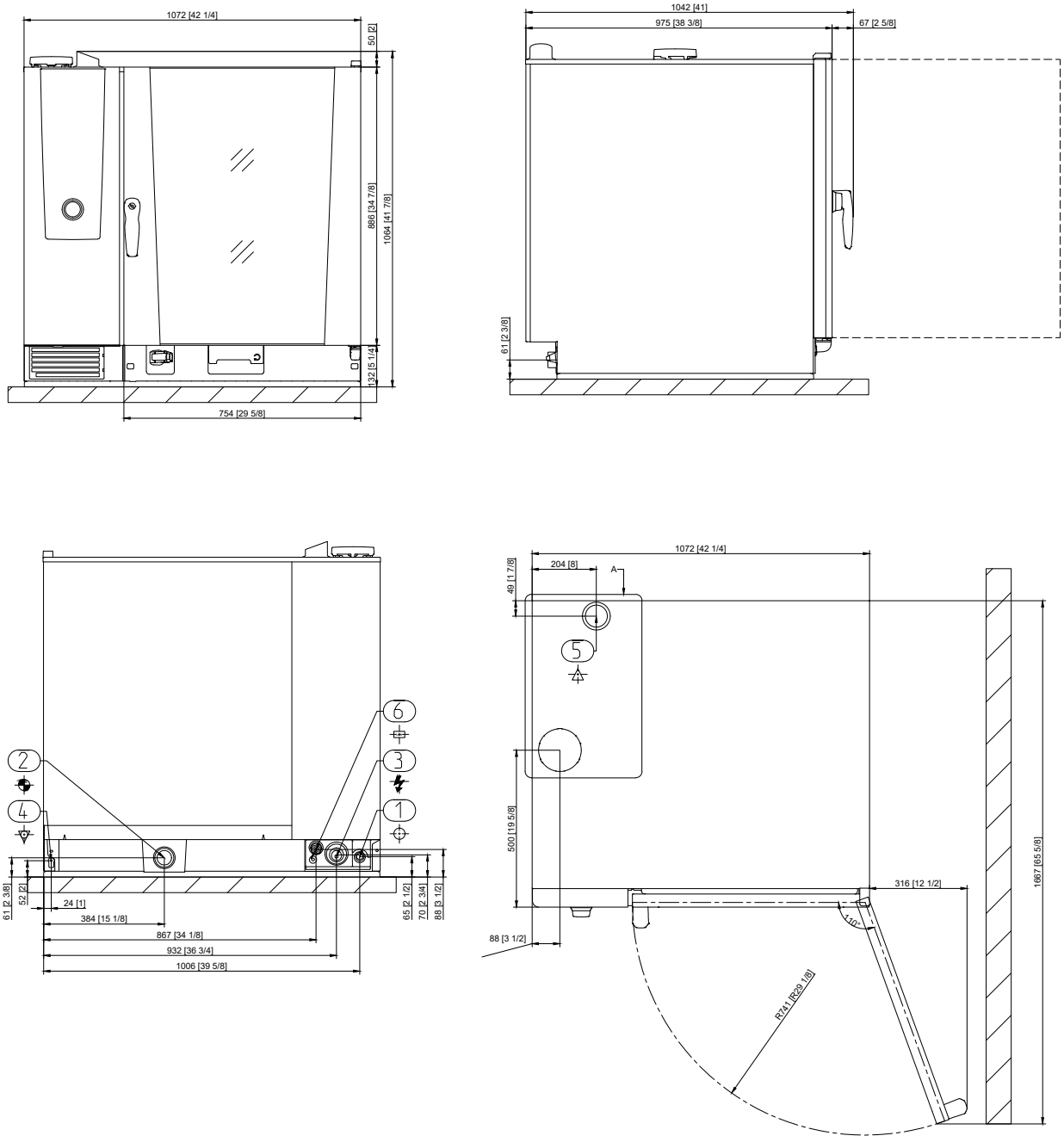
Approvals

NSF Certification

iCombi Pro (LM100) and iCombi Classic (LM200) are NSF-certified, shown on the NSF list.

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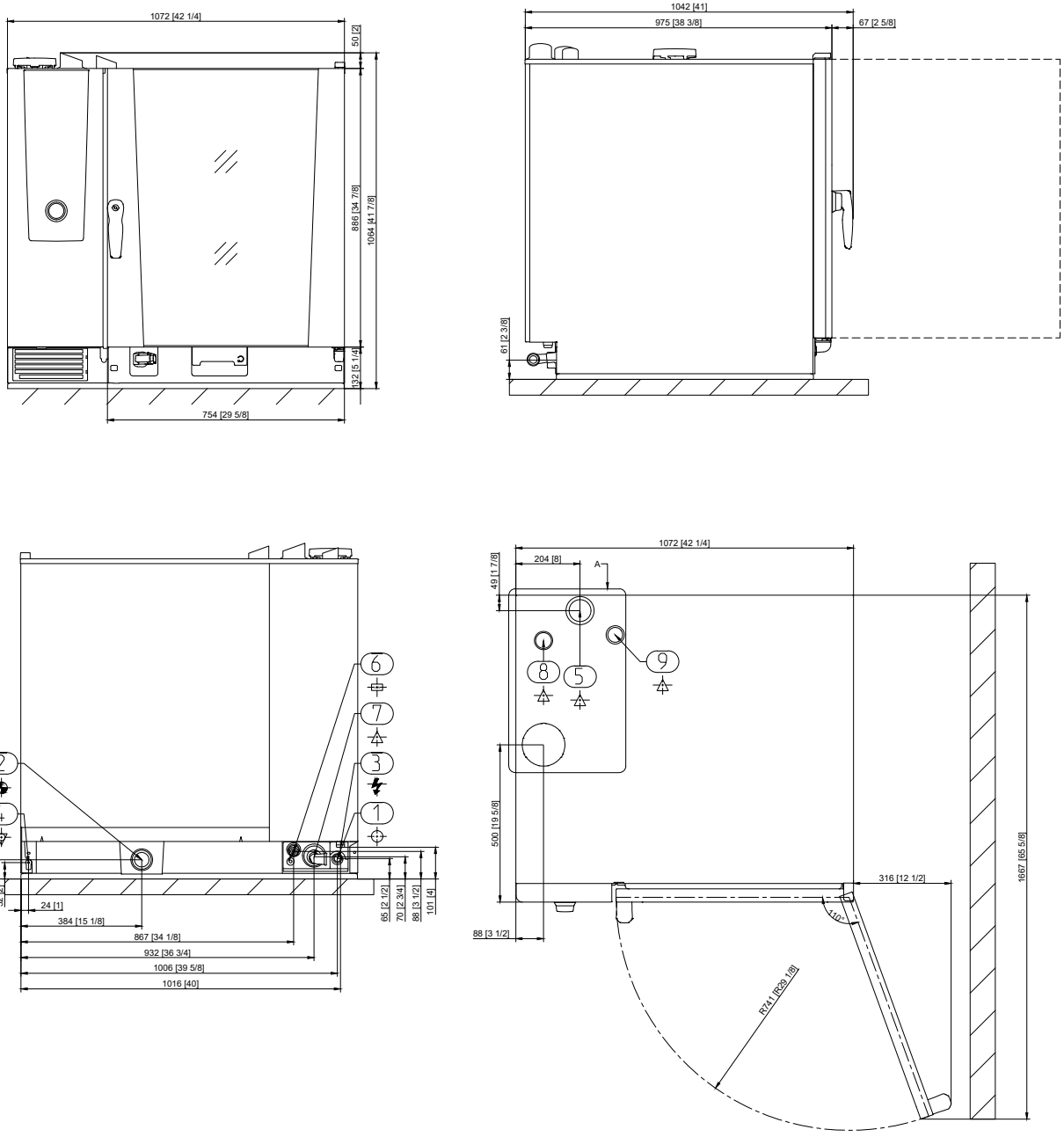
Technical drawing, electrical



1	Water inlet
2	Water drain
3	Electrical connection
4	Equipotential bonding
5	Ventilation pipe
6	Ethernet interface

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Technical drawing, gas



1	Water inlet
2	Water drain
3	Electrical connection
4	Equipotential bonding
5	Ventilation pipe
6	Ethernet interface
7	Gas connection
8	Exhaust pipe gas (steam)
9	Exhaust pipe gas (convection)

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Accessories

> 5 full size stainless steel grids included with delivery of the cooking system

Accessories	Item number
RATIONAL Active Green cleaning agent tabs – guarantee the best cleaning performance	Item no. 56.01.535
RATIONAL Care tabs – effectively prevent limescale deposits	Item no. 56.00.562
Stands are available in various versions - standard, with casters, or with anchorable stainless steel feet	See Cooking Systems and Accessories catalog
Condensation breaker – diverts steam and vapors to an existing exhaust air system Sizes 6-half size, 10-half size, 6-full size and 10-full size	Item no. 60.72.592
RATIONAL USB stick – to securely transfer cooking programs and HACCP data	Item no. 42.00.162
Run-in rail for mobile rack and mobile plate rack Size 6-full size, 10-full size	Item no. 60.74.650
Finishing system for banquets Size 10-full size, 42 plates	Item no. 60.12.154
Finishing system for banquets Size 10-full size, 52 plates	Item no. 60.12.155
Full size sheet pan adapter	Item no. 60.12.156
Heat shield – for installing a unit near a heat source, e.g. a grill - Size 10-full size	Item no. left hinged door 60.776 Item no. right hinged door 60.75.774
Mobile catering stand - especially for heavy mobile catering usage	Item no. 60.31.165
Mobile oven rack and mobile plate oven rack – for simple loading outside the cooking system	See Cooking Systems and Accessories catalog
Transport trolley for mobile rack and mobile plate rack - height-adjustable - Sizes 6-full size, 10-full size	Item no. 60.75.605
Transport trolley for mobile rack and mobile plate rack - standard - Sizes 6-full size, 10-full size	Item no. 60.73.999
UltraVent recirculating hood - for Size 6-full size, 10-full size electric units only	Item no. 60.76.180
UltraVent Plus recirculating hood - for Size 6-full size, 10-full size electric units only	Item no. 60.07.178
Stackable Combi-Duo kit - Size 6-full size E/G on Size 6-full size E or Size 10-full size E	Item no. 60.74.725
RATIONAL Double Water Filter - for Combi Duo 6-full size/6-full size and 6-full size/10-full size or if used for more than 2 units	Item no. 1900.1150US

We offer a wide range of cooking accessories to help you achieve ideal cooking results; for more information, please consult our accessories brochure, ask your dealer, or visit www.rational-online.com

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Planner	RATIONAL USA Inc.
	1701 Golf Road, Suite C-120, Commercium Rolling Meadows, IL 60008 Toll Free: 888-320-7274 Fax: 847-755-9583 Email: info@rational-online.com Visit us on the internet: www.rational-online.com

Installation Information Form.

To ensure maximum customer satisfaction and proper future service support.
Dealer is responsible for completing this form.

Submit this form with every PO.

Project Name (required)	Phone Number Project Location (required)
Street Address (required)	City/State/Zip Code (required)
Location Contact Name (required)	Phone Number Location Contact (required)
Location Contact Email (required)	RATIONAL PO Number

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- ☐ Installation and/or Commissioning by a RATIONAL Service Partner is **declined**. An Installation Manual is delivered with every RATIONAL unit. RATIONAL will not warranty service calls related to improper installation. All gas units must be calibrated via a flue gas analysis.

List your preferred RATIONAL Service Provider, or RATIONAL will select an RSP based on location.

☐ New Construction	Approximate Pre-Installation Site Consultation Date (If Purchased):
☐ Replacement	Approximate Installation Date:

Dealer:	Contact at Dealer:
Phone Number:	Email:
Signature:	Date:

The ship date will be the date indicated on the sales confirmation. This date may be subject to change.

1701 Golf Road Suite C-120, Commercium Rolling Meadows, IL 60008
Phone (224) 366-3500 Fax (847) 755-9583

21.736 · V-01 · DP/Ad · 08/22 · en_US

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Installation Kit

Article no. 8720.1561US

The RATIONAL Installation Kit ensures that the installer has all the essential connection materials on hand at the time of install. Not all parts are used in every installation.

Gas RATIONAL Combi Oven 10-full size G (208-240v/60/1ph)
Gas RATIONAL Combi Oven 20-half size G (120v/60/1ph) or (208v/60/1ph)
Gas RATIONAL Combi Oven 20-full size G (208-240v/60/1ph)

The Installation Kit for the above models includes:

1	ea	Gas Connector Hose, 1" NPT connection, 48" long, with Plastic coat exterior, brass push to connect quick disconnect coupling, for castered equipment with cable strain relief
1	ea	90 degree black iron elbows, 1" NPT
1	ea	3/4" × 5 1/2" Nipple
1	ea	3/4" street EL
1	ea	3/4" × 1" Bell reducer
1	ea	24" long × 1" NPT black iron pipe
1	ea	Close nipple 1" NPT black iron pipe
1	ea	90 degree reducing elbow black pipe 1" × 3/4"
1	ea	1" × 3/4" street elbow lack pipe
2	ea	2" Minnies
1	ea	1" minnies
2	ea	3/4" Water Connector Hose, 5/8" ID, 3/4" female hose thread both ends, 72" long rubber coated, NSF approved
1	ea	Male union 3/4" × 3/4" MHT
2	ea	90 deg Fresh water elbow
8	feet	2" copper pipe (two 4' pieces)
2	ea	2" copper pipe 90 degree elbow
1	ea	2" copper pipe T fitting
2	ea	2" copper pipe 45 degree elbow
1	ea	2" copper pipe 90 degree elbow female to male
1	ea	2" copper pipe 90 degree long sweep
1	ea	2" copper pipe coupling
1	ea	Receptacle NEMA 6-15R 15A-250V
1	ea	NEMA 6-15R cover plate single junction box
1	ea	NEMA 6-15P
1	ea	NEMA 5-15P

Please note that installation kits are non-discountable.

Water Filtration Products.

R195-CL



R195-CL

RATIONAL Water Filtration Products Model R195-CL single cartridge water filtration system helps provide consistent high quality water for your RATIONAL combi by reducing the effects of sediment, chloramines, chlorine, taste & odor while providing the required flow rates for any single Combi model or Combi-Duo models 6-half size/6-half size or 6-half size/10-half size or XS/XS.

Product Benefits

- Carbon block technology effectively reduces chloramines, chlorine, taste, and odor for better equipment protection.
- NSF Standard 42 and FDA CFR-21 compliant materials.
- Sanitary Quick Change (SQC) encapsulated cartridge design allows for fast and easy cartridge change-outs with ¼" turn.
- ½" FNPT horizontal inlet and outlet ports allow direct or easily adaptable connections to existing plumbing lines.

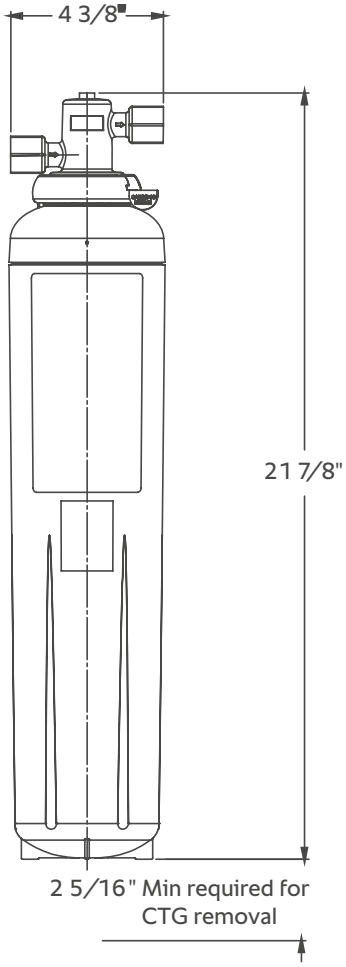
Model Number	Article No.	Reduction Claims	Nominal Micron Rating	Capacity	Service Flow Rate	Replacement Cartridge
R195-CL	1900.1154US	Sediment, Chloramines [1], Chlorine, Taste and Odor	5.0 [2]	30,000 gallons (113,550 liters)	2.5 gpm (9.5 lpm)	R95-CL 1900.1155US

1 As tested and certified by independent third party laboratory
2 NSF Certified for Particulate Reduction

Visit www.nsf.org for the claims associated with products that are NSF listed.

Water Filtration Products.

R195-CL



Application Guide

› Any single RATIONAL combi
› XS/XS Combi-Duo
› 6-half size/6-half size Combi-Duo
› 6-half size/10-half size Combi-Duo

Important: Installation Tips

These installation tips are for informational purposes only and are not intended to be used as actual installation instructions. Caution: To reduce the risk associated with property damage due to water leakage:

› Read and follow Use Instructions before installation and use of this system.
› Installation and use must comply with all state and local plumbing codes.
› Protect from freezing, remove filter cartridge when temperatures are expected to drop below 40°F (4.4°C).
› Do not install on hot water supply lines. The maximum operating water temperature of this filter system is 100°F (37.8°C).
› Do not install if water pressure exceeds 125 psi (862 kPa). If your water pressure exceeds 80 psi (552 kPa), you must install a pressure limiting valve. Contact a plumbing professional if you are uncertain how to check your water pressure.
› Do not install where water hammer conditions may occur. If water hammer conditions exist you must install a water hammer arrester. Contact a plumbing professional if you are uncertain how to check for this condition.
> The disposable filter cartridge must be replaced every 12 months, at the rated capacity or sooner if a noticeable reduction in flow rate occurs.

Warning

To reduce the risk associated with the ingestion of contaminants:
Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

RATIONAL recommends regularly scheduled maintenance and replacement of the filter cartridge(s) in order for the product to perform as advertised/sold. RATIONAL shall not be liable for system failures due to improper maintenance.

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Tel. 888-320-7274 (Toll Free)
Fax 847-755-9583

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rationalusa.com

Limited Warranty
RATIONAL warrants this Product will be free from defects in material and manufacture for five (5) years from the date of purchase: The filter cartridge or filter membrane is warranted to be free from defects in material and manufacture for one (1) year. This warranty does not cover failures resulting from abuse, misuse, alteration or damage not caused by RATIONAL Water Filters or failure to follow installation and use instructions. No warranty is given as to the service life of any filter cartridge or membrane as it will vary with local water conditions and water consumption. RATIONAL MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOMER OR USAGE OF TRADE. If the Product fails to satisfy this Limited Warranty during the warranty period, RATIONAL will replace the Product or refund your Product purchase price. This warranty does not cover labor. The remedy stated in this paragraph is Customer's sole remedy and RATIONAL exclusive obligation. For additional information, see the entire Limited Warranty located in the product Installation and Operating Instruction Manual.
Limitation of Liability. RATIONAL will not be liable for any loss or damage arising from this RATIONAL product, whether direct, indirect, special, incidental, or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability. Some states and countries do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

21.055 · V-02 · MDS/Leno · 10/20 · en_US

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RATIONAL Water Filter.

The RATIONAL Water Filtration Systems helps provide consistent high quality water to your RATIONAL SelfCooking Center® or CombiMaster® Plus. The patented carbon block technology reduces the effects of sediment, chloramines, and chlorine while providing the required flow rates.





Item	Necessary if	Article No.	
Single Cartridge* For all models and Combi-Duo model XS/XS, 61/61 and 61/101	Chlorine / Chloramine > 0.2 ppm Particle > 15 microns	1900.1154US	
Double Cartridge* For Combi-Duo model 62/62 and 62/102 or if used for more than 2 units. For each additional unit add 1 head and cartridge.	Chlorine / Chloramine > 0.2 ppm Particle > 15 microns	1900.1150US	
Water Filtration Modular Head For adding on additional Cartridge(s) to Double Cartridge System (Maximum 4 cartridges)	If more than 2 units will be connected in combination with Double Cartridge (1900.1150US)	1900.1152US	
Water Filtration Cartridge Replacement or add on	For replacement or if more than 2 units will be connected in combination with Double Cartridge (1900.1150US)	1900.1155US	
Certified Installation of RATIONAL Water Filter Systems is available when purchased with Certified Installation of RATIONAL unit.		9999.8448	

*Includes Filter System Installation Kit. This ensures that the installer has all of the essential connection materials on hand at the time of the installation. It is a hassle-free one-stop shop.

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24/7
Technical Support

Tel. 866-891-3528

ChefLine

Tel. 866-306-2433

V-01 · MDS/para · 06/17 · englisch USA

Water Conditioning.
RATIONAL Specifications.

Water Conditioning Technologies.

Particle Filter.
We recommend a particle filter with fineness of 5–15 µm for filtering water containing sand, iron particles or suspended matter.

Active Carbon Filter.
We recommend an active carbon filter, if the water contains high levels of chlorine (Cl_2) / Chloramine (NH2Cl) over 0.2 ppm (0.2 mg/l). This information can be provided by water supply company.*

Reverse Osmosis
Due to corrosion risks, a reverse osmosis system must be used if and only if chloride (Cl–) concentrations are above 80 ppm (80 mg/l). This information can be provided by water supply company.
Note: Ensure that the minimum conductivity value of 50 µS/cm (Micro Siemens) is being maintained.

Water Softener
Valid for the SelfCookingCenter®: these models will remove scale all by themselves providing that the units are used and cleaned as prescribed. This means a water softener typically is not needed for scale. New line: Valid for CombiMaster® Plus: Recommended for treating water if severe calcification occurs without high chloride contamination.

Recommend System: Weak acid decarbonization (H^+ ion exchange).
Systems not recommended: Sodium Ion Exchangers (salt based water softeners) and Phosphate feeder filters.
New Line: Treater Water Softening must maintain a minimum 5 gr/gal hardness.

Supply Requirements.

Water Filter Connection
½" ID cold water line with a water shut off with ¾" connection. (GHT) new Line Water pressure to filtration system needs a to maintain a minimum 35 psi. (Max 80 psi) new Line RATIONAL units require flow rate of 3 gallons per minute and water pressure of 21–87 psi. (43 psi is recommended)

*All public water systems using surface water and most ground water systems treat water with either chlorine/ chloramine or chlorine dioxide.
Note: EPA will allow levels as high as 4 ppm safe for drinking water, exceeding our maximum level of 2 ppm.

Rational AG

Safety Data Sheet

according to 29 CFR 1910.1200(g)

Oven Delimer Tablets for RATIONAL SelfCookingCenter®, Art. Nr. 56.00.560, 56.00.562

1. Identification

Product identifier

Oven Delimer Tablets for RATIONAL SelfCookingCenter®, Art. Nr. 56.00.560, 56.00.562

Recommended use of the chemical and restrictions on use

Use of the substance/mixture

Preservative agent

Details of the supplier of the safety data sheet

Company name:	Rational AG	
Street:	Iglinger Strasse 62	
Place:	D-86899 Landsberg	
Telephone:	+49 (0)8191-3270	Telefax: +49 (0)8191-21735
Responsible Department:	Responsible for the safety data sheet: reinigung@rational-online.de	

Emergency phone number: In North America contact Info Trac at 1-800-535-5053
outside USA/CA contact +49 89 19240

2. Hazard(s) identification

Classification of the chemical

Regulation (EC) No. 1272/2008

Hazard categories:
Skin corrosion/irritation: Skin Irrit. 2
Serious eye damage/eye irritation: Eye Irrit. 2
Hazard Statements:
Causes skin irritation
Causes serious eye irritation

Label elements

Regulation (EC) No. 1272/2008

Signal word: Warning

Pictograms:



Hazard statements

Causes skin irritation
Causes serious eye irritation

Precautionary statements

Keep out of reach of children.
If medical advice is needed, have product container or label at hand.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin: Wash with plenty of water.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If exposed or concerned: Get medical advice/attention.

Hazards not otherwise classified

Not known.

3. Composition/information on ingredients

Mixtures

Rational AG

Safety Data Sheet

according to 29 CFR 1910.1200(g)

Hazardous components

CAS No	Components	Quantity
77-92-9	Citric acid	> 20 %
617-48-1	Malic acid	> 20 %
124-04-9	Adipic acid	1 - 5 %

4. First-aid measures

Description of first aid measures

General information
If you feel unwell, seek medical advice.

After inhalation
Move to fresh air in case of accidental inhalation of dust or fumes from overheating or combustion.

After contact with skin
In case of contact with skin wash off immediately with soap and water.
Consult a doctor if skin irritation persists.

After contact with eyes
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Seek medical treatment by eye specialist.

After ingestion
Rinse out mouth thoroughly with water.
Do not induce vomiting.
Never give anything by mouth to an unconscious person.
Summon a doctor immediately.

Most important symptoms and effects, both acute and delayed
WARNING !
Causes serious eye irritation.
Causes skin irritation.

OSHA Hazard Communication: This material is considered hazardous by the OSHA Hazard Communication Standard 29CFR 1910.1200.

Indication of any immediate medical attention and special treatment needed
Treat symptoms.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media
Product does not burn, fire-extinguishing activities according to surrounding.

Unsuitable extinguishing media
Full water jet.

Specific hazards arising from the chemical
Fire may produce:
Irritant/corrosive, flammable as well as toxic distillation gases (carbonization gases).

Special protective equipment and precautions for fire-fighters
Use breathing apparatus with independent air supply.
Protective suit.

Additional information
Cool containers at risk with water spray jet.
Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

Rational AG

Safety Data Sheet

according to 29 CFR 1910.1200(g)

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

No special precautions required.

Environmental precautions

Do not discharge into the drains/surface waters/groundwater.

Methods and material for containment and cleaning up

Pick up mechanically, avoiding dust, and provide disposal in suitable recipients.
Flush rests with sufficient amount of water.

Reference to other sections

Observe protective instructions (see Sections 7 and 8).
Information for disposal look up chapter 13.

7. Handling and storage

Precautions for safe handling

Advice on safe handling

Avoid the formation of dust.
Avoid contact with eyes, skin or mucous membrane.

Advice on protection against fire and explosion

No special protective measures against fire required.

Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep in the original sealed container.
Keep containers tightly closed in a dry, well-ventilated place.

Further information on storage conditions

Keep away from food, drink and animal feeding stuffs.

8. Exposure controls/personal protection

Control parameters

Exposure controls

Appropriate engineering controls

Provide appropriate exhaust ventilation at machinery and at places where dust can be generated.

Protective and hygiene measures

Avoid contact with eyes and skin.
Wash hands before breaks and at the end of workday.
When using do not eat, drink or smoke.
Remove and wash contaminated clothing before re-use.

Eye/face protection

Tightly fitting goggles.
Eye wash bottle with pure water.

Hand protection

Protective gloves resistant to chemicals made off natural-rubber latex, Minimum coat thickness 0.6 mm, Permeation resistance (wear duration) approx. 480 minutes, i.e. protective glove <Lapren 706> made by www.kcl.de.
This recommendation refers exclusively to the chemical compatibility and the lab test conforming to EN 374 carried out under lab conditions.
Requirements can vary as a function of the use. Therefore it is necessary to adhere additionally to the recommendations given by the manufacturer of protective gloves.

Rational AG

Safety Data Sheet

according to 29 CFR 1910.1200(g)

Respiratory protection

No personal respiratory protective equipment normally required.
Breathing apparatus (particle filter) only if dust is formed.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state:	Tablet
Color:	White
Odor:	Characteristic

		Test method
pH-Value:	2,5	(1%)

Changes in the physical state

Flash point:	n.a.
Lower explosion limits:	n.a.
Upper explosion limits:	
Ignition temperature:	n.a.

Oxidizing properties

n.a.

Vapor pressure: (at 20 °C)	n.a.
Water solubility: (at 20 °C)	Soluble
Partition coefficient:	n.d.

Other information

Bulk density: approx. 800 g/L

10. Stability and reactivity

Reactivity

No decomposition if stored and applied as directed.

Chemical stability

Stability: Stable

Stable under normal conditions.

Possibility of hazardous reactions

Hazardous reactions: Will not occur

No hazardous reactions known.

Conditions to avoid

Protect from moisture.

Incompatible materials

No materials to be especially mentioned.

Hazardous decomposition products

No hazardous decomposition products known.

11. Toxicological information

Information on toxicological effects

Safety Data Sheet

according to 29 CFR 1910.1200(g)

Route(s) of Entry

Skin and eye contact, inhalation and ingestion.

Acute toxicity

Based on available data, the classification criteria are not met.
Citric acid
LD50/oral/rat: 6730 mg/kg
Adipic acid
LD50/oral/rat: 11000 mg/kg
Malic acid
LD50/oral/rat: >3200 mg/kg

CAS No	Components				
	Exposure routes	Method	Dose	Species	Source
77-92-9	Citric acid				
	oral	LD50	11700 mg/kg	Rat	
	dermal	LD50	> 2000 mg/kg	Rat	

Irritation and corrosivity

Causes skin irritation
Causes serious eye irritation
Skin irritation: Irritant
Eye irritation: Irritant

Sensitizing effects

Based on available data, the classification criteria are not met.
Irritant

Specific target organ toxicity (STOT) - single exposure

Based on available data, the classification criteria are not met.

Severe effects after repeated or prolonged exposure

Based on available data, the classification criteria are not met.
STOT - Single exposure: Not classified.
STOT - Repeated exposure: Not classified.
Aspiration hazard: Not classified.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.
Carcinogenicity: Not classified.
Mutagenicity: Not classified.
Teratogenicity: Not classified.

Carcinogenicity (NTP): Not listed
Carcinogenicity (IARC): Not listed
Carcinogenicity (OSHA): Not listed

Aspiration hazard

Based on available data, the classification criteria are not met.

Practical experience

Other observations

Ingestion causes irritation of upper respiratory system and gastrointestinal disturbance.
Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough.

12. Ecological information

Ecotoxicity

Citric acid :
LC50/Leuciscus idus/96 h: 440 - 706 mg/l

Safety Data Sheet

according to 29 CFR 1910.1200(g)

EC50/Daphnia magna: 85 mg/l
Adipic acid:
LC50/Pimephales promelas/96 h: 97 mg/l

Persistence and degradability

Product is biodegradable.

Bioaccumulative potential

No data available.

Mobility in soil

The product is soluble in water.

Other adverse effects

No data available.

13. Disposal considerations

Waste treatment methods

Advice on disposal

Remove in accordance with local official regulations.

Contaminated packaging

Empty containers should be taken for local recycling, recovery or waste disposal.
Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.
Packaging that cannot be cleaned should be disposed of like the product.

14. Transport information

US DOT 49 CFR 172.101

Proper shipping name: Not regulated.

Other applicable information

Non hazardous material as defined by the transport regulations.

15. Regulatory information

U.S. Regulations

National Inventory TSCA

All of the components are listed on the TSCA inventory.

National regulatory information

SARA Section 304 CERCLA:
Adipic acid (124-04-9): Reportable quantity = 5,000 (2270) lbs. (kg)
SARA Section 311/312 Hazards:
Citric acid (77-92-9): Immediate (acute) health hazard
Malic acid (617-48-1): Immediate (acute) health hazard
Adipic acid (124-04-9): Immediate (acute) health hazard

SARA

To the best of our knowledge this product contains no toxic chemicals subject to the supplier notification requirements of Section 313 of the Superfund Amendments and Reauthorization Act (SARA/EPCRA) and the requirements of 40 CFR Part 372.

State Regulations

Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65, State of California)

This product contains no chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Rational AG

Safety Data Sheet

according to 29 CFR 1910.1200(g)

16. Other information

Hazardous Materials Information Label (HMIS)

Health:	2
Flammability:	0
Physical Hazard:	0

NFPA Hazard Ratings

Health:	2
Flammability:	0
Reactivity:	0
Unique Hazard:	



Changes

Revision date:	03.02.2016
Revision No:	6,1

-

Other data

The information in this document is based on the present state of knowledge and is applicable to the product with regard to appropriate safety precautions.
The information describes exclusively the safety requirements for the product (s) and is based on the present level of our knowledge.
The delivery specifications are contained in the corresponding product sheet.
This data does not constitute a guarantee for the characteristics of the product(s) as defined by the legal warranty regulations.
(n.a. = not applicable; n.d. = not determined)

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 51 - ICE MACHINE (1 EA REQ'D)

Manitowoc IYT1830C

Indigo NXT™ QuietQube Ice Maker, cube-style, air-cooled, designed for remote refrigeration (condensing unit and lines sold separately), 30"W x 24-1/2"D x 29-1/2"H, production capacity up to 1660 lb/24 hours at 70°/50° (1440 lb AHRI certified at 90°70°), DuraTech™ exterior, half-dice size cubes, CVD Technology, NSF, cULus, CE

ACCESSORIES

Mfr	Qty	Model	Spec
Manitowoc	1		NOTE: THIS MODEL IS NOT INCLUDED IN THE SELECT PROGRAM
Manitowoc	1	WARRANTY-ICE-R	3 year parts & labor (Machine), 5 year parts & labor (Evaporator), standard (nc)
Manitowoc	1		(-161A) 115v/60/1-ph, 1.1 amps, standard
Manitowoc	1	CVDT1800	Remote Condensing Unit, air-cooled, for IF-1800C Series (QuietQube), 2-1/2 HP compressor, AHRI, NSF, cULus
Manitowoc	1		5 year parts & 3 year labor Compressor warranty
Manitowoc	1		NOTE: Manitowoc remote systems are only approved and warranted as a complete new package. Replacing an ice machine with an S or Indigo remote model requires a NEW condenser and line set. Use of a new multi-circuited condenser is approved when sized and installed as outlined in Manitowoc Product Information. Rack system applications are not approved.
Manitowoc	1		(-263A) 208-230v/60/3-ph, 20.0 amps
Manitowoc	1	RC50	Tubing, 50 ft. length, for CVDF1400 & CVDF1800 condensing units (not pre-charged)

Manitowoc

ICE MACHINE WARRANTY

Manitowoc Ice, Inc. (hereinafter referred to as the "COMPANY") warrants for a period of thirty-six months from the installation date (except as limited below) that new ice machines manufactured by the COMPANY shall be free of defects in material or workmanship under normal and proper use and maintenance as specified by the COMPANY and upon proper installation and start-up in accordance with the instruction manual supplied with the ice machine. The COMPANY'S warranty hereunder with respect to the compressor shall apply for an additional twenty-four months, excluding all labor charges, and with respect to the evaporator for an additional twenty-four months, including labor charges.

The obligation of the COMPANY under this warranty is limited to the repair or replacement of parts, components, or assemblies that in the opinion of the COMPANY are defective. This warranty is further limited to the cost of parts, components or assemblies and standard straight time labor charges at the servicing location.

Time and hourly rate schedules, as published from time to time by the COMPANY, apply to all service procedures. Additional expenses including without limitation, travel time, overtime premium, material cost, accessing or removal of the ice machine, or shipping are the responsibility of the owner, along with all maintenance, adjustments, cleaning, and ice purchases. Labor covered under this warranty must be performed by a COMPANY Contracted Service Representative or a refrigeration service agency as qualified and authorized by the COMPANY'S local Distributor. The COMPANY'S liability under this warranty shall in no event be greater than the actual purchase price paid by customer for the ice machine.

The foregoing warranty shall not apply to (1) any part or assembly that has been altered, modified, or changed; (2) any part or assembly that has been subjected to misuse, abuse, neglect, or accidents; (3) any ice machine that has been installed and/or maintained inconsistent with the technical instructions provided by the COMPANY; or (4) any ice machine initially installed more than five years from the serial number production date. This warranty shall not apply if the Ice Machine's refrigeration system is modified with a condenser, heat reclaim device, or parts and assemblies other than those manufactured by the COMPANY, unless the COMPANY approves these modifications for specific locations in writing.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES OR GUARANTEES OF ANY KIND, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

In no event shall the COMPANY be liable for any special, indirect, incidental or consequential damages. Upon the expiration of the warranty period, the COMPANY'S liability under this warranty shall terminate.

The foregoing warranty shall constitute the sole liability of the COMPANY and the exclusive remedy of the customer or user. To secure prompt and continuing warranty service, the warranty registration card or register on line within five (5) days from the installation date.

MANITOWOC ICE, INC.
2110 So. 26th St., P.O. Box 1720, Manitowoc, WI 54221-1720
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Web Site - www.manitowocice.com
Form 80-0373-3 Rev. 01/02

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 52 - ICE BIN (1 EA REQ'D)

Follett Products (Middleby) SG1000S-36

Upright Ice Bin, single door, 990 lb. bin storage capacity, stainless exterior, poly liner, SmartGATE™ ice shield, poly door with PowerHinge, and corrosion-resistant ABS/poly top custom cut for ice machine, includes 82 oz. plastic ice scoop, NSF

ACCESSORIES

Mfr	Qty	Model	Spec
Follett Products (Middleby)	1		NOTE: Purchase orders must clearly indicate the make & model of the ice machine(s) being used with the bin to properly prepare the bin top. Lack of this information will delay order processing
Follett Products (Middleby)	1		5 year parts & labor warranty, standard
Follett Products (Middleby)	1	ABICSHOVEL	Ice Shovel, heavy duty poly construction, for single or double door upright bin, and ITS ice transport and storage system



Model SG1010S-48 shown, other models will vary.

Single door upright

ice storage bins

Industry exclusive SmartGATE ice shield



Features

Designed for safer and more sanitary ice access

- industry exclusive SmartGATE® ice shield controls the flow of ice to reduce spills and limit contact with ice
- locks in three positions and returns easily to full down position even when bin is full
- better access to loosen congealed ice
- no bending into bin means more sanitary ice removal with scoop or shovel

Fresher ice

- first ice in is first ice out

Ice compatibility

- compatible with cube ice, flake ice and customer preferred Chewblet® ice

Durable, user friendly construction

- full stainless bin exterior
- corrosion-resistant poly bin liner and top
- heavy duty "stay-open" PowerHinge™ door hinge – easy one hand open and close without door catches
- molded-in gasket never needs to be replaced

Easy installation

- comes assembled, simply screw in legs
- only 31.00" (78.7 cm) deep to fit through standard door openings by removing front door assembly (4 screws, no sealant)

Warranty

- parts and labor for corrosion repair for useful life of product
- 5 years parts and labor on all other integral components
- 3rd party ice machines must be installed and operated in accordance with the manufacturer's instructions
- visit follettice.com for complete warranty details

Includes:

- custom-cut non-corroding ABS top
- optional Flexi-Top™ ice bin top system for 48.00" (121.9 cm) and 60.00" (152.4 cm) wide models – allows many ice machines to fit one top
- 82 oz plastic ice scoop

Accessories

SmartCART™ 75 ice cart (item# 00112771)

Ice paddle and hanging bracket (item# ABICEPADDL46)

Ice rake (item# AB36RAKE)

Plastic ice shovel (item# ABICESHOVEL)

Center bin partition available on bins 48.00" (121.9 cm) wide and wider (except SG2000S-60)

Additional carts and accessories (refer to form# 3435)

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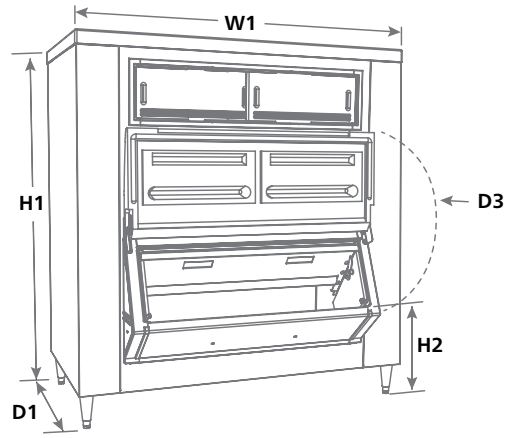
Specification

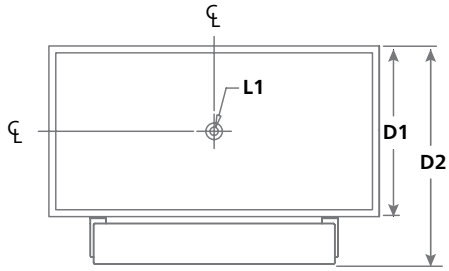
Maximum bin capacity[1]	see model table below
W1 Width	see model table below
D1 Depth	31.00" (78.7 cm)
D2 Depth with lower door assembly (easily removed for installation access)	39.00" (99.1 cm)
D3 Depth with door fully extended	49.50" (125.7 cm)
H1 Height (adjustable)	see model table below
H2 Bin sill height	19.00" (48.3 cm)
Required door access	see model table below
L1 Drain[2]	1.00" FPT, center of bin bottom
Ice compatibility	cube ice, flake ice and Chewblet ice
Shipping weight	see model table below

NOTE: For indoor use only

SHORT FORM SPECIFICATION: Ice storage bin to be Follett® model _____ with industry-exclusive SmartGATE ice shield. Bin to hold approximately _____ lb (kg) of ice. Construction to be welded steel shell and frame. Exterior finish to be stainless steel front, sides, back and bottom. Bin liner to have non-corroding polyethylene walls and stainless steel bottom. Bin insulation to be CARB compliant non-HFC foam, bonded to shell and liner for added structural strength. Bin top to be ABS plastic custom-cut for specific ice machine(s) to be used. Lower door assembly to include non-corroding polyethylene ice door assembly, polyethylene lift door with PowerHinge door hinge to eliminate gasket and latches, and inner SmartGATE ice shield to positively control ice flow into ice door assembly area and reduce spillage. Entire lower door assembly to be easily removable for installation through narrow doors. Upper inspection windows to be of molded double-wall plastic to increase durability and minimize meltage and condensation. Bin to have 6.00" (15.24 cm) legs, adjustable to 7.25" (18.42 cm). Bin drain to be 1.00" FPT rigid PVC. NSF-listed.

Dimensional drawing





FLEXI-TOP, SMARTCART and POWERHINGE are trademarks of Follett Products, LLC.
CHEWBLET, FOLLETT and SMARTGATE are registered trademarks of Follett Products, LLC, registered in the US.
Follett reserves the right to change specifications at any time without obligation. Certifications may vary depending on country of origin.

Model	Maximum bin capacity lb (kg)[1]	Cubic volume cu ft (m)	Width - **W1** in (cm)	Height[3,4] - **H1** in (cm)	Required door access[3] in (cm)	Approximate ship weight lb (kg)
SG500S-30[5]	460 (209)	14.8 (0.41)	30.00 (76.2)	44.50 (113.0)	31.00 (78.7)	210 (96)
SG700S-30	680 (308)	21.7 (0.61)	30.00 (76.2)	60.00 (152.4)	31.00 (78.7)	212 (97)
SG1000S-36[6]	990 (450)	31.0 (0.88)	36.00 (91.4)	69.50 (176.5)	32.00 (81.3)	257 (117)
SG860S-48[5]	860 (391)	25.5 (0.72)	48.00 (121.9)	46.50 (118.1)	32.00 (81.3)	255 (116)
SG1010S-48	1000 (454)	31.9 (0.90)	48.00 (121.9)	56.00 (142.4)	32.00 (81.3)	268 (122)
SG1175S-48	1185 (538)	37.6 (1.06)	48.00 (121.9)	62.00 (157.5)	32.00 (81.3)	298 (136)
SG1300S-48	1320 (599)	41.9 (1.19)	48.00 (121.9)	65.00 (165.1)	32.00 (81.3)	277 (126)
SG1160S-56	1170 (531)	37.3 (1.06)	56.00 (142.2)	56.00 (142.2)	32.00 (81.3)	296 (135)
SG1350S-56	1360 (617)	43.2 (1.22)	56.00 (142.2)	62.00 (157.5)	32.00 (81.3)	322 (147)
SG1080S-60[5]	1080 (490)	34.3 (0.97)	60.00 (152.4)	46.50 (118.1)	32.00 (81.3)	355 (161)
SG1325S-60	1325 (602)	42.0 (1.19)	60.00 (152.4)	56.00 (142.2)	32.00 (81.3)	320 (145)
SG1475S-60	1490 (676)	47.4 (1.34)	60.00 (152.4)	62.00 (157.5)	32.00 (81.3)	321 (146)
SG1650S-60	1660 (754)	52.8 (1.50)	60.00 (152.4)	65.00 (165.1)	32.00 (81.3)	340 (155)
SG2000S-60[7]	2000 (908)	63.5 (1.80)	60.00 (152.4)	80.00 (203.2)	32.00 (81.3)	382 (173)

1 Computed on cubic volume of bin. Does not reflect voids that can occur due to pyramiding.
2 Follett recommends installation of a floor drain with grate with all ice storage bins.
3 Required clearance for installation access through doors (may require removal of door assembly).
4 Special top required for ice machines weighing more than 1000 lb (454 kg). Add 0.5" (1.27 cm) to height. Contact factory.
Note: Not available for model SG500, SG700 and SG1000.
5 SG500S-30, SG860S-48 and SG1080S-60 do not have upper inspection window.
6 SG1000S-36 standard with stainless steel top and 6.00" (15.24 cm) flanged legs. Correctional package not available.
7 18.00" (45.7 cm) sleeve with window on 62.00" (157.5 cm) high bin.

Single door uprights

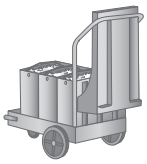
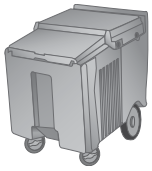
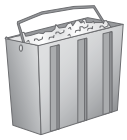
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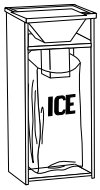
Bin accessory compatibility

Ice carts and Totes™ ice carrier accessory ordering guidelines

	SmartCART™ 75 Item# 00112771	**SmartCART 125** Item# LSC125	**SmartCART 240** Item# ROTOCART	**Cambro® Cart - ICS125L** Item# ICS125L	**Totes** Item# ABICETOTP (six) Item# 502263 (single)
	 Perfect for moving small quantities of ice to manually fill storage receptacles. 75 lb (34.0 kg) capacity. Includes 3 Totes ice carriers. 21.50"W x 34.00"D x 39.00"H (54.6 x 86.4 x 99.1 cm) Ship wt – 53 lb (25 kg)	 Fully insulated poly with 125 lb (56.8 kg) capacity and flip-up lid makes an excellent working cart for portable bars. 22.50"W x 28.30"D x 33.50"H (57.2 x 71.8 x 85.1 cm) Ship wt – 60 lb (28 kg)	 Fully insulated poly with removable lid. 240 lb (109.0 kg) capacity for transporting large quantities of ice. 24.25"W x 41.50"D x 35.75"H (61.6 x 105.4 x 90.8 cm) Ship wt – 75 lb (35 kg)	 Fully insulated poly with slide back lid with 125 lb (56.8 kg) capacity. Perfect for sliding under bars. 23.00"W x 31.30"D x 29.25"H (58.4 x 79.5 x 74.3 cm) Ship wt – 70 lb (32 kg)	 Comfortable handle, easy distribution of ice from longer side. Limits lifted load to 25 lb (11.4 kg). Set of 6. 7.12"W x 15.62.00"D x 15.00"H (18.08 x 39.7 x 38.1 cm) Set of 6 Totes Ship wt – 34 lb (16 kg) Single Tote Ship wt – 7 lb (3 kg)
Bin series	**✓ = may be ordered separately n/r = not recommended for use with model**				
Slope Front	✓	✓	✓	✓	✓
Single Door Upright	✓	✓	✓	✓	✓
Double Door Upright	✓	✓	✓	✓	✓
Single Door Ice•Devlce™	✓	✓†	n/r	✓†	✓
Double Door Ice•Devlce	✓	✓†	n/r	✓†	✓
ITS - Ice Transport System	n/r	n/r	✓	n/r	✓

† Requires use of the 4.00" (10.16 cm) chute (item# ABDVCHUT4).

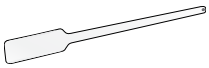
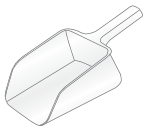
Ice bagging accessory ordering guidelines

	Bagger Kit Item# ABBAGGERKT	**8 lb (3.6 kg) Ice Bag** Item# 00116434	**20 lb (9.1 kg) Ice Bag** Item# 00138370	**C-ring pliers** Item# 00137711 **C-ring** Item# 00137729
	 Bagger kit includes bagger assembly, tape dispenser with tape and 250 plastic bags of 10 lb (4.5 kg) capacity. 11.00"W x 13.63"D x 29.00"H (27.9 x 34.6 x 73.7 cm) Ship wt – 20 lb (10 kg)	 125 bags per wicket – 4 wickets per case. 1.25 mil poly bag. 10.50"W x 4.00"D x 19.00"H (26.7 x 10.16 x 48.3 cm) Ship wt – 24 lb (11 kg)	 125 bags per wicket – 4 wickets per case. 2.25 mil poly bag. 14.00"W x 4.50"D x 27.00 "H (35.6 x 11.43 x 68.6 cm) Ship wt – 27 lb (12 kg)	 Bostitch® P-7 C-ring pliers for bag closure. Automatic C-ring feed. Ship wt – 8 lb (4 kg) Aluminum blunt-end C-rings for use with Bostitch P-7 C-ring pliers. 2500 per box. Ship wt – 3 lb (2 kg)
Bin series	**✓ = may be ordered separately n/r = not recommended for use with model**			
Slope Front	✓	n/r	n/r	n/r
Single Door Ice•Devlce†	✓	n/r	n/r	n/r
Double Door Ice•Devlce†	✓	n/r	n/r	n/r
Ice Pro™	n/r	✓	✓	✓

† Requires use of the 4.00" (10.16 cm) chute (item# ABDVCHUT4).

Bin accessory compatibility

Shovel, scoop and paddle accessory ordering guidelines

	Paddle Item# ABICEPADDL46 46.50" (118.1 cm) or Item# ABICEPADDL 58.50" (147.3 cm)	**Rake** Item# AB36RAKE 38.00" (96.5 cm) or Item# ABICERAKE 50.00"(127.0 cm)	**Shovel** Item# ABICSHOVEL 37.00" (94.0 cm)	**Scoop** Item# 00146365 64 oz (1.9 L)	**Scoop** Item# ABICESCOOP 82 oz (2.4 L)
					
	High density poly paddle breaks ice bridges with ease. Ship wt – 9 lb (4 kg)	Draws ice to front of bin for easier access. Vinyl handle, aluminum shaft, stainless steel rake head. Ship wt – 9 lb (4 kg)	Heavy duty poly construction. Efficient removal of ice from bin. Ship wt – 6 lb (3 kg)	San Jamar® Saf-T-Ice® Guardian system®. Minimizes contact with ice, includes storage rack for scoop. Ship wt – 6 lb (3 kg)	Large poly scoop for manual removal of ice from bins. Ship wt – 3 lb (2 kg)

Bin series	✓ = may be ordered separately n/r = not recommended for use with model						
	46.50" (118.1 cm)	58.50" (148.6 cm)	38.00" (96.5 cm)	50.00" (127.0 cm)			
Slope Front	✓	n/r	n/r	n/r	n/r	✓	✓
Single Door Upright	✓	n/r	✓	n/r	✓	✓	✓
Double Door Upright	n/r	✓	n/r	✓	✓	✓	✓
Single Door Ice•Devlce	✓	n/r	✓	n/r	n/r	✓	✓
Double Door Ice•Devlce	n/r	✓	n/r	✓	n/r	✓	✓
Ice Transport System	n/r	✓	n/r	✓	✓	✓	✓
Ice Pro	n/r	n/r	n/r	n/r	n/r	n/r	n/r

Stainless steel leg accessory ordering guidelines

	6.00" (15.24 cm) with flanged feet, set of (4) Item# ABSPECLEG3	**8.00" (20.32 cm) bullet leg with stabilizer, set of (4)** Item# AB8INLEGSS	**10.00" (25.4 cm) with flanged feet, set of (4)** Item# 00151647	**12.00" (30.5 cm) bullet leg, set of (4)** Item# ABSPECLEG1
				
	Ship wt – 7 lb (3 kg)	Ship wt – 10 lb (5 kg)	Ship wt – 13 lb (6 kg)	Ship wt – 11 lb (5 kg)
Compatible with bin model	✓ = may be ordered separately n/r = not recommended for use with model			
Slope Front	✓	✓	✓	✓
Single Door Upright	✓	✓	✓	n/r
Double Door Upright	✓	✓	n/r	n/r
Single Door Ice•Devlce	n/r	n/r	n/r	n/r
Double Door Ice•Devlce	n/r	n/r	n/r	n/r
ITS - Ice Transport System	n/r	n/r	n/r	n/r

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BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 53 - WATER FILTER (1 EA REQ'D)

3M Purification ICE195-S

(5616404) 3M™ Water Filtration Products Water Filter System, with shut-off valve & gauge, 23-5/8"H x 5"D, high turbidity water, single vessel, max pressure of 125 psi at 100°F, 3 micron, 5 gpm flow rate, 54,000 gallons capacity, for sediment, chlorine taste & odor, scale, includes: (1) integral mounting bracket and (1) o-ring seal cartridge filter, 1/2" FNPT connections, NSF certified (for ice machines - cubers up to 2170 lbs, flakers up to 3593 lbs: Manitowoc I 1800, 1802, 1803, 1804, 1805, 1809, 1872, 1874, 1890, 1892, 1894, 2176, Scotsman 1848, 2148, Hoshizaki KM 1601, 1900, 2000, Ice-O-Matic ICE 1506, 1806, 1807, 2106, 2107)

ACCESSORIES

Mfr	Qty	Model	Spec
3M Purification	1	HF95-S	(5613509) 3M™ Water Filtration Products Replacement Cartridge, large diameter, 3 micron, 5 gpm flow rate, 54,000 gallons capacity, reduces sediment, chlorine taste & odor, scale inhibitor (for ICE195-S), NSF certified

BID LOT 1

3M™ Water Filtration Products

SPEC# _____

QUANTITY _____

application: **ICE**



models:

ICE190-S/ICE195-S

3M Models ICE190-S and ICE195-S single cartridge water filtration systems help provide consistent high quality water for commercial ice by reducing the effects of particulate, chlorine taste and odor and scale at flow rates up to 5 gpm (18.9 lpm). Built-in scale inhibition reduces the ability of calcium and magnesium to precipitate on the evaporator plates as hard scale.

- **ICE190-S** combines chlorine taste and odor reduction with cyst, bacteria[1] and particulate reduction, while reducing the effects of chlorine corrosion and scale for up to 54,000 gallons (204,412 liters).
- **ICE195-S** combines chlorine taste and odor reduction with particulate reduction from higher turbidity water, while reducing the effects of chlorine corrosion and scale for up to 54,000 gallons (204,412 liters).

PRODUCT BENEFITS

- Effectively reduces particulate and chlorine taste and odor for better equipment protection and clearer, great tasting ice.
- Revolutionary **I**ntegrated **M**embrane **P**re-**A**ctivated **C**arbon **T**echnology (**"IMPACT"**) dual-zone media cartridge construction combines a membrane in series with premium activated carbon to provide superior throughput and cartridge life.
- Built-in bacteria inhibitor intended to reduce fouling of media (HF90-S replacement cartridge).
- Certified by NSF to Standard 53 for cyst reduction (HF90-S replacement cartridge).
- NSF Standard 42 and/or FDA CFR-21 compliant materials.
- Reduction of up to 99.99% of common water-borne heterotrophic bacteria by membrane filtration as tested by 3M Purification Inc. (HF90-S replacement cartridge).
- Built-in scale inhibitor reduces lime scale build-up on evaporator plates as tested by 3M Purification Inc.
- Sanitary Quick Change (SQC) encapsulated cartridge design allows for fast and easy cartridge change-outs with a 1/4 turn.
- 1/2" FNPT horizontal inlet and outlet ports allow direct or easily adaptable connections to existing plumbing lines.

PRODUCT SPECIFICATIONS

Model Number	Part Number	Reduction Claims	Nominal Micron Rating	Capacity	Service Flow Rate	Application	Replacement Cartridge	Sizing
ICE190-S	56164-03	Cyst, Bacteria[1], Particulate, Chlorine Taste and Odor, Scale[2]	0.2[3]	54,000 gallons (204,412 liters	5 gpm (18.9 lpm)	Most Standard Water	HF90-S: 56135-05	Low Flow Cubers to 1,450 lbs. (658 kg) High Flow Cubers to 1,000 lbs. (454 kg) Flakers to 2,400 lbs. (1,089 kg)
ICE195-S	56164-04	Particulate, Chlorine Taste and Odor, Scale[2]	3.0	54,000 gallons (204,412 liters)	5 gpm (18.9 lpm)	Higher Turbidity Water	HF95-S: 56135-09	Low Flow Cubers to 1,450 lbs. (658 kg) High Flow Cubers to 1,000 lbs. (454 kg) Flakers to 2,400 lbs. (1,089 kg)

[1]As tested with either E.Coli ATCC (11229) or Pseudomonas (B) diminuta ATCC (19146)
[2]Tested and verified by manufacturer's laboratory
[3]NSF Certified for Particulate, Class I

BID LOT 1

ICE190-S/ICE195-S

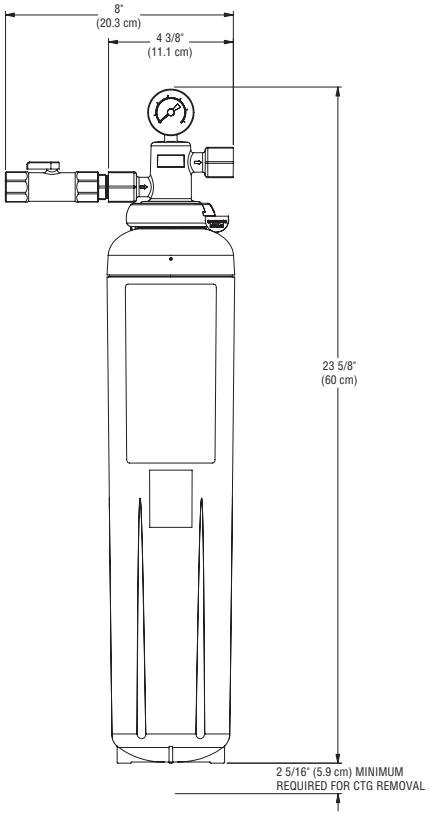
3M™ Water Filtration Products

SPEC# _____

QUANTITY _____

MODEL NUMBER _____

PART NUMBER _____



⚠ **WARNING: To reduce the risk associated with the ingestion of contaminants:**

- **Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.** Systems certified for cyst reduction may be used on disinfected water that may contain filterable cysts. EPA Establishment #070595-CT-001

3M Purification Inc. Incorporated recommends regularly scheduled maintenance and replacement of the filter cartridge(s) in order for the product to perform as advertised/sold. 3M Purification Inc. shall not be liable for system failures due to improper maintenance.

PHYSICAL SPECIFICATIONS

- System includes a head assembly with pressure gauge, inlet water shut-off valve assembly, mounting bracket and a single cartridge filter.
- Inlet and outlet plumbing connections are 1/2" FNPT.
- Filter cartridges are o-ring seal type.
- System maximum operating pressure of 125 psi (862 kPa) and operating temperature of 100°F (37.8°C).
- Recommended service flow rate is up to 5 gpm (18.9 lpm).
- Filter cartridges incorporate a bacteriostatic carbon block filtration medium (HF90-S replacement cartridge) and scale inhibitor.
- System materials are NSF Standard 42 and/or FDA CFR-21 compliant.
- Cartridges are sanitary in design, requiring no contact with the filter media during cartridge change-out.
- Filter cartridges require no pre-activation.
- NSF Performance Data Sheet (PDS) is included.
- Shipping weight: 5.8 lbs. (2.6 kg) per case.
- Operating weight: 11 lbs. (5 kg) per case.
- Case quantity: 1.

IMPORTANT: INSTALLATION TIPS

These installation tips are for informational purposes only and are not intended to be used as actual installation instructions. CAUTION: To reduce the risk associated with property damage due to water leakage:

- **Read and follow** Use Instructions before installation and use of this system.
- Installation and use **MUST** comply with all state and local plumbing codes.
- **Protect from freezing,** remove filter cartridge when temperatures are expected to drop below 40°F (4.4°C).
- **Do not install on hot water supply lines.** The maximum operating water temperature of this filter system is 100°F (37.8°C).
- **Do not install** if water pressure exceeds 125 psi (862 kPa). If your water pressure exceeds 80 psi (552 kPa), you must install a pressure limiting valve. Contact a plumbing professional if you are uncertain how to check your water pressure.
- **Do not install** where water hammer conditions may occur. If water hammer conditions exist you must install a water hammer arrester. Contact a plumbing professional if you are uncertain how to check for this condition.
- The disposable filter cartridge **MUST** be replaced every 12 months, at the rated capacity or if a noticeable reduction in flow rate occurs.

LIMITED WARRANTY

3M Purification Inc. warrants ICE190-S/ICE195-S only to be free from defects in material and workmanship for five (5) years from the date of purchase. The disposable filter cartridge is warranted from defects in material and workmanship for a period of one (1) year from the date of purchase. This warranty does not cover failures resulting from abuse, misuse, alterations or damage not caused by 3M Purification Inc. or failure to follow installation and use instructions. No warranty is given as to the service life of any filter cartridge or membrane as it will vary with local water conditions and consumption. **3M PURIFICATION INC. MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOMER OR USAGE OF TRADE.** If the Product fails to satisfy this Limited Warranty during the warranty period, 3M Purification Inc., at its option, will replace the Product or refund your Product purchase price. This warranty does not cover labor. **The remedy stated in this paragraph is Customer's sole remedy and 3M Purification Inc.'s exclusive obligation. For additional information, see the entire Limited Warranty located in the product Installation and Operation Instruction Manual.**

Limitation of Liability: 3M Purification Inc. will not be liable for any loss or damage arising from this 3M Purification Inc. product, whether direct, indirect, special, incidental, or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability. Some states and countries do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

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NSF is a trademark of NSF International.
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70020194182 REV 0812B
Please recycle. Printed in U.S.A.

Visit www.nsf.org for the claims associated with products that are NSF listed.

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Worldwide: 203.237.5541
Fax: 203.238.8701
www.3Mfoodservice.com
www.3Mpurification.com

BID LOT 1

3M™ Water Filtration Products

SPEC# _____

QUANTITY _____

application: **MULTIPLE EQUIPMENT**

models:

High Flow Series Replacement Cartridges HF45-S-SR5 thru HF95



HF45 Series HF65 Series HF95 Series

3M™ Water Filtration Products line of replacement cartridges offer multiple solutions to help improve the taste, appearance and consistency of your product at flow rates from 2.1 gpm to 7 gpm.

PRODUCT BENEFITS

- Sanitary Quick Change (SQC) encapsulated cartridge design reduces media contamination during change-outs.
- Expansive breadth of product offering that can accommodate most applications.
- Multiple choice of medias to help provide solutions for varying water conditions.
- FDA CRF-21 compliant materials.
- NSF Certified; 3M Purification Inc: Commercial Modular-High Flow Series[1], Components-Commercial Modular[2].
- Contains Integrated Pre-Activated Carbon Technology ("I.M.P.A.CT.") media.

PRODUCT SPECIFICATIONS

Model No.	Part No	3M ID#	Micron Rating	Claims	Flow Rate	Capacity
HF95[1]	5613507	70020020171	3	Particulate*, Chlorine Taste & Odor	5 gpm (18.9 lpm)	54,000 gals. (204,412 lit.)
HF95-S[1]	5613509	70020121433	3	Particulate*, Chlorine Taste & Odor, Scale Inhibitor*	5 gpm (18.9 lpm)	54,000 gals. (204,412 lit.)
HF95-S-SR[2]	5613527	70020300458	5	Particulate*, Scale Inhibitor*, Fits Standard (A3) Keyed heads	7 gpm (26.5 lpm)	N/A
HF95-S-SR5[2]	5613525	70020300441	5	Particulate*, Scale Inhibitor*, Fits Black (A5) Keyed heads	7 gpm (26.5 lpm)	N/A
HF65[1]	5613407	70020115476	3	Particulate*, Chlorine Taste & Odor	3.34 gpm (12.6 lpm)	35,000 gals. (132,489 lit.)
HF65-S[1]	5613409	70020020130	3	Particulate*, Chlorine Taste & Odor, Scale Inhibitor*	3.34 gpm (12.6 lpm)	35,000 gals. (132,489 lit.)
HF65-S-SR[2]	5613453	70020300425	5	Particulate*, Scale Inhibitor*, Fits Standard (A3) Keyed heads	5 gpm (18.9 lpm)	N/A
HF65-S-SR5[2]	5613451	70020300417	5	Particulate*, Scale Inhibitor*, Fits Black (A5) Keyed heads	5 gpm (18.9 lpm)	N/A
HF45[1]	5613307	70020115468	3	Particulate*, Chlorine Taste & Odor	2.1 gpm (7.9 lpm)	25,000 gals. (94,635 lit.)
HF45-S[1]	5613309	70020121425	3	Particulate*, Chlorine Taste & Odor, Scale Inhibitor*	2.1 gpm (7.9 lpm)	25,000 gals. (94,635 lit.)
HF45-S-SR[2]	5613346	70020300409	5	Particulate*, Scale Inhibitor*, Fits Standard (A3) Keyed heads	3.5 gpm (13.2 lpm)	N/A
HF45-S-SR5[2]	5613344	70020300391	5	Particulate*, Scale Inhibitor*, Fits Black (A5) Keyed heads	3.5 gpm (13.2 lpm)	N/A

*As tested and verified by manufacturer's laboratory.

BID LOT 1

Replacement Cartridges

3M™ Water Filtration Products

SPEC# _____

QUANTITY _____

MODEL NUMBER _____

PART NUMBER _____

Model No.	Part No.	Shipping Dimension	Weight	Case Qty
HF95	5613507	28" x 4-7/8" x 4-7/8" (71.1 cm. x 12.4 cm. x 12.4 cm)	5 lbs.(2.3 kg.)	1
HF95-S	5613509	28" x 4-7/8" x 4-7/8" (71.1 cm. x 12.4 cm. x 12.4 cm)	5 lbs. (2.3 kg.)	1
HF95-S-SR	5613527	28" x 4-7/8" x 4-7/8" (71.1 cm. x 12.4 cm. x 12.4 cm)	5 lbs.(2.3 kg.)	1
HF95-S-SR5	5613525	28" x 4-7/8" x 4-7/8" (71.1 cm. x 12.4 cm. x 12.4 cm)	5 lbs.(2.3 kg.)	1
HF65	5613407	22" x 4-7/8" x 4-7/8" (55.9 cm. x 12.4 cm. x 12.4 cm)	3.4 lbs. (1.5 kg.)	1
HF65-S	5613409	22" x 4-7/8" x 4-7/8" (55.9 cm. x 12.4 cm. x 12.4 cm)	3.4 lbs. (1.5 kg.)	1
HF65-S-SR	5613453	22" x 4-7/8" x 4-7/8" (55.9 cm. x 12.4 cm. x 12.4 cm)	3.4 lbs. (1.5 kg.)	1
HF65-S-SR5	5613451	22" x 4-7/8" x 4-7/8" (55.9 cm. x 12.4 cm. x 12.4 cm)	3.4 lbs. (1.5 kg.)	1
HF45	5613307	10-1/2" x 5-1/2" x 23-1/4" (26.7 cm. x 14 cm. x 59.1 cm)	5 lbs. (2.3 kg.)	2
HF45-S	5613309	10-1/2" x 5-1/2" x 23-1/4" (26.7 cm. x 14 cm. x 59.1 cm)	5 lbs. (2.3 kg.)	2
HF45-S-SR	5613346	10-1/2" x 5-1/2" x 23-1/4" (26.7 cm. x 14 cm. x 59.1 cm)	5 lbs. (2.3 kg.)	2
HF45-S-SR5	5613344	10-1/2" x 5-1/2" x 23-1/4" (26.7 cm. x 14 cm. x 59.1 cm)	5 lbs. (2.3 kg.)	2

SPECIFICATIONS

- Maximum operating pressure of 125 psi (862 kPa) and operating temperature of 100º (37.8ºC).
- Materials are FDA CFR-21 compliant.
- Shipping weight: Refer to Price Book
- Operating weight: Contact factory

IMPORTANT: INSTALLATION TIPS

These installation tips are for informational purposes only and are not intended to be used as actual installation instructions.

⚠**WARNING: To reduce the risk associated with the ingestion of contaminants:**
- **Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.**

CAUTION: To reduce the risk associated with property damage due to water leakage:
- **Read and follow** Use Instructions before installation and use of this system.
- Installation and use **MUST** comply with all state and local plumbing codes.
- **Protect from freezing,** remove filter cartridge when temperatures are expected to drop below 40°F (4.4°C).
- **Do not install on hot water supply lines.** The maximum operating water temperature of this filter system is 100°F (37.8°C).
- **Do not install** if water pressure exceeds 125 psi (862 kPa). If your water pressure exceeds 80 psi (552 kPa), you must install a pressure limiting valve. Contact a plumbing professional if you are uncertain how to check your water pressure.
- **Do not install** where water hammer conditions may occur. If water hammer conditions exist you must install a water hammer arrester. Contact a plumbing professional if you are uncertain how to check for this condition.
- The disposable filter cartridge **MUST** be replaced every twelve (12) months, at the rated capacity or sooner if a noticeable reduction in flow rate occurs.

LIMITED WARRANTY

3M Purification Inc. warrants this Product will be free from defects in material and manufacture for one (1) years from the date of purchase: This warranty does not cover failures resulting from abuse, misuse, alteration or damage not caused by 3M Purification Inc. or failure to follow installation and use instructions. No warranty is given as to the service life of any filter cartridge or membrane as it will vary with local water conditions and water consumption. **3M PURIFICATION INC. MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOMER OR USAGE OF TRADE.** If the Product fails to satisfy this Limited Warranty during the warranty period, 3M Purification Inc. will replace the Product or refund your Product purchase price. This warranty does not cover labor. **The remedy stated in this paragraph is Customer's sole remedy and 3M Purification Inc.'s exclusive obligation. For additional information, see the entire Limited Warranty located in the product Installation and Operating Instruction Manual.**

Limitation of Liability. 3M Purification Inc. will not be liable for any loss or damage arising from this 3M Purification Inc. product, whether direct, indirect, special, incidental, or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability. Some states and countries do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

3M

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www.3Mfoodservice.com • 3Mpurification.com

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70020303130 REV 0513

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 54 - BACK SERVICE COUNTER (1 EA REQ'D)

Custom GC-CTR-BC-MILL

N.I.K.E.C. SUPPLIED & INSTALLED BY G.C.

SEE ARCHITECTURAL PLANS FOR SPEC & DETAIL

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 55 - WALL CABINETS (1 EA REQ'D)

Custom GC-CTR-BC-MILL

N.I.K.E.C. SUPPLIED & INSTALLED BY G.C.

SEE ARCHITECTURAL PLANS FOR SPEC & DETAIL

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 56 - RESIDENTIAL REFRIGERATOR/FREEZER (1 EA REQ'D)

G.E. GNE27JYMFS

N.I.K.E.C. - Supplied and installed by G.C. Confirm specifications with Architectural and ID plans.

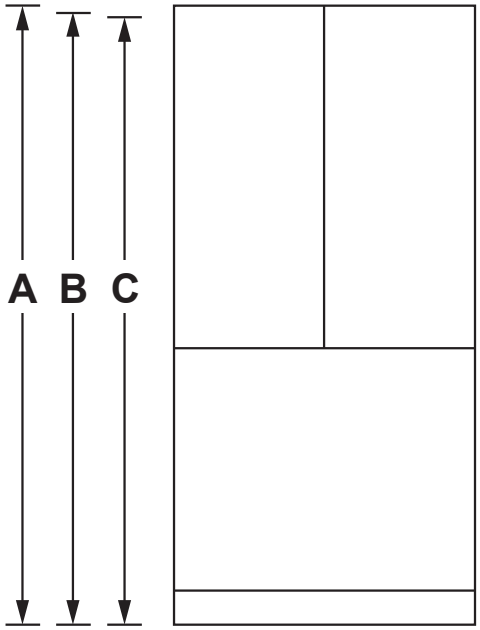
BID LOT 1

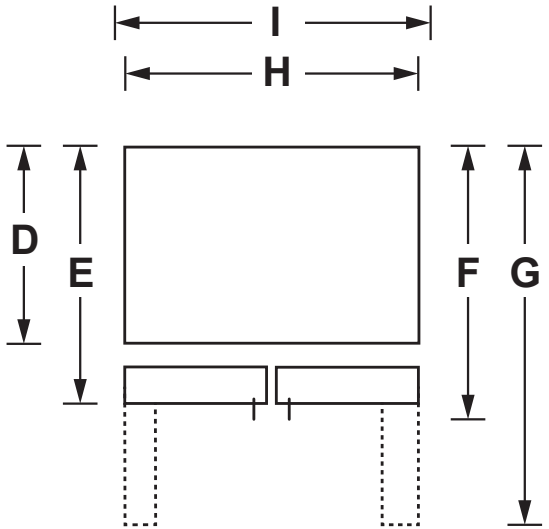
GNE27JGM/JMM/JYM

GE® ENERGY STAR® 27.0 Cu. Ft. French-Door Refrigerator

DIMENSIONS AND INSTALLATION INFORMATION (IN INCHES)

OVERALL DIMENSIONS	Height to top of door - crown or flat (in.) **A**	**69-7/8**
	Height to top of hinge (in.) **B**	**69-3/4**
	Height to top of case (in.) **C**	**68-5/8**
	Case depth without door (in.) **D**	**29**
	Case depth less door handle (in.) **E**	**33-3/8**
	Case depth with door handle (in.) **F**	**37-7/8**
	Depth with fresh food door open 90˚ (in.) **G**	**48-3/8**
	Width (in.) **H**	**35-3/4**
	Width with door open 90˚ inc. door handle (in.) **I**	**43-3/4**
AIR CLEARANCES	Each side (in.)	**1/8**
	Top (in.)	**1**
	Back (in.)	**2**





GE APPLIANCES

For answers to your Monogram, GE Café™ Series, GE Profile™ Series or GE Appliances product questions, visit our website at geappliances.com or call GE Answer Center® Service, 800.626.2000.

Listed by Underwriters Laboratories

As an ENERGY STAR® partner, GE has determined that this product meets the ENERGY STAR guidelines for energy efficiency.

Specification Revised 06/20

BID LOT 1

GNE27JGM/JMM/JYM

GE® ENERGY STAR® 27.0 Cu. Ft. French-Door Refrigerator

FEATURES AND BENEFITS

27.0 cu. ft. capacity – Easily store large or bulk food items with three full-width shelves and large capacity

Internal water dispenser – Delivers filtered water with one touch

Factory-installed icemaker with water filtration system – Refrigerator comes ready to automatically create filtered ice

LED lighting – Find exactly what you've been looking for under crisp, clear lighting

Spill-proof shelves – A variety of shelf configurations provide additional options for food storage

Two humidity-controlled drawers and full-width drawer – Create the right environment for keeping fruits and vegetables fresh, while easily storing wider items like a party platter or a sheet cake

Quick Space shelf – Quickly slides out of the way to make room for tall items

Turbo Cool setting – An extra boost of cold air restores interior to set temperature for optimum food freshness

Internal controls with actual-temperature display – Eliminate the guesswork of temperature setting with actual degrees displayed digitally

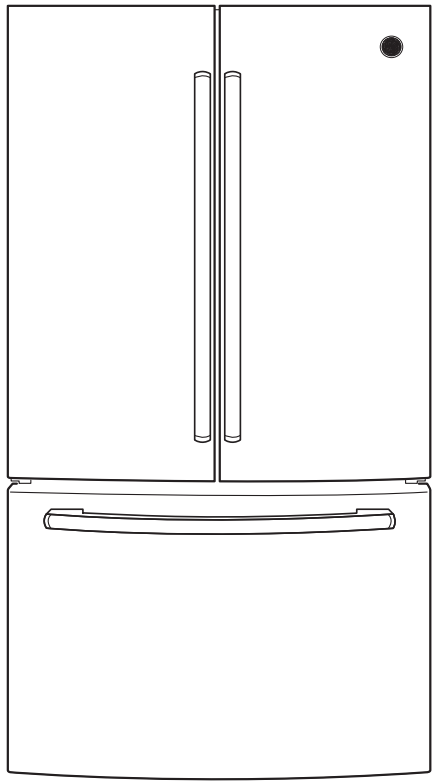
Advanced water filtration uses XWF replacement filter – Reduces trace pharmaceuticals from water and ice* (* Removes 98% of ibuprofen, atenolol, fluoxetine, progesterone and trimethoprim. These pharmaceuticals are not necessarily in all users' water)

Gallon door storage – Deep bins handle large containers in the door and free up valuable shelf space

Two-level freezer storage baskets – Baskets allow easy access to frozen foods

Door alarm – Enjoy peace of mind knowing the refrigerator door is never left open

Fingerprint resistant stainless – Easily wipe away smudges and fingerprints for a look that's always sparkling clean (for model GNE27JYMFS)



Model GNE27JGMWW – High-gloss White

Model GNE27JGMBB – High-gloss Black

Model GNE27JMMES – Slate

Model GNE27JSMSS – Stainless steel

Model GNE27JYMFS – Fingerprint resistant stainless

GE APPLIANCES

As an ENERGY STAR® partner, GE has determined that this product meets the ENERGY STAR guidelines for energy efficiency.

Specification Revised 06/20

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 57 - RESIDENTIAL WALL OVEN/MICROWAVE (1 EA REQ'D)

G.E. PK7800EK/SK

N.I.K.E.C. - Supplied and installed by G.C. Confirm specifications with Architectural and ID plans.

BID LOT 1

PK7800EK/SK

GE Profile™ Series 27" Built-In Combination Convection Microwave/Convection Wall Oven

DIMENSIONS AND INSTALLATION INFORMATION (IN INCHES)

MOST 30" WALL CABINETS CAN BE USED WITH THIS UNIT.

NOTE: These ovens are not approved for stackable installations. Cabinets installed adjacent to wall ovens must have an adhesion spec of at least a 194°F temperature rating.

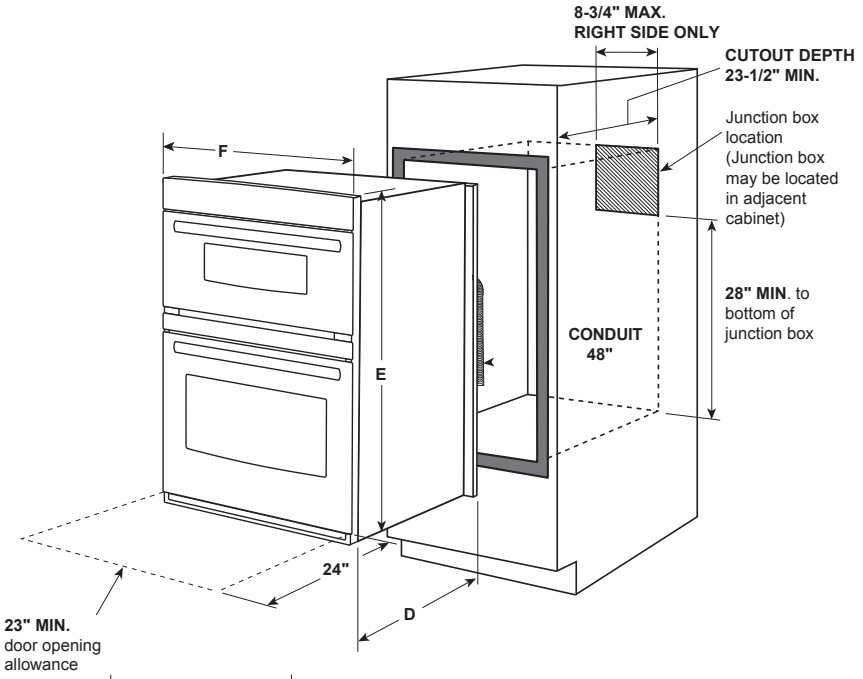
Door handle protrudes 3" from door face. Cabinets and drawers on adjacent 45° and 90° walls should be placed to avoid interference with the handle.

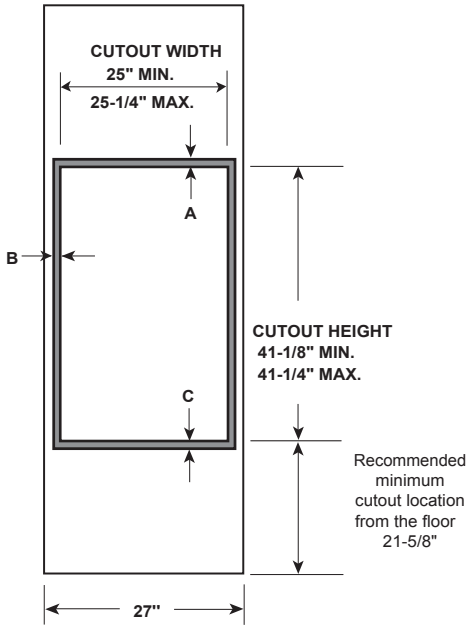
Electric wall ovens are not approved for installation with a plug and receptacle. They must be hard wired in accordance with installation instructions.

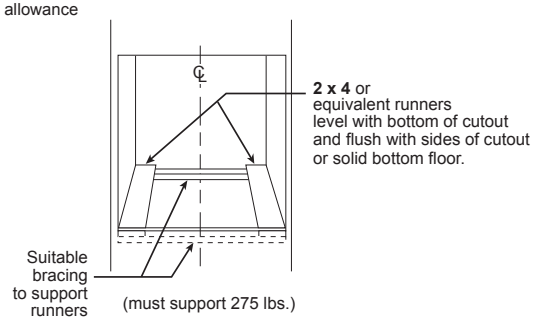
INSTALLATION INFORMATION:

Before installing, consult installation instructions packed with product for current dimensional data.

Side-by-side installations require at least 2" between cutouts.







ATTENTION INSTALLER: All electric wall ovens must be hard-wired (direct-wired) into an approved junction box. A plug and receptacle is NOT permitted on these products.

NOTE: If the cabinet does not have a solid bottom, two braces or runners must be installed to support the weight of the oven. For single ovens, the runners and braces must support 200 lbs (91 kg). For double ovens, the runners and braces must support 375 lbs. (170 kg).

NOTE: If marks, blemishes or the cutout opening are visible above the installed oven, it may be necessary to add wood shims under the runners and front trim until the marks or opening are covered.

NOTE: If the cabinet does not have a front frame and the sides are less than 3/4" (1.9 cm) thick, shim both sides equally to establish the cutout width.

	PK7800
CABINET	27"
A –Overlap of oven at top of cutout	1"
B –Overlap of oven over side of edges of cutout	3/4"
C –Overlap of oven at bottom of cutout	1"
OVEN	
D –Install depth	23-1/2"
E –Overall height with trim	42-3/8"
F –Overall width	26-3/4"

KW RATING	
240V	7.2
208V	5.4
BREAKER SIZE	
240V	30 Amps†
208V	30 Amps†

†**NOTE:** Check local codes for required breaker size.

GE APPLIANCES

For answers to your Monogram, GE Café™, GE Profile™ or GE Appliances product questions, visit our website at geappliances.com or call GE Answer Center® Service, 800.626.2000.

GE APPLIANCES FIT GUARANTEE

UL Listed by Underwriters Laboratories

Specification Revised 1/22

BID LOT 1

PK7800EK/SK

GE Profile™ Series 27" Built-In Combination Convection Microwave/Convection Wall Oven

FEATURES AND BENEFITS

Convection microwave (upper oven) – Circulates heat for high-quality results

True European Convection (lower oven) – Achieve delicious results from a third heating element and fan combination

Self-clean, heavy-duty roller rack (lower oven) – Easily access items with a rack that glides smoothly

Self-clean with Steam Clean option (lower oven) – Clean your oven the way you want

Glass touch controls – Set temperatures quickly and clean with little effort

Halogen interior oven lighting (lower oven) – Easily see how your food is baking

Ten-pass bake element (lower oven) – Even baking is assured with heat that covers more surface area

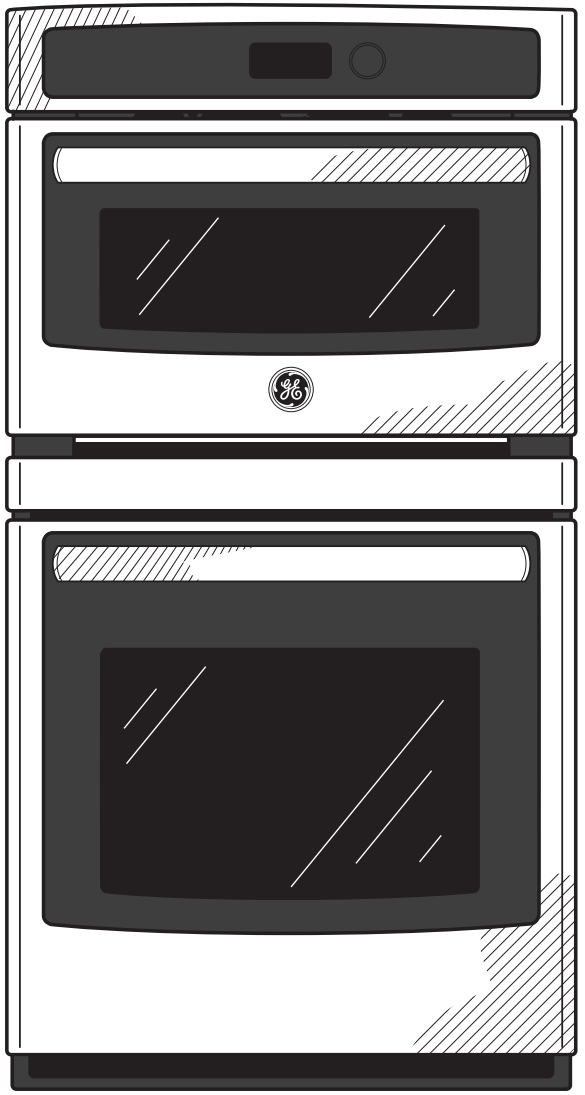
Eight-pass broil element (lower oven) – Get full broil coverage and even browning from edge to edge

1.7 cu. ft. microwave capacity, 1,000 Watts (IEC-705 test procedure)

16" turntable (upper oven) – Rotates food throughout the cooking cycle for even cooking results

Model PK7800EKES – Slate

Model PK7800SKSS – Stainless steel



GUARANTEED FIT

Replacing a similar wall oven from GE or another brand? GE wall ovens are guaranteed for an exact fit to make replacement easy

Visit geappliances.com for more info

GE APPLIANCES

Specification Revised 1/22

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 58 - DROP-IN SINK (1 EA REQ'D)

Advance Tabco DI-1-168

Drop-In Sink, 1-compartment, 16"W x 14"D front-to-back, 8" deep bowl, Deep Drawn™ sink bowl, 18 gauge 304 stainless steel, includes: deck mounted gooseneck faucet (K-52), & basket drain, NSF

BID LOT 1

STAINLESS STEEL

DROP-IN SINKS

One Compartment - FOR GENERAL PURPOSE USE

Item #: _____ Qty #: _____

Model #: _____

Project #: _____

Sinks Include Faucet & Drain



DI-1-168
18 Gauge



DI-1-208
18 Gauge



DI-1-2012
18 Gauge



DI-1-30
20 Gauge

LARGEST ONE COMPARTMENT DROP-IN SINK IN THE INDUSTRY!

Supplied with K-53 Faucet

DI-1-2812
16 Gauge



FEATURES:

One piece seamless **Deep Drawn** sink bowl design.

All sink bowls have a large liberal radii with a minimum dimension of 2" and are rectangular in design for increased capacity.

Self-Rim Design. Mounting clips provided accommodates all thicknesses of counter. (Quantity supplied varies based on drop in sink ordered).

DI-1-30 & DI-1-168: includes 4" O.C. **K-52** faucet.
DI-1-208 & DI-1-2012: includes 4" O.C. **K-50** faucet.
DI-1-2812: includes 4" O.C. **K-53** faucet.

CONSTRUCTION:

Unit fabricated from one sheet of stainless steel.
All bowls are Sound Deadened.
Units feature Advance Tabco's **Smart Finish™**.

MECHANICAL:

Faucet supply is 1/2" IPS male thread.
Deck mounted faucet is furnished with aerator.

MATERIAL:

Type 304 series stainless steel.
Faucets are brass-nickel plated.
Stainless Steel 1-1/2" IPS basket drain.

Available Faucets & Accessories	Model #	Qty
Deck Mounted 8" Swing Spout. 4" O.C.	**K-50**	
Deck Mounted Gooseneck. 4" O.C.	**K-52**	
Deck Mounted. 12" Swing Spout. 4" O.C.	**K-53**	
Deck Mounted 8 1/2" Gooseneck. 4" O.C.	**K-55**	
Deck Mounted Swing w/Spray. 8" O.C.*	**K-58**	
Deck Mtd. X.H.D. 3 1/2" Gooseneck. 4" O.C.	**K-62**	
Mounting Clips (Bag of 4).	**K-28**	

*REQUIRES **K-472** FAUCET HOLE REVISION



STANDARD MOUNTING CLIPS
For countertops over 7/8" and up to 2" thick.
Replacement # K-28 (Per Sink)

⚠ **WARNING:** Faucets on this page may expose you to chemicals, including lead, that are known to the State of California to cause cancer or birth defects or other reproductive harm. For more Info.,visit www.p65warnings.ca.gov.

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Email: customer@advancetabco.com or **Fax:** 631-242-6900

For Smart Fabrication™ Quotes:
Email: smartfab@advancetabco.com or **Fax:** 631-586-2933

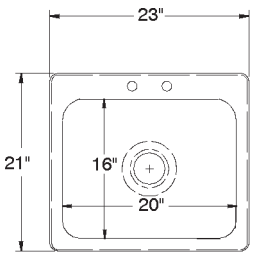
BID LOT 1

DIMENSIONS and SPECIFICATIONS

TOL ± .125”

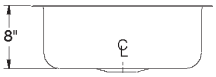
ALL DIMENSIONS ARE TYPICAL

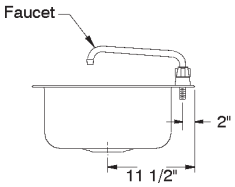
DI-1-208 & DI-1-2012



Cut-Out Size
22 1/4” x 20 1/4”
1 1/4” radius corners

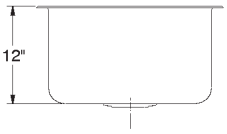
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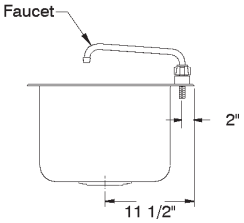




Approx. Wt. 18 lbs.

DI-1-2012

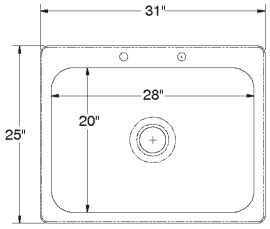




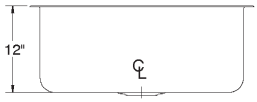
Approx. Wt. 20 lbs.

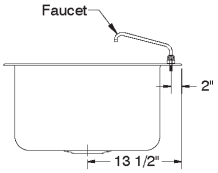
Supplied with K-50 Faucet

DI-1-2812



Cut-out Size
30 1/4” x 24 1/4”
1 1/4” radius corners

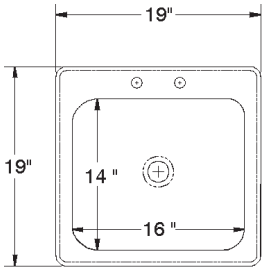




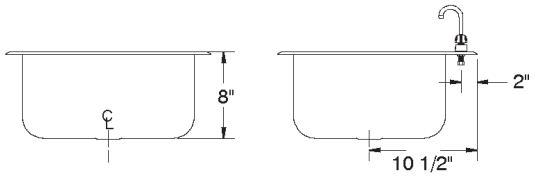
Approx. Wt. 42 lbs.

Supplied with K-53 Faucet

DI-1-168



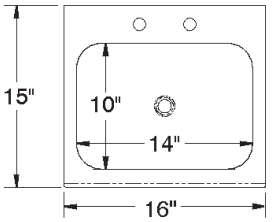
Cut-out Size
18 1/4” x 18 1/4”
1 1/4” radius corners



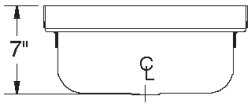
Supplied with K-52 Faucet

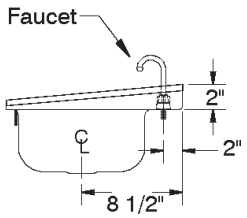
Approx. Wt. 15 lbs.

DI-1-30



Cut-Out Size
15” x 14 1/4”
1 1/4” radius corners

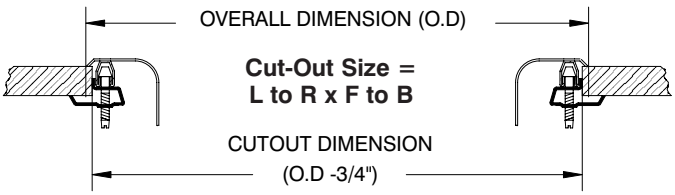




Supplied with K-52 Faucet

Approx. Wt. 11 lbs.

TYPICAL INSTALLATION



Standard Mounting Clips Fit Countertops
Over 7/8” & Up To 2” Thick.

ADVANCE TABCO
SMART FABRICATION™

ADVANCE TABCO is constantly engaged in a program of improving our products. Therefore, we reserve the right to change specifications without prior notice.

200 Heartland Boulevard, Edgewood, NY 11717-8380

NMSU Demonstration Kitchen

© ADVANCE TABCO, OCTOBER 2018

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 59 - RESIDENTIAL RANGE TOP (1 EA REQ'D)

Wolf SRT484CG

N.I.K.E.C. - Supplied and installed by G.C. Confirm specifications with Architectural and ID plans.

48" SEALED BURNER RANGETOP - 4 BURNERS, INFRARED CHARBROILER AND INFRARED GRIDDLE

BID LOT 1

SRT484CG

FEATURES

Maintain control with four dual-stacked burners that go from 20,000 Btu down to a mere breath of flame

Simmer and melt sauces, soups, and marinades easily with the lower tier of the dual-stacked burner

Match other Sub-Zero, Wolf, and Cove products with heavy-gauge stainless steel and signature red infinite control knobs

Sear with a 16,000 Btu infrared charbroiler

Sear in seconds with the additional 15,000 Btu infrared griddle

Cleanup is a snap as sealed, seamless burner pans contain sloshes and spills

Move pots and pans effortlessly across the continuous cast-iron grates

Reignites flame automatically with spark ignition system

ACCESSORIES

11" Cutting Board

2-Burner Wok Grate

48" and 60" Brass Bezels

48" and 60" Chrome Bezels

48" and 60" Stainless Bezels

Filler Trim

Griddle Cleaning Kit

Griddle Cleaning Pads

Griddle Cleaning Solution

Sealed Burner Rangetop with Wok Black Knobs

Sealed Burner Rangetop with Wok Red Knobs

Sealed Burner Rangetop with Wok Stainless Knobs

High altitude conversion kits available

5" and 10" stainless steel risers, and 20" riser with shelf

Signature red, black or stainless steel control knobs

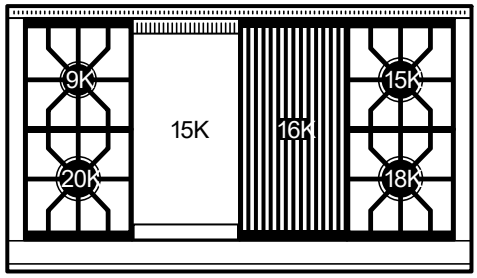
Accessories available through an authorized dealer.
For local dealer information, visit subzero-wolf.com/locator.



KNOB OPTIONS



TOP CONFIGURATION



RANGETOP SPECIFICATIONS

- Stainless-steel island trim (included)
- Stainless-steel bezels
- 1 - 9,200 Btu burner
- 1 - 15,000 Btu burner
- 1 - 18,000 Btu burner
- 1 - 20,000 Btu burner
- 1- Infared 16,000 Btu charbroiler
- 1- Infrared 15,000 Btu griddle

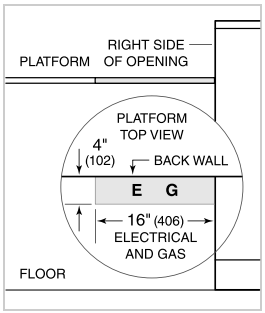
48" SEALED BURNER RANGETOP - 4 BURNERS, INFRARED CHARBROILER AND INFRARED GRIDDLE

BID LOT 1

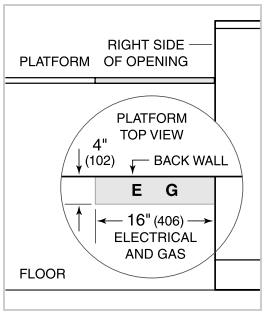
PRODUCT SPECIFICATIONS

Model	SRT484CG
Dimensions	47 7/8"W x 8 1/2"H x 28 1/2"D
Electrical Supply	120 VAC, 60 Hz
Electrical Service	15 amp dedicated circuit
Gas Supply	3/4" ID line
Gas Inlet	1/2" NPT female
Receptacle	3-prong grounding-type

ELECTRICAL

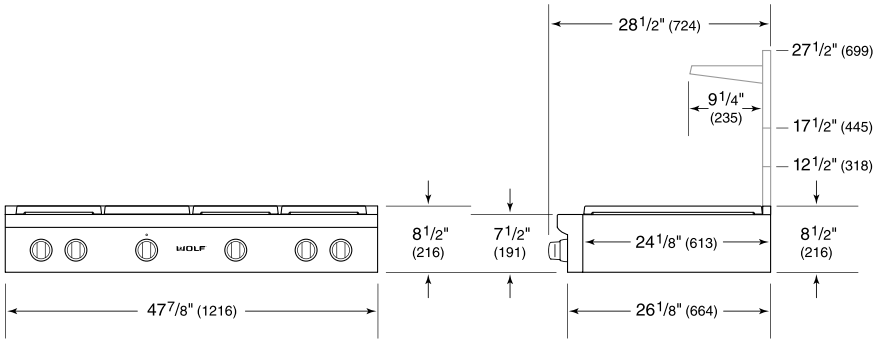


GAS

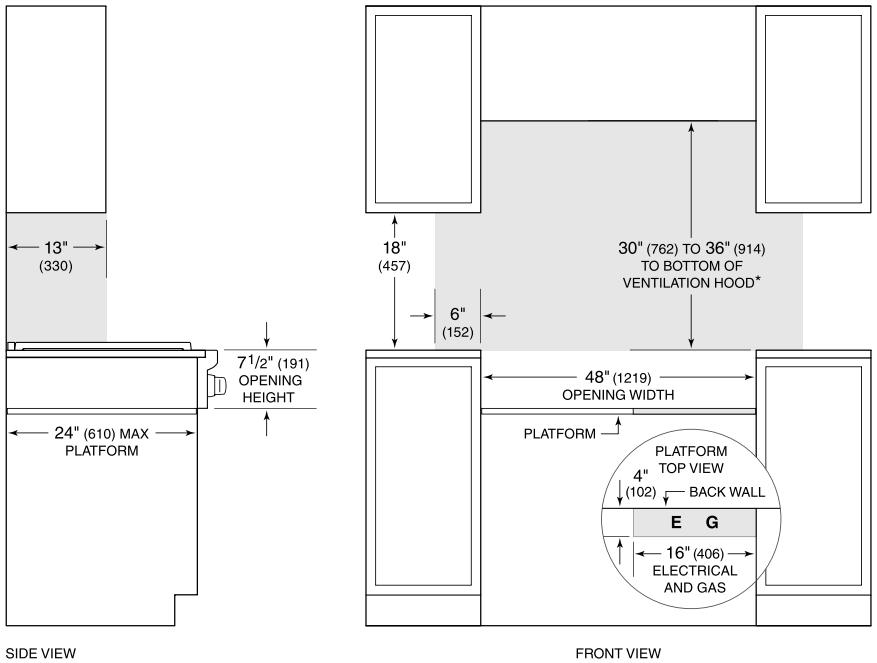


NOTE: Dimensions in parenthesis are in millimeters unless otherwise specified

DIMENSIONS



STANDARD INSTALLATION



**Without ventilation hood, 36" (914) minimum clearance countertop to combustible materials, 44" (118) for charbroiler.*

NOTE: Shaded area above countertop indicates minimum clearance to combustible surfaces, combustible materials cannot be located within this area.
Electrical and gas supply located through bottom of platform.
For island installation, 12" (305) minimum clearance back of range to combustible rear wall above countertop.

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 60 - EXHAUST HOOD (1 EA REQ'D)

Captive-Aire 6030NDI-PSP-F

Cleanup is a snap as sealed, seamless burner pans contain sloshes and spills. Move pots and pans effortlessly across the continuous cast-iron grates. Stainless-steel island trim. Stainless-steel bezels. Rage top configuration to include (1) 9,200 Btu burner, (1) 15,000 Btu burner, (1) 18,000 Btu burner, (1) 20,000 Btu burner, (1) Infared 16,000 Btu charbroiler, (1) Infrared 15,000 Btu griddle.

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 61 - FRONT SERVICE COUNTER (1 EA REQ'D)

Custom GC-CTR-BC-MILL

N.I.K.E.C. SUPPLIED & INSTALLED BY G.C.

SEE ARCHITECTURAL PLANS FOR SPEC & DETAIL

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 62 - WINE CELLAR CABINET (2 EA REQ'D)

Perlick HC24WS4

C-Series Wine Reserve Refrigerator, undercounter, 23-7/8"W x 24"D, self-contained refrigeration, 40°F to 68°F temperature range, (5.3) cu. ft. interior volume, digital thermostat & control, LED interior lighting, (1) hinged door, front vented, self-evaporating condensate pan, galvanized back & base, stainless steel top, sides, & interior, R600a, 115v/60/1-ph, 1.6 amps, NEMA 5-15P, NSF, cULus, ETL-Sanitation

ACCESSORIES

Mfr	Qty	Model	Spec
Perlick	2		WARNING: The materials used in this product may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov
Perlick	2		5 yr. compressor warranty, 1 yr. parts & labor warranty
Perlick	2		Door finish: glass with stainless steel frame
Perlick	2		Left hinged(nc)
Perlick	2		Full length, 24", stainless steel grip with chrome endcaps
Perlick	2		Door lock, chrome
Perlick	2		(5) Full extension wine shelves
Perlick	2	RS-RK-24R/L	Stacking Kit, for HC24
Perlick	1	RED	Red Wine temp
Perlick	1	WHITE	White Wine temp

PRODUCT SPECIFICATION SHEETS ▶ Commercial ▶ Refrigerated Cabinets

24" SINGLE DOOR C-SERIES
Refrigerator/Chiller/Wine Reserve/Beverage Dispenser

eco friendly R600a Refrigerant

NSF c UL us

5 Year Compressor Warranty

Intertek

JOB	
AREA	
ITEM NO.	
MODEL NO.	

MODEL NUMBERS - HC24FS4, HC24RS4, HC24WS4

MODEL NO.
HC24FS4
HC24RS4
HC24WS4



Beverage Dispenser (HC24RS4-T1)
Shown with 1 faucet draft arm tapping option



Refrigerator (HC24RS4)



Chiller (HC24FS4)



Wine Reserve (HC24WS4)

KEY PRODUCT FEATURES AND BENEFITS

- All stainless steel interior ensures consistent cabinet temperature and hygienic easy to clean environment that will not absorb odors over time
- Full extension, smooth glide shelving gives easy access to product and faster, more ergonomic product loading
- Ultra-quiet and energy efficient smart compressor – compressor ramps up as additional cooling is needed maximizing energy savings while decreasing pull down time
- NSF rated digital controller allows for precision temperature setting and features and audible door alarm, alerting the operator if an intrusion will not allow the door to close
- Open shelf design allows cold air to surround product reducing temperature variation in the cabinet and extending product life
- 525 BTU/hr fast pull down of product to serving temperature

Quick Features:

- All stainless steel wine shelves ensures zero off gassing or odor absorption
- Accessory wood front available to match custom overlays
- 2" foamed-in-place eco-friendly insulation provides energy savings with zero ozone depletion
- Smart defrost cycle runs only when needed, increasing energy efficiency over standard systems
- Selectable white or blue LEDs provide crisp line of sight to product
- Solid and uv-coated glass door options available in both stainless steel or black vinyl finish
  - Black vinyl door panels can easily be removed to allow a custom wood overlay to be applied
  - Custom door panels are customer supplied – see **perlick.com** for door overlay templates
- Multiple handle, legs, and caster options available
- Field reversible door allows for easy replacement or re-purposing
- Door lock optional
- NSF 7 rated for canned and bottle beverage storage
- No plumbing required
- 1 Year Warranty, 5 Year Compressor Warranty

Form No. Z2365
Rev. 04.12.22

PRODUCT SPECIFICATION SHEETS ▶ Commercial ▶ Refrigerated Cabinets

24" SINGLE DOOR C-SERIES

Refrigerator/Chiller/Wine Reserve/Beverage Dispenser

MODEL NO.		HC24RS4	HC24FS4	HC24WS4
CABINET DIMENSIONS	Length Ins. (mm)	23-7/8" (606)	23-7/8" (606)	23-7/8" (606)
	Depth Ins. (mm)	24" (610)	24" (610)	24" (610)
	Height Ins. (mm)	34" (864)	34" (864)	34" (864)
SHIP WEIGHT LBS. (KG)		185 (83)	195 (88)	205 (92)
CAPACITY CU. FT. (L.) [PRODUCT*]		5.3 (150) [5 cases]	5.3 (150) [86 glasses]	5.3 (150) [40 wine bottles]
SHELVING		2 black vinyl-coated full-extension shelf (adjustable)	2 black vinyl-coated full-extension shelf (adjustable)	5 black vinyl-coated full-extension wine shelves that hold 8 wine bottles each (750 ml.) (adjustable) Refrigerator & beverage shelving available
TEMPERATURE SETTINGS F°(C°)		34° (1.1°) - 42° (5.6°) **Factory Set Point** 36° (2.2°)	-10° (-23.3°) - 10° (-12.2°) **Factory Set Point** 0° (-17.8°)	40° (4.4°) - 68° (20°) **Factory Set Point** 55° (12.8°)
TAPPING		Centered over door only. Tapping option removes shelving.	Not available	Not available
CABINET CONSTRUCTION (INT.)		**Interior** Stainless Steel		
CABINET CONSTRUCTION (EXT.)		**Exterior Sides, Exterior Top and Grill** Stainless Steel **Exterior Back and Exterior Bottom** Galvanized **Door Exterior** Customer Choice (see below under 'Customer Options')		
CABINET INSULATION		Polyurethane-Ecomate. **Wall Thickness**-2" **Door, Drawer Thickness**-2" (solid stainless steel only)		
DOORS, HINGING & HARDWARE		**Number of Doors** 1 **Opening Style** Hinged (Left or Right) **Door Style** Solid or Glass **Door Swing Clearance** 25" (635) **Locks** Available (factory installed)		
CONDENSING UNIT		Condenser Access Front		
REFRIGERATION		**Refrigerant** R600a -HC24FS4: 60g/HC24RS4 & HC24WS4: 62g **Expansion Device** Capillary Tube Type w/Hermetic Compressor **Defrost** Chiller equipped w/automatic 4-hour hot gas defrost cycle and manual 6-hour defrost with auto restart (HC24FS model only)		
HEAT REJECTION (at 75°F ambient)		450 BTU/hr	700 BTU/hr	450 BTU/hr
PULL DOWN CAPACITY		525 BTU/hr	525 BTU/hr	525 BTU/hr
PLUMBING		None required. Moisture drains to self evaporating condensate pan		
ELECTRICAL		**Electrical Supply** 115V/60 Hz/1 Phase **Running Load Amps** HC24FS4: 2.4/HC24RS4 & HC24WS4: 1.9 **Cord Connection** Cord Connected (3-prong 6' NEMA 5-15P) **Thermostat** Digital **Lighting Type** LED		
VENTILATION		Front-vented		
CUSTOMER OPTIONS		**Door Finishes** Black Vinyl/Field Laminate (B), Stainless Steel (S), Glass w/ Black Vinyl/Field Laminate (G), Glass w/ Stainless Steel Frame (T), Stainless Steel Drawers (E), Black Vinyl/Field Laminate Drawers (D) **Door Handle Options** 24" full length stainless steel, Classic 6" chrome w/black vinyl grip, tab handle (top mount, stainless steel) NOTE: *Glass option not available for freezer or beer dispenser*		
ADDITIONAL ACCESSORIES		**Casters** 3.75" (Part No. 66736) **Legs** 4"-5" (Part No. 66734), 6"-7.25" (Part. No 66735)		

**Product capacity based on 12 oz. long neck bottles (Refrigerator), 3" diameter glass size (Freezer) and 750 ml. wine bottles (Wine Reserve)*

***NOTE:** This equipment is intended for the storage and display of non-potentially hazardous bottled or canned products only!*

HC24FS Chiller automatically defrosts every 4 hours not meant for food storage.

California Prop 65 Notice:

WARNING: The materials used in this product may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm, For more information go to www.P65Warnings.ca.gov.

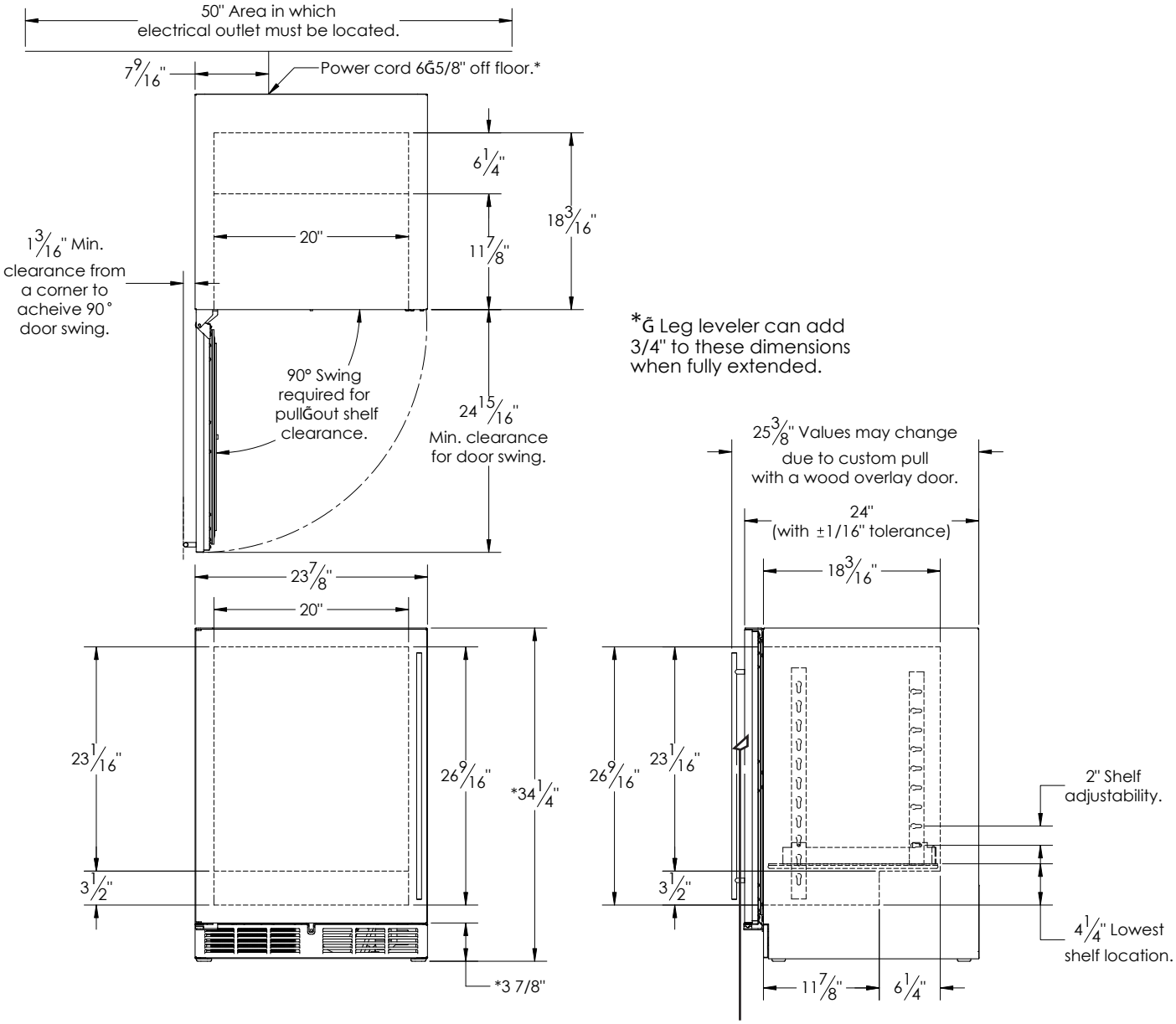
Form No. Z2365
Rev. 04.12.22

PRODUCT SPECIFICATION SHEETS ▶ Commercial ▶ Refrigerated Cabinets

24" SINGLE DOOR C-SERIES

Refrigerator/Chiller/Wine Reserve/Beverage Dispenser

MODEL NUMBERS - HC24FS4, HC24RS4, HC24WS4



California Prop 65 Notice:

WARNING: The materials used in this product may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm, For more information go to www.P65Warnings.ca.gov.

Form No. Z2365
Rev. 04.12.22

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 63 - BEER DISPLAY REFRIGERATORS (2 EA REQ'D)

Perlick HC24RS4

C-Series Refrigerator, undercounter, 23-7/8"W x 24"D, self-contained refrigeration, 34°F to 42°F temperature range, 5.3 cu. ft. interior volume, digital thermostat & control, LED interior lighting, (2) black vinyl-coated full extension shelves (adjustable) & (1) black-vinyl coated floor rack, (1) hinged door, front vented, self-evaporating condensate pan, galvanized back & base, stainless steel top, sides, & interior, R600a, 115v/60/1-ph, 1.6 amps, NEMA 5-15P, NSF, cULus, ETL-Sanitation

ACCESSORIES

Mfr	Qty	Model	Spec
Perlick	2		WARNING: The materials used in this product may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov
Perlick	2		5 yr. compressor warranty, 1 yr. parts & labor warranty
Perlick	2		Door finish: glass with stainless steel frame
Perlick	2		Left hinged(nc)
Perlick	2		Full length, 24", stainless steel grip with chrome endcaps
Perlick	2		Door lock, chrome
Perlick	2		No dispensing
Perlick	2	RS-RK-24R/L	Stacking Kit, for HC24

PRODUCT SPECIFICATION SHEETS ▶ Commercial ▶ Refrigerated Cabinets

24" SINGLE DOOR C-SERIES
Refrigerator/Chiller/Wine Reserve/Beverage Dispenser

eco friendly R600a Refrigerant

NSF c UL us

5 Year Compressor Warranty

Intertek

JOB	
AREA	
ITEM NO.	
MODEL NO.	

MODEL NUMBERS - HC24FS4, HC24RS4, HC24WS4

MODEL NO.
HC24FS4
HC24RS4
HC24WS4



Beverage Dispenser (HC24RS4-T1)
Shown with 1 faucet draft arm tapping option



Refrigerator (HC24RS4)



Chiller (HC24FS4)



Wine Reserve (HC24WS4)

KEY PRODUCT FEATURES AND BENEFITS

- All stainless steel interior ensures consistent cabinet temperature and hygienic easy to clean environment that will not absorb odors over time
- Full extension, smooth glide shelving gives easy access to product and faster, more ergonomic product loading
- Ultra-quiet and energy efficient smart compressor – compressor ramps up as additional cooling is needed maximizing energy savings while decreasing pull down time
- NSF rated digital controller allows for precision temperature setting and features and audible door alarm, alerting the operator if an intrusion will not allow the door to close
- Open shelf design allows cold air to surround product reducing temperature variation in the cabinet and extending product life
- 525 BTU/hr fast pull down of product to serving temperature

Quick Features:

- All stainless steel wine shelves ensures zero off gassing or odor absorption
- Accessory wood front available to match custom overlays
- 2" foamed-in-place eco-friendly insulation provides energy savings with zero ozone depletion
- Smart defrost cycle runs only when needed, increasing energy efficiency over standard systems
- Selectable white or blue LEDs provide crisp line of sight to product
- Solid and uv-coated glass door options available in both stainless steel or black vinyl finish
  - Black vinyl door panels can easily be removed to allow a custom wood overlay to be applied
  - Custom door panels are customer supplied – see **perlick.com** for door overlay templates
- Multiple handle, legs, and caster options available
- Field reversible door allows for easy replacement or re-purposing
- Door lock optional
- NSF 7 rated for canned and bottle beverage storage
- No plumbing required
- 1 Year Warranty, 5 Year Compressor Warranty

Form No. Z2365
Rev. 04.12.22

PRODUCT SPECIFICATION SHEETS ▶ Commercial ▶ Refrigerated Cabinets

24" SINGLE DOOR C-SERIES

Refrigerator/Chiller/Wine Reserve/Beverage Dispenser

MODEL NO.		HC24RS4	HC24FS4	HC24WS4
CABINET DIMENSIONS	Length Ins. (mm)	23-7/8" (606)	23-7/8" (606)	23-7/8" (606)
	Depth Ins. (mm)	24" (610)	24" (610)	24" (610)
	Height Ins. (mm)	34" (864)	34" (864)	34" (864)
SHIP WEIGHT LBS. (KG)		185 (83)	195 (88)	205 (92)
CAPACITY CU. FT. (L.) [PRODUCT*]		5.3 (150) [5 cases]	5.3 (150) [86 glasses]	5.3 (150) [40 wine bottles]
SHELVING		2 black vinyl-coated full-extension shelf (adjustable)	2 black vinyl-coated full-extension shelf (adjustable)	5 black vinyl-coated full-extension wine shelves that hold 8 wine bottles each (750 ml.) (adjustable) Refrigerator & beverage shelving available
TEMPERATURE SETTINGS F°(C°)		34° (1.1°) - 42° (5.6°) **Factory Set Point** 36° (2.2°)	-10° (-23.3°) - 10° (-12.2°) **Factory Set Point** 0° (-17.8°)	40° (4.4°) - 68° (20°) **Factory Set Point** 55° (12.8°)
TAPPING		Centered over door only. Tapping option removes shelving.	Not available	Not available
CABINET CONSTRUCTION (INT.)		**Interior** Stainless Steel		
CABINET CONSTRUCTION (EXT.)		**Exterior Sides, Exterior Top and Grill** Stainless Steel **Exterior Back and Exterior Bottom** Galvanized **Door Exterior** Customer Choice (see below under 'Customer Options')		
CABINET INSULATION		Polyurethane-Ecomate. **Wall Thickness**-2" **Door, Drawer Thickness**-2" (solid stainless steel only)		
DOORS, HINGING & HARDWARE		**Number of Doors** 1 **Opening Style** Hinged (Left or Right) **Door Style** Solid or Glass **Door Swing Clearance** 25" (635) **Locks** Available (factory installed)		
CONDENSING UNIT		Condenser Access Front		
REFRIGERATION		**Refrigerant** R600a -HC24FS4: 60g/HC24RS4 & HC24WS4: 62g **Expansion Device** Capillary Tube Type w/Hermetic Compressor **Defrost** Chiller equipped w/automatic 4-hour hot gas defrost cycle and manual 6-hour defrost with auto restart (HC24FS model only)		
HEAT REJECTION (at 75°F ambient)		450 BTU/hr	700 BTU/hr	450 BTU/hr
PULL DOWN CAPACITY		525 BTU/hr	525 BTU/hr	525 BTU/hr
PLUMBING		None required. Moisture drains to self evaporating condensate pan		
ELECTRICAL		**Electrical Supply** 115V/60 Hz/1 Phase **Running Load Amps** HC24FS4: 2.4/HC24RS4 & HC24WS4: 1.9 **Cord Connection** Cord Connected (3-prong 6' NEMA 5-15P) **Thermostat** Digital **Lighting Type** LED		
VENTILATION		Front-vented		
CUSTOMER OPTIONS		**Door Finishes** Black Vinyl/Field Laminate (B), Stainless Steel (S), Glass w/ Black Vinyl/Field Laminate (G), Glass w/ Stainless Steel Frame (T), Stainless Steel Drawers (E), Black Vinyl/Field Laminate Drawers (D) **Door Handle Options** 24" full length stainless steel, Classic 6" chrome w/black vinyl grip, tab handle (top mount, stainless steel) NOTE: *Glass option not available for freezer or beer dispenser*		
ADDITIONAL ACCESSORIES		**Casters** 3.75" (Part No. 66736) **Legs** 4"-5" (Part No. 66734), 6"-7.25" (Part. No 66735)		

**Product capacity based on 12 oz. long neck bottles (Refrigerator), 3" diameter glass size (Freezer) and 750 ml. wine bottles (Wine Reserve)*

***NOTE:** This equipment is intended for the storage and display of non-potentially hazardous bottled or canned products only!*

HC24FS Chiller automatically defrosts every 4 hours not meant for food storage.

California Prop 65 Notice:

WARNING: The materials used in this product may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm, For more information go to www.P65Warnings.ca.gov.

Form No. Z2365
Rev. 04.12.22

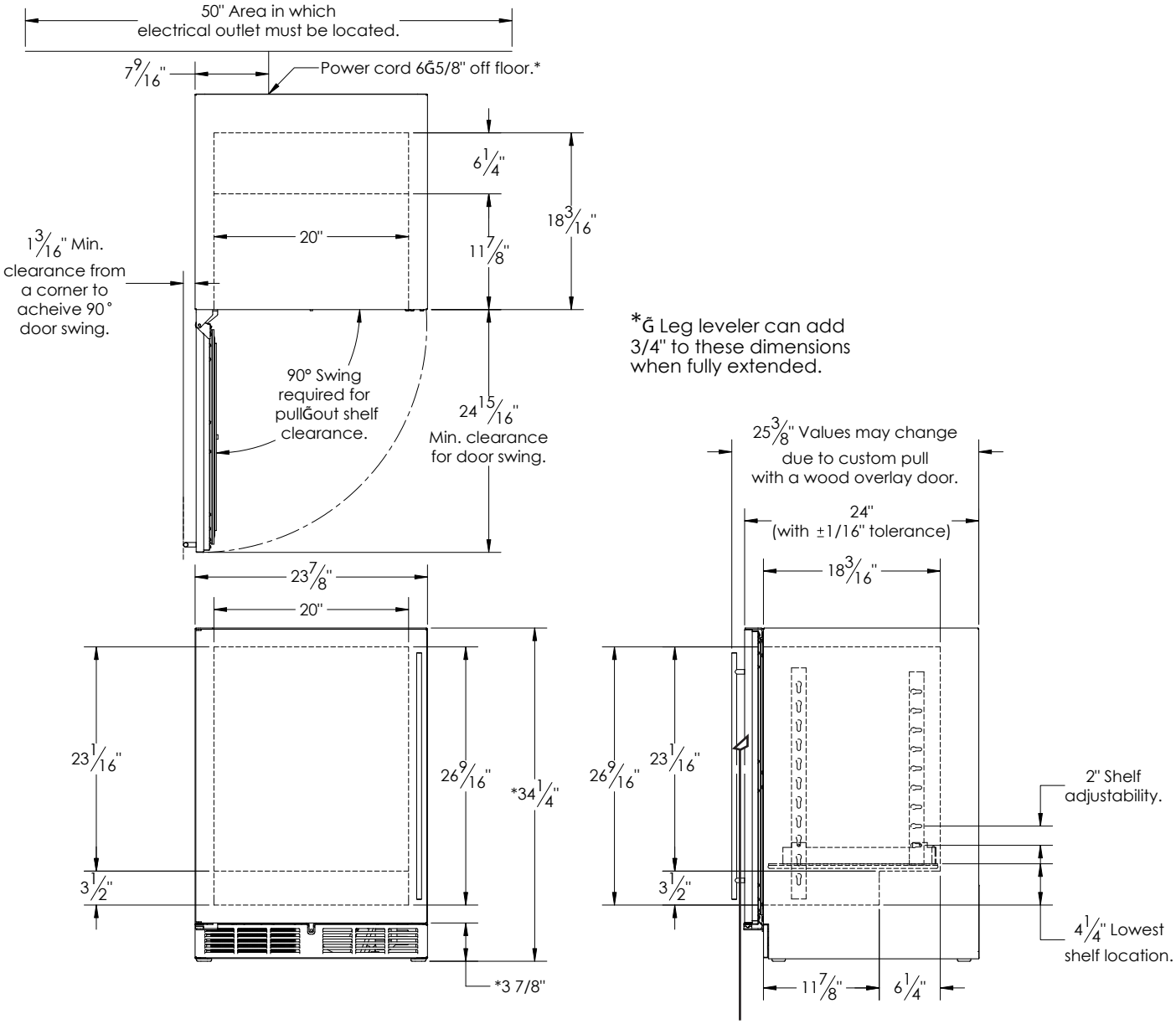
PERLICK CORPORATION 8300 W. Good Hope Rd., Milwaukee, WI 53223 • (800) 558-5592 • perlick.com

PRODUCT SPECIFICATION SHEETS ▶ Commercial ▶ Refrigerated Cabinets

24" SINGLE DOOR C-SERIES

Refrigerator/Chiller/Wine Reserve/Beverage Dispenser

MODEL NUMBERS - HC24FS4, HC24RS4, HC24WS4



California Prop 65 Notice:

WARNING: The materials used in this product may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm, For more information go to www.P65Warnings.ca.gov.

Form No. Z2365
Rev. 04.12.22

BID LOT 1

Submittal Sheet

04/16/2024

ITEM# 64 - CUTTING BOARD (1 EA REQ'D)

John Boos RA06

Cutting Board, 30"W x 23-1/4"D x 2-1/4" thick, edge grain construction, Northern Hard Rock Maple, with Oil Finish, hand grips on each end, reversible

SPEC SHEET

"RA" PRO CHEF COLLECTION

Edge Grain Wood Cutting Board - RA Board Series - 2¼" Thick

FEATURES:

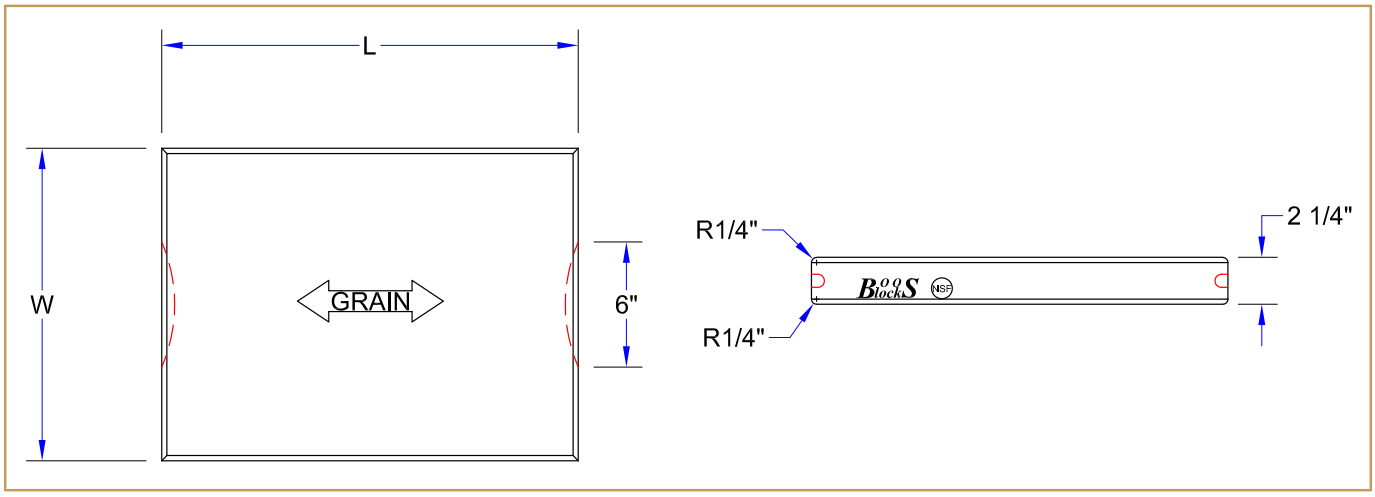
- Northern Hard Rock Maple (NSF) or American Cherry, 2-1/4" Thick
- Reversible
- Includes Finger Grips
- Edge Grain Construction
- Oil Finish
- NSF Certification For Maple Only

CERTIFICATIONS:

NSF NHLA







"RA" WOOD CUTTING BOARD

MODEL	SPECIES	SIZE (L X W X H)	WT. (LBS)	NSF
RA01	Maple	18"x12"x2-1/4"	13	√
RA02	Maple	20"x15"x2-1/4"	20	√
RA03	Maple	24"x18"x2-1/4"	30	√
RA06	Maple	30"x23-1/4""x2-1/4"	42	√
CHY-RA01	Cherry	18"x12"x2-1/4"	15	
CHY-RA02	Cherry	20"x15"x2-1/4"	20	
CHY-RA03	Cherry	24"x18"x2-1/4"	30	

ALL DIMENSIONS ARE TYPICAL. TOLERANCE +/- .125". JOHN BOOS & CO. RESERVES THE RIGHT TO CHANGE SPECIFICATIONS WITHOUT NOTICE.

Submittal Sheet

04/16/2024

ITEM# 65 - SPARE NO.

<Spare No.>

SECTION 12 2400 - WINDOW SHADES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Window shades and accessories.

B. Electric motor operators.

C. Motor controls.

1.2 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Concealed wood blocking for attachment of headrail brackets.

B. Section 09 2116 - Gypsum Board Assemblies: Substrate for window shade systems.

1.3 REFERENCE STANDARDS

A. ASTM D4674 - Standard Practice for Accelerated Testing for Color Stability of Plastics Exposed to Indoor Office Environments.

B. NFPA 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films.

C. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week prior to commencing work related to products of this section; require attendance of all affected installers.

B. Sequencing:

1. Do not fabricate shades until field dimensions for each opening have been taken.
2. Do not install shades until final surface finishes and painting are complete.

1.5 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets including materials, finishes, fabrication details, dimensions, profiles, mounting requirements, and accessories.

1. Motorized Shades: Include power requirements and standard wiring diagrams.

C. Shop Drawings: Include shade schedule indicating size, location and keys to details.

D. Selection Samples: Include fabric samples in full range of available colors and patterns.

E. Verification Samples: Minimum size 6 inches square, representing actual materials, color and pattern.

F. Manufacturer's Instructions: Include instructions for storage, handling, protection, examination, preparation, and installation of product.

G. Operation and Maintenance Data: List of all components with part numbers, sources of supply, and operation and maintenance instructions; include copy of shop drawings.

H. Warranty: Submit sample of manufacturer's warranty and documentation of final executed warranty completed in Owner's name and registered with manufacturer.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.

B. Installer Qualifications: Company specializing in performing work of this type with minimum five years of documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver shades in manufacturer's unopened packaging, labeled to identify each shade for each opening.

B. Handle and store shades in accordance with manufacturer's recommendations.

1.8 FIELD CONDITIONS

A. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 WARRANTY

A. Provide manufacturer's warranty from Date of Substantial Completion, covering the following:

1. Shade Hardware: One year.
2. Fabric: One year.
3. Aluminum and Steel Coatings: One year.

PART 2 PRODUCTS

2.1 BASIS OF DESIGN MANUFACTURER

A. Motorized Roller Shades, Motors and Motor Controls:

1. MechoShade Systems, Inc.; www.mechoshade.com.
2. Substitutions: See Section 01 6000 - Product Requirements.

2.2 WINDOW SHADE APPLICATIONS

A. Interior Roller Shades at exterior glazing locations indicated: Sheer shades.

1. Type: Roll down, closed position is at window sill.
2. Fabric Performance Requirements:
    a. Openness Factor: 3%.
3. Color: As selected by Architect from manufacturer's full range of colors.
4. Mounting: Inside (between jambs).
5. Operation: Motorized.

B. Interior Dual Roller Shades at exterior glazing locations indicated; Blackout Shades.

1. Type: Roll down, closed position is at window sill.
2. Fabric Performance Requirements:
    a. Openness Factor: Blackout.
3. Shade Fabric Color: As selected by Architect from manufacturer's full range of colors.
4. Mounting: Dual roller endcaps. Endcaps for surface or recessed mounting of dual roller window shades. 1028 steel stamping.
5. Operation: Motorized.

2.3 ROLLER SHADES

A. Roller Shades: Fabric roller shades complete with mounting brackets, roller tubes, hembars, hardware and accessories.

1. Size: As indicated on drawings.

B. Fabric: Non-flammable, color-fast, impervious to heat and moisture, and able to retain its shape under normal operation.

1. Sheer Shades: Reduce glare yet still reveal considerable details to the outside; no privacy; Openness Factor greater than 1 percent.

2. Blackout Shades: Block virtually all the light; Openness Factor equal to zero (0).
3. Flammability: Pass NFPA 701 large and small tests.

C. Roller Tubes: As required for type of operation.
1. Material: Extruded aluminum or galvanized steel; as required for shade location.
2. Size: Manufacturer's standard, selected for suitability for installation conditions, span, and weight of shades.
3. Finish: Clear anodized.

D. Hembars: Designed for weight requirements and adaptation to uneven surfaces, to maintain bottom of shade straight and flat.

E. Motor Operation: Motor system housed inside roller tube, controlling shade movement via motor controls indicated; listed to UL 325.
1. Audible Noise: Maximum 39 dBA measured 3 feet from the motor unit; no audible clicks when motor starts and stops.
2. Motors: Size and configuration as recommended by manufacturer for the type, size, and arrangement of shades to be operated; integrated into shade operating components and concealed from view.
3. Motor Type: AC, for direct hardwired connection to AC power source.
4. Control Compatibility: Fully compatible with the controls to be installed.

2.4 MOTOR CONTROLS

A. Motorized shades to be controlled by wall-mounted controls as specified below.

B. Control Requirements:
1. Unless specifically indicated to be excluded, provide all required equipment, conduit, boxes, wiring, connectors, hardware, supports, accessories, software, system programming, etc. as necessary for a complete operating system that provides the control intent indicated.

C. Wall-Mounted Controls: UV stabilized visible parts meeting ASTM D4674; furnished with backlit buttons; provided by shade manufacturer.
1. Control Functions:
a. Open: Automatically open controlled shade(s) to fully open position when button is pressed.
b. Close: Automatically close controlled shade(s) to fully closed position when button is pressed.
c. Raise: Raise controlled shade(s) only while button is pressed.
d. Lower: Lower controlled shade(s) only while button is pressed.

e. Stop shade(s) in motion by tap on any button.

2. Finish: To be selected by Architect.

3. Button Engraving: Manufacturer's standard engraving, unless otherwise indicated.

2.5 ACCESSORIES

A. Fascias: Size as required to conceal shade mounting.

1. Refer to Drawings for Enclosure size requirements.

2. Style: As selected by Architect from shade manufacturer’s full selection.

3. Material and Color: To match shade.

B. Brackets and Mounting Hardware: As recommended by manufacturer for mounting configuration and span indicated.

C. Fasteners: Non-corrosive, and as recommended by shade manufacturer.

2.6 FABRICATION

A. Field measure finished openings prior to ordering or fabrication.

B. Fabricate shades to fit openings within specified tolerances.

1. Vertical Dimensions: Fill openings from head to sill with 1/2 inch space between bottom bar and window stool.

2. Horizontal Dimensions - Inside Mounting: Provide symmetrical light gaps on both sides of shade not to exceed 3/4 inch total.

C. Dimensional Tolerances: As recommended in writing by manufacturer.

D. At openings requiring continuous multiple shade units with separate rollers, locate roller joints at window mullion centers; butt rollers end-to-end.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine finished openings for deficiencies that may preclude satisfactory installation.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Start of installation shall be considered acceptance of substrates.

3.2 PREPARATION

A. Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under the project conditions.

B. Coordinate with window installation and placement of concealed blocking to support shades.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions and approved shop drawings, using mounting devices as indicated.

B. Installation Tolerances:

1. Maximum Offset From Level: 1/16 inch.

C. Adjust level, projection and shade centering from mounting bracket. Verify there is no telescoping of shade fabric. Ensure smooth shade operation.

3.4 CLEANING

A. Clean soiled shades and exposed components as recommended by manufacturer.

B. Replace shades that cannot be cleaned to "like new" condition.

3.5 CLOSEOUT ACTIVITIES

A. See Section 01 7800 - Closeout Submittals, for closeout submittals.

B. See Section 01 7900 - Demonstration and Training, for additional requirements.

C. Demonstration: Demonstrate operation and maintenance of window shade system to Owner's personnel.

3.6 PROTECTION

A. Protect installed products from subsequent construction operations.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 12 3600 - COUNTERTOPS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Countertops for architectural cabinet work.

1.2 REFERENCE STANDARDS

A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. AWI (QCP) - Quality Certification Program.

C. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards.

D. ISFA 2-01 - Classification and Standards for Solid Surfacing Material.

E. NEMA LD 3 - High-Pressure Decorative Laminates.

1.3 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Specimen warranty.

C. Shop Drawings: Complete details of materials and installation; combine with shop drawings of cabinets and casework specified in other sections.

D. Verification Samples: For each finish product specified, minimum size 6 inches square, representing actual product, color, and patterns.

E. Test Reports: Chemical resistance testing, showing compliance with specified requirements.

F. Certificate: Submit labels and certificates required by quality assurance and quality control programs.

G. Maintenance Data: Manufacturer's instructions and recommendations for maintenance and repair of countertop surfaces.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Certified participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.

B. Quality Certification:

1. Comply with AWI (QCP) woodwork association quality certification service/program in accordance with requirements for work specified in this section: www.awiqcp.org/#sle.
2. Provide labels or certificates indicating that the installed work complies with AWI/AWMAC/WI (AWS) requirements for grade or grades specified.
3. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.6 FIELD CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.7 WARRANTY

A. See Section 01 7800 - Closeout Submittals.

B. Provide a written warranty that all materials and workmanship will be free from defects for a period of one year from the date of Substantial Completion of the project. Any defective work is to be repaired or replaced at no cost to the Owner.

PART 2 PRODUCTS

2.1 COUNTERTOPS

A. Quality Standard: See Section 06 4100.

B. Solid Surfacing Countertops: Solid surfacing sheet or plastic resin casting over continuous substrate.

1. Flat Sheet Thickness: 1/2 inch, minimum.
2. Solid Surfacing Sheet and Plastic Resin Castings: Complying with ISFA 2-01 and NEMA LD 3; acrylic or polyester resin, mineral filler, and pigments; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.
    a. Manufacturers:
        1) As indicated on drawings.
    b. Surface Burning Characteristics: Flame spread index of 25, maximum; smoke developed index of 450, maximum; when tested in accordance with ASTM E84.
    c. Finish on Exposed Surfaces: Matte, gloss rating of 5 to 20.
    d. Color and Pattern: As indicated on drawings.
3. Other Components Thickness: 1/2 inch, minimum.
4. Exposed Edge treatment:
    a. Condition 1: Built up to minimum 1-1/4 inch thick; square edge; use marine edge at sinks.
    b. Condition 2: Waterfall edge with steel interior frame.
5. Back and End Splashes: Same sheet material, square top; minimum 4 inches high.
6. Skirts: As indicated on drawings.

C. Natural Stone Countertops: Stone slabs bonded to substrate; use as large pieces as possible with inconspicuous adhesive joints.
1. Stone: Limestone without cracks, voids, or pin holes; filling with matching epoxy resin is acceptable.
2. Color: as indicated in drawings.
3. Stone Thickness: 3 inch, minimum.
4. Surface Finish: Honed, non-glare.
5. Exposed Edge Treatment: Square profile stone, 3 inch thick, with 3/16 inch radius corner.

2.2 MATERIALS

A. Adhesives: Chemical resistant waterproof adhesive as recommended by manufacturer of materials being joined.
1. Stone top adhesive: Akemi Platinum P+ premium epoxyacrylate adhesive or manufacturer's equal.

B. Joint Sealant: Mildew-resistant silicone sealant, white.

2.3 FABRICATION

A. Fabricate tops and splashes in the largest sections practicable, with top surface of joints flush.

1. Join lengths of tops using best method recommended by manufacturer.
2. Fabricate to overhang fronts and ends of cabinets 1 inch except where top butts against cabinet or wall.
3. Prepare all cutouts accurately to size; replace tops having improperly dimensioned or unnecessary cutouts or fixture holes.

B. Provide back/end splash wherever counter edge abuts vertical surface unless otherwise indicated.

1. Secure to countertop with concealed fasteners and with contact surfaces set in waterproof glue.
2. Height: 4 inches, unless otherwise indicated.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Verify that wall surfaces have been finished and mechanical and electrical services and outlets are installed in proper locations.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Securely attach countertops to cabinets using concealed fasteners. Make flat surfaces level; shim where required.

B. Attach stone countertops using adhesive, no metal hardware.

C. Seal joint between back/end splashes and vertical surfaces.

3.4 TOLERANCES

A. Variation From Horizontal: 1/8 inch in 10 feet, maximum.

B. Offset From Wall, Countertops: 1/8 inch maximum; 1/16 inch minimum.

C. Field Joints: 1/8 inch wide, maximum.

3.5 CLEANING

A. Clean countertops surfaces thoroughly.

3.6 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

END OF SECTION