

## SECTION 11 40 01 – CUSTOM FABRICATED FOOD SERVICE EQUIPMENT

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.
- B. Section 114000 “Food Service Equipment.

## 1.2 SUMMARY

- A. **This specification section is included in the Project Manual for coordination purposes, and to provide direction to the Owner’s Food Service Equipment Contractor. The work of this Section is not included in the Contract, however, coordination of the work of the FSEC with trades whose work is included in the Contract shall be the responsibility of the General Contractor.**
- B. All food service equipment specified herein is to be furnished and installed by the Owner’s Food Service Equipment Contractor (FSEC), including that which is reasonably inferred, with all related items necessary to complete work shown on contract drawings and/or required by these specifications.
- C. Electrical Work:
  - 1. FSEC shall provide interwiring of food service equipment between components within equipment, such as heating elements, switches, thermostats, motors, etc., complete with junction box as is applicable, ready for final connection to building lines by Electrical Contractor.
- D. Plumbing Work:
  - 1. FSEC shall furnish all equipment with faucets and trim, sink waste assemblies, indirect waste lines at all equipment other than sink compartments, and quick disconnect piping as specified in this section.

## 1.3 RELATED WORK SPECIFIED ELSEWHERE

- A. Plumbing: Refer to Division 22, including:
  - 1. Rough-in piping for gas and water supply and waste lines.
  - 2. Traps, grease traps, line strainers, tail pieces, valves, stops, shut-offs and miscellaneous fittings required for complete installation.
  - 3. Final connections.
  - 4. Indirect drains for sink compartments.

- B. Electrical: Refer to Division 26, including:
1. Rough-in conduit, wiring, line and disconnect switches, safety cut-offs and fittings, control panels, fuses, boxes and fittings required for complete installation.
  2. Final connections, including mounting and wiring of switches furnished as part of the food service equipment (unless otherwise indicated on the drawings).

#### 1.4 REFERENCE STANDARDS

- A. NSF 2 - Food Equipment; NSF International; current edition.
- B. NSF 4 - Commercial Cooking, Rethermalization and Powered hot Food Holding, and Transport Equipment; NSF International, current edition.
- C. NSF 7 - Commercial Refrigerators and Freezers; NSF International, current edition.
- D. SMACNA (KVS) - Kitchen Ventilation Systems and Food Service Equipment Fabrication & Installation Guidelines, current edition.
- E. NEMA MG 1 - Motors and Generators; National Electrical Manufacturers Association, current edition.
- F. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. UL (EAUED) - Electrical Appliance and Utilization Equipment Directory; Underwriters Laboratories Inc.; current edition.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company with five year record specializing in manufacture and distribution of standard products of the type specified.
- B. Food Service Equipment Supplier: Company with five year record of successful in service performance with installation of products of the type specified. Provide resume of successfully completed projects of similar size and scope.
- C. Cold Storage Assembly Installer: Approved in writing by manufacturer of cold storage assembly.

## 1.6 SUBMITTALS

- A. Qualification Data: Indicating compliance with Quality Assurance Article.
- B. Product Data, Shop Drawings, General: Coordinate with requirements of Section 11 4000 to provide single complete set of product data and shop drawings.
- C. Product Data: Provide data on all new equipment scheduled. Include complete illustrations indicating sizes and configurations, specifications, materials, finishes, utility service connection locations, service characteristics, and wiring diagrams. Include information on available accessories, and all specified equipment and accessories.
  - 1. Product data shall be submitted in binder format, arranged in numerical sequence corresponding to the item numbers in the specifications and drawings.
  - 2. Omission of data does not reduce obligation to provide items as specified.
- D. Specimen Warranties.
- E. Shop Drawings: Complete plans, elevations, cross-sections, and construction details for all fabricated units; include:
  - 1. Layout and anchorage of equipment and accessories, including clearances for maintenance and operation and required electrical or plumbing connections.
  - 2. Size, type, and location of equipment drain lines.
  - 3. Special conditions, including required slab depressions, cores, wall openings, blockouts, ceiling pockets, access panels, and above ceiling hanger assemblies.
  - 4. Wiring, piping, and schematic diagrams.
- F. Coordination Drawings: Coordinate with requirements of section 11 4000 to provide single set of coordinated rough-in drawings for use of all trades.
- G. Approved Submittals: After approval, FSEC shall furnish to Architect electronic files of shop drawings and brochures, corrected as required by virtue of review comments, for distribution to various interested trades on project. All costs of reproduction and submission shall be part of contract.
- H. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.
- I. Operation Data: Coordinate with the requirements of Section 11 4000 to provide single coordinated sets of looseleaf binders containing operating data for all mechanically operated equipment furnished under this contract.
  - 1. Product schedule for each item of equipment, including item number and description listed in the Contract Documents.
  - 2. Contact information, with names, addresses and telephone numbers of local servicing agencies authorized to make necessary repairs and/or adjustments of equipment furnished under this contract.
  - 3. Recommended schedules for lubrication and periodic maintenance.

4. Descriptions of routine maintenance procedures, possible breakdowns, repairs, and troubleshooting guides.

J. Warranty: Submit manufacturer warranties and ensure forms have been completed in Owner's name and registered with manufacturer.

#### 1.7 SUBSTITUTIONS - STANDARDS

A. Refer to Instructions to Bidders and Division 01 for requirements.

B. All unspecified substitutions after bid must be submitted to Owner for written approval prior to acceptance.

#### 1.8 REGULATORY REQUIREMENTS

A. Work and materials shall be in compliance with requirements of applicable codes, ordinances and regulations, including but not limited to those of Occupational Safety and Health Act (OSHA), National Fire Protection Association, State Fire Marshal, State Accident Commission, U.S. Public Health Service, State Board of Health, local health codes, etc.

B. Electric operated and/or heated equipment, fabricated or otherwise, shall conform to latest standards of National Electric Manufacturers Association and of Underwriters Laboratories, Inc., and shall bear the U.L. label.

C. Items of food service equipment shall meet minimum construction standards as noted in the referenced NSF documents, and shall bear the N.S.F. seal.

D. Food service equipment shall be installed in accord with N.S.F. standards.

E. No extra charge will be paid for furnishing items required by regulations, even though such may not be shown on drawings or called for in these specifications.

F. Rulings and interpretations of enforcing agencies shall be considered part of regulations.

#### 1.9 ADMINISTRATIVE REQUIREMENTS

A. Furnish and install all food service equipment as specified herein, including that which is reasonably inferred, with all related items necessary to complete work shown on contract drawings and/or required by these specifications.

B. Drawings which constitute part of contract documents indicate general arrangement of piping and location of equipment. Should it be necessary to deviate from arrangement indicated in order to meet structural conditions, make such deviations without expense to Owner.

C. Electrical voltages shall be as indicated on contract drawings. Any differences in electrical characteristics at job site from those shown on contract documents must be submitted to Architect for consideration prior to ordering equipment.

D. Coordinate locations and requirements of service-utility connections to food service equipment.

- E. Equals: Any equipment offered for approval as "equal" to equipment specified must conform to space limitations of layout and existing plumbing rough-ins. The cost of any deviation from kind or location of electrical, plumbing or mechanical services provided in layout due to furnishing of an approved equal will be the responsibility of the Food Service Equipment Subcontractor and all such costs associated with the substitution shall be borne by the Food Service Equipment Subcontractor. *Paragraph revised, 5/22/20.*
- F. Final Connections: Food Service Equipment Contractor shall have a qualified person on the job site while plumbing, electrical and mechanical trades are making final connections between rough-ins and equipment.

#### 1.10 FIELD CONDITIONS

- A. Verify dimensions of food service equipment installation areas by field measurements, and indicate measurements on Shop Drawings and Coordination Drawings. No extra compensation will be allowed for any difference between actual measurements secured at job site and dimensions indicated on contract drawings. Field measurements or conditions which vary from the construction documents and which affect the planned installation of equipment shall be submitted to Architect for consideration before procuring equipment.
- B. Food Service Equipment Contractor shall visit site to verify all rough-in and sleeve locations prior to installation of finished floors, and shall cooperate with other Contractors involved in proper location of same. Food Service Equipment Contractor shall be responsible for any required relocations of rough-in due to errors or inaccuracies on those rough-in plans which he prepares

#### 1.11 DELIVERY, STORAGE AND HANDLING

- A. Coordinate size of access and route to place of installation.
- B. Do not deliver fixed equipment until after completion of finish ceilings, floor and walls, painting and lighting.

#### 1.12 WARRANTY

- A. Special Project Warranty: Provide written warranty, signed by manufacturer, agreeing to replace/repair, within warranty period, with inadequate and defective materials and workmanship, including leakage, breakage, improper assembly, or failure to perform as required, provided manufacturer's instructions for handling, installing, protecting, and maintaining units have been adhered to during warranty period. This warranty shall be in addition to, and not limitation of, the rights the Owner may have against the Contractor under the Contract Documents. Warranty period commences on date of Final Acceptance of the work or Beneficial Occupancy.
  - 1. Warranty Period: 1 year, all new equipment furnished, unless otherwise noted. Manufacturer's warranty shall prevail when the period is longer than one year.

2. Provide five year manufacturer warranty for replacement or repair of refrigerant and compressors, including disconnection and removal of defective unit, and connection of replacement unit.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Serving Line Equipment: Subject to compliance with requirements, available manufacturers include, but are not limited to:
  1. Atlanta Custom Fabricators.
  2. Colorpoint/Low Temp Industries.
  3. Duke Manufacturing.
  4. Delfield.
- B. Fabricated Tables: Subject to compliance with requirements, available manufacturers include, but are not limited to:
  1. John Boos.
  2. Select Stainless.
  3. Universal Stainless.
  4. Custom fabricated in accordance with specifications.
- C. Sink Faucets, Pre-Rinse Units: Subject to compliance with requirements, available manufacturers include, but are not limited to:
  1. T&S Brass and Bronze Works.
  2. Chicago Faucet.
  3. Fisher Manufacturing.
- D. Walk-In Coolers and Freezers: Subject to compliance with requirements, available manufacturers include, but are not limited to:
  1. American Panel
  2. Imperial Brown.
  3. Master-Bilt.
  5. Norlake.

### 2.2 MATERIALS

- A. Stainless Steel: 18-8 composition; Type 304; No. 4 finish on exposed surfaces.
  1. Sheets: ASTM A 666 or A 240/A 240M.
  2. Tubing: ASTM A 269 or A 270; of true roundness with seams and welds ground smooth.
  3. Bars: ASTM A 276.

- B. Carbon Steel: Galvanized by hot-dip process; do not use galvanized or carbon steel unless specifically indicated or allowed.
1. Sheets: ASTM A 653/A 653M, coating Class G115/Z350.
  2. Shapes: ASTM A 36/A 36M free of surface defects; galvanized in accordance with ASTM A 123/A 123M.
  3. Galvanizing Repair Compound: Zinc dust paint.
- C. Aluminum: ASTM B 209 sheet and plate, ASTM B 221 extrusions, 0.40-mil clear anodized finish where exposed, unless otherwise indicated.
- D. White Metal: Corrosion resistant metal containing not less than 21 percent nickel. Make castings free from pit marks, runs, checks, burrs and other imperfections. Rough grind, polish and buff to bright luster. In lieu of white metal castings, stainless steel may be used.
- E. Copper Tubing: ASTM B 88; Type L, hard drawn.
1. Fittings: ASME B16.18, B16.22, or B16.26.
  2. Solder: ASTM B 32, lead-free.
  3. Brazing Alloy: AWS A5.8 silver solder.
- F. Tempered Glass: ASTM C1048, fully tempered, Condition A (uncoated surfaces), Type I (transparent), Class 1 (clear), Quality q3 (glazing select). Provide products complying with ANSI Z97.1, manufactured by horizontal (roller-hearth) process, and 6 mm thick, unless otherwise indicated. Provide exposed safety edges, if any, seamed before tempering.
- G. Plastic Laminate: Complying with NEMA LD 3 and NSF 35 requirements; NSF certified for end-use application indicated; 0.050 inch thick for horizontal and vertical surfaces and 0.042 inch thick for post-formed surfaces; smooth texture; and easily cleanable. Provide plastic laminate in color selected by Architect from manufacturer's full range of colors.
- H. Sound Deadening Material: NSF-certified, nonabsorbent, hard-drying, sound-deadening coating. Provide coating compounded for permanent adhesion to metal in 1/8-inch thickness that does not chip, flake, or blister. Keep legs and work surfaces free of this material. Keep legs and work surfaces clean of this material.
- I. Gaskets: NSF certified for end-use application indicated; of resilient rubber, neoprene, or PVC that is nontoxic, stable, odorless, nonabsorbent, and unaffected by exposure to foods and cleaning compounds.
- J. Sealants: As specified in Section 07 9000. Elastomeric sealant NSF certified for end-use application indicated. Provide sealant that, when cured and washed, meets requirements of Food and Drug Administration's 21 CFR, Section 177.2600 for use in areas that come in contact with food.
- K. Bolts, Screws, and Rivets: Stainless steel; do not use on exposed surfaces unless specifically indicated or otherwise unavoidable.

- L. Bolt and Screw Caps: Provide lock washer and chromium-plated brass/bronze acorn nut to cap visible or exposed threads on inside of fixtures.
- M. Anchoring Devices: Stainless steel, of type appropriate for use; provide seismic anchorage as specified in SMACNA "Kitchen Ventilation Systems and Food Service Equipment Guidelines."

### 2.3 CUSTOM FABRICATED UNITS – GENERAL REQUIREMENTS

- A. See drawings for dimensions and configurations; ensure proper fit by taking field measurements prior to fabrication.
- B. Provide fully shop assembled units complying with SMACNA "Kitchen Ventilation Systems and Food Service Equipment Guidelines" and NSF 2, unless specifically indicated otherwise; all components of stainless steel unless otherwise indicated.
  - 1. Stainless Steel Sheet: For surfaces up to 12 feet (1.52 m) in length provide one continuous sheet without joints or welds, including back and end splashes.
  - 2. Joints: All joints welded unless specifically indicated or impossible; do not solder or braze stainless steel; do not use bolts, screws, or other fasteners on work surfaces, food contact surfaces, or wet surfaces.
  - 3. Drainage of Surfaces: Provide distinct pitch of all tops toward waste or drain outlets while maintaining level tops of rolled and marine edges and back and end splashes.
  - 4. Where cut-outs are indicated for equipment to be set into countertop, provide cut-out in top and back of case body, maintaining continuous counter front; size to fit equipment with sanitary joint.
  - 5. Provide surfaces in food zone, as defined in NSF 2, free from exposed fasteners.
- C. Drain Piping: Other than sink compartments, provide indirect drain piping from equipment to terminate over nearest waste receptor. Piping shall be copper with silver paint unless specified otherwise. Drain lines in public areas to be chrome plated where exposed to view.
- D. Sound Deadening: Heavy-bodied resinous material compounded for permanent, non-flaking adhesion to metal. Apply coating after reinforcing is in place, 1/8 inch thickness, smooth surface. Hold coating 1 inch back from open edges for cleaning.
- E. Locations: Required at accessible internal surfaces of metal work and underside of metal counters and sinks.

### 2.4 FABRICATION

- A. Joints, Bends, and Edges: Make all joints close fitting, especially butt and contact joints
  - 1. Make brake bends free of open-texture or orange peel appearance.
  - 2. Make sheared edges free of burrs, projections, and fins.
  - 3. Neatly finish mitered and bullnosed corners with under edge of material ground to uniform condition, without overlapping materials or cracks.
  - 4. Rounded edges and coved corners shall be 1/2 inch radius or larger.



- B. Welding: Make all welded joints smooth, ductile, and watertight, without gaps, holes, or discoloration or marring of surface adjacent to welds.
1. Use welding processes and filler metal compatible with material being welded. Do not use carbon arc welding on surfaces that will be exposed to view in finished work.
  2. Welded Butt Joints: Provide full-penetration welds for full-joint length. Make joints flat, continuous, and homogenous with sheet metal without relying on straps under seams, filling in with solder, or spot welding.
  3. Grind exposed welds flush with adjacent material; finish and polish to match adjacent surface. Avoid excessive heating of metal and metal discoloration. In grinding, use iron-free abrasives, wheels, and belts that have not been used on carbon-steel. Remove pits, runs, sputter, cracks, low spots, voids, buckles, and all other imperfections. Remove grain of rough grinding by several successively finer polishing until specified finish is attained.
  4. When stainless steel is joined to dissimilar materials, use stainless steel for fastening devices and welding material.
  5. Protection Against Corrosion: Eliminate possibility of corrosion wherever welding occurs on stainless steel. Minimize possibility of carbide precipitation in welding bolts and screws.
  6. When welding galvanized steel, thoroughly clean and repair damaged galvanizing and coat welds with polyurethane coating welds.
  7. Where bolts or screws are welded to underside of tops or trim, finish reverse side of weld smooth and undepressed.
  8. Coat welds and discolorations that are not exposed to view in finished work with metallic-based paint to prevent the possibility of progressive corrosion of joints, unless welds are ground and polished smooth.
- C. Brazing of Copper Tubing to Brass and Bronze Fittings: Use silver solder. Do not braze stainless steel.
- D. Provide enclosures, including panels, housings, and skirts, to conceal service lines, operating components, and mechanical and electrical devices including those inside cabinets, unless otherwise indicated.
- E. Shop prepare openings for plumbing fixtures, fittings, and other service components.

## 2.5 STAINLESS STEEL FINISHES

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations relative to applying and designating finishes.
1. Remove or blend tool and die marks and stretch lines into finish.
  2. Grind and polish surfaces to produce uniform, directional textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.
- B. Concealed Surfaces: No. 2B finish (bright, cold-rolled, unpolished finish).
- C. Exposed Surfaces: No. 4 finish (bright, directional polish).
- D. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

## 2.6 FABRICATED TABLES

- A. Counter and Table Tops: Stainless steel, 14 gauge, minimum; one piece construction with stainless steel underbracing welded to underside as recommended by SMACNA. Provide sound deadening at underside.
- B. Counter, Table, and Sink Edges: Provide finished edge on all open sides; close open ends down to bottom edge of turn down. Provide bullnose edges unless otherwise indicated.
1. Bullnose Edges: 2 inch turn down at 5/8 inch radius, returned at 60 degree angle to not closer than 3/4 inch to face of cabinet or case.
  2. Raised Roll Edges: 3 inches turn up coved at 1/4 inch radius, 1-1/2 inches wide rim rolled at 180 degrees, turned down 1 inch. Corners bullnosed, ground and polished.
  3. Turned Down Edges: 1-1/2 inch turn down at 90 degrees, with 1/2 inch return at 30 degree angle.
  4. Dish Tables and Counters: Make watertight joint into dishwashing machine.
- C. Back and End Splashes: Provide wherever tops abut walls or other vertical surfaces; close open ends from top to bottom of turned down top edge.
1. 45 Degree Back and End Splashes: Height as indicated, coved at 5/8 inch radius, turned back at the top at 45 degree angle, turned down 1 inch, unless otherwise indicated.
  2. Where indicated and where required for concealment of plumbing, make horizontal dimension of back and end splashes at least 2-1/2 inches from face of wall.
  3. Wall Clips: 4 inch long 14 gauge, stainless steel "zee" clips; anchored to wall at 36 inches on center.
- D. Sinks: Stainless steel, 14 gauge thickness, minimum, one-piece construction. Provide integral sinks continuously welded to work surfaces, unless otherwise indicated.
1. Sinks In Worktops: Fabricate bowl so as to be flush with work surface. Provide separate sink supports stud bolted to bottom of counter top; at minimum, provide painted galvanized steel angles, 1-1/2 inches by 1-1/2 inches by 1/8 inch.
  2. Fully cove horizontal, vertical, and interior corners with 3/4-inch radius.
  3. Pitch and crease sinks to waste for drainage without pooling.
  4. Adjacent Sinks: Provide double wall partitions between sink compartments with 1/2-inch radius rounded tops that are welded integral with sink body and having corners rounded same as other corners in sinks, continuously welded in place with welds ground smooth and polished.
  5. Faucets: Provide at all sinks, unless otherwise noted.
  6. Lever Wastes: Provide at all sinks, unless otherwise noted. Twist-handle waste assembly with stainless steel handle, cast bronze body, snap-in stainless steel strainer and nickel-plated brass, connected overflow. Seat wastes in die-stamped depressions without solder, rivets, or welding. 2-inch outlet unless otherwise noted.
    - a. Available Manufacturers: Component Hardware Group, T&S.

- E. Drainboards: Stainless steel, 14 gauge minimum.
1. Construct front rim and backsplash on drainboards with continuous level plane with sink it adjoins.
  2. Cove horizontal, vertical, and interior corners with 3/4-inch radius.
  3. Pitch to sink at 1/8 inch per 12 inches of length.
  4. Drainboard Braces: 1 inch OD, minimum 14 gauge stainless steel welded to underside of drainboard and leg gusset. Support drainboards 36 inches and longer with legs.
- F. Counter, Table and Undershef Reinforcing: 14 gauge stainless steel hat channels or hat sections, completely welded to underside of tops. Exposed hat sections and channel sections shall have closed ends.
- G. Framing: Mount counters on 1-1/2-inch by 1-1/2 inch by 1/8 inch galvanized angle iron, or 4 inch wide by 12-gauge galvanized channels. Mount tables and drainboards on 4 inch wide by 14 gauge stainless steel channels. Run framework around entire perimeter of unit, and cross brace on 30 inch centers. For dishtables and drainboards, run framing from front to back at each leg location, and run additional channel lengthwise, located at center of table width and welded to leg channels. Fasten framing to underside of top surfaces with 1/4-inch studs welded at approximately 12-inch centers. Provide each stud with suitable chrome-plated lockwashers and capnuts, and make stud lengths such that cap nuts can be made up tight bringing top down snugly to framing.
- H. Gussets: Closed gussets, stainless steel, reinforced with bushing, with set screws for securing legs. Minimum 3 inch diameter at top, continuously welded to frame members or to 12 gauge support plate at sink bottom.
- I. Legs: Stainless steel tubing, 16 gauge, 1-5/8 inches outside diameter. Fit legs with set-screw fastened sockets and adjustable feet or casters as specified.
1. Fasten to tables and drainboards with closed gussets, welded to table framing.
  2. Legs and crossrails shall be continuously welded and ground smooth.
  3. Legs may be bolted to table tops using studs welded to bottom of top.
  4. Unless otherwise indicated provide legs for all units.
- J. Crossrails: Stainless steel tubing, 16 gauge, 1-1/4 inch outside diameter.
- K. Shelves: Stainless steel.
1. Table Undershelves: 16 gauge.
  2. Bottom Shelves: Extend forward and turn down at front flush with front of table.
  3. Overshelves: 18 gauge.
  4. Overshef Supports: Set shelves on 14 gauge stainless steel tubular standards, 1 inch outside diameter, fitted with stainless steel base flanges, Completely weld top of standards to 14 gauge stainless steel support channels, run channels full width of overshef. Run 1/2-inch steel tension rods through counter-tops and reinforcing angle framing, secure with nuts and lockwashers to assure stable sway-free structure. Where shelves are mounted over drainboards or dishtables, mount on upturned rolled edges omitting flanges, and scribe lower end of tube to match contour of roll.

5. Wall Mounted Shelves: 16 gauge. Construct with bullnose or turned down edge on front and exposed ends, and with 2-inch turn-up on back and ends where adjacent to walls or other fixtures. Weld all corners.
  6. Wall Mounted Rack Shelves: Stainless steel. 14 gauge solid ends with full-length 1-5/8 inch diameter tubing.
  7. Wall Mounted Shelf Supports: Stainless steel, 14 gauge with minimum 1-1/2 inch flange at wall end. Supports spaced at 48 inches on center, maximum. Fasten each bracket to wall with minimum of two 1/2-inch bolts anchored to wall. Fasten shelf to wall bracket by means of studs welded to shelf, and secure with lockwasher and chrome-plated cap nuts.
- L. Drawers: Lift-out type, 1-piece, die-stamped drawer pan fabricated from 18 gauge stainless steel with inside corners radiused. Support drawer pan with 14 gauge stainless-steel channel frame welded to drawer front. Provide 1-inch thick, double-wall front fabricated from 16 gauge stainless steel and with integral recessed pull. NSF approved A.B.S. plastic may be used in lieu of stainless steel. Fill void in drawer front with semirigid fiberglass sound dampening.
1. Slides: NSF-certified, full-extension, stainless-steel drawer slides, minimum 200-lb load capacity per pair, ball-bearing rollers, and positive stop. Mount drawer slides for self-closing on drawer housing.
  2. Liners: NSF approved A.B.S plastic drawer liners at all drawers. Removable from cradle without tools, and without having to remove entire drawer.
- M. Pass Through Window Frames: Channel frame of stainless steel.
1. Dish Washing Areas: Align and lap frame with adjacent dish table to provide watertight connection.
- 2.7 SERVING LINE EQUIPMENT
- A. All pieces of serving line equipment shall be by the same manufacturer.
- B. All items of standard equipment shall be that manufacturer's latest model at time of delivery.
- C. Cabinet Construction: Provide cabinets complying with the following. Contractor made provide framed or frameless cabinet body at his own option.
1. Cabinet Body, Frameless: 18 gauge stainless steel with 14 gauge steel bottom. Panels reinforced with overlapping corners and welded in place.
  2. Cabinet Body, With Frame: 14 gauge steel internal frame, 20 gauge stainless steel enclosure panels.
  3. Countertop: 14 gauge stainless steel, bullnose or turned down edge on all sides, flush with body on ends. Provide sound deadening between body and top.
- D. Serving Counter Height: 36 inches.
- E. Sliding Doors: Stainless steel single pan construction, 20 gauge.

- F. Hot/Cold Serving Sections: Stainless steel, wells integral with countertop as part of serving counter unless otherwise noted.
1. Food Wells: Seamless, fully covered.
  2. Drop-Ins: Provide countertop cutouts with reinforced turn down edges for drop-in units; drop-ins to sit flush with countertop.
  3. Controls at operator side. Provide all required body cutouts for control units, passage of wiring or conduits.
  4. Removable Pans: 18 gauge, 0.0500 inch stainless steel with welded seams and support flange.
    - a. Pan Openings: Die stamped, beaded edges with flange turned down inside.
    - b. Number and Sizes of Pans: As indicated on drawings.
    - c. Pan Depth: , unless otherwise indicated.
- G. Tray Slides: Provide tray slides in configuration shown on the drawings.
1. Construction: Closed, solid stainless steel, 14 gauge, with two lengthwise inverted "V" ridges of solid stainless steel, front edge rolled, back edge turned up behind counter top turndown, and ends closed.
  2. Support Brackets: Stainless steel, hinged brackets.
  3. Mounting Height: 34 inches to top of slide.
- H. Food Protectors: Provide where indicated. Entire assembly mounted on countertop.
1. Configuration: Two-tier overshef single service guards. Lower guard adjustable for self-service or full-service.
  2. Configuration: As noted in equipment schedule.
  3. Frames: 1 inch diameter stainless steel tube posts.
  4. Brackets: Adjustable, stainless steel.
  5. Guards: Fully tempered clear glass with polished edges and rounded corners. Thickness 1/4 inch for spans up to 40 inches, 3/8 inch for spans up to 60 inches. Provide side shields per NSF requirements.
  6. Overshef: Stainless steel (provide at shelves with heat rods, undershef lights).
  7. Overshef: Fully tempered glass, 1/4 inch minimum thickness, with polished edges, rounded corners (provide at shelves without heat rods, undershef lights).
  8. Radiant Heat Rod: Provide where indicated, mounted beneath overshef and wired to base.
  9. Incandescent, Fluorescent Lights: Provide where indicated, mounted beneath overshef and wired to base.
- I. Cord and Plug: Powered units in banked line-ups to be interconnected (daisy chained), wired to single point connection, cord and plug.
- J. Locking Devices: Provide manufacturer's standard line-up locks at each adjacent serving line cabinet.
- K. Finish: Stainless steel at operator side, concealed ends, customer side.

## 2.8 ELECTRICAL EQUIPMENT

- A. Supply control switch on each motor driven appliance or electrically powered unit, in accordance with UL requirements.
- B. Where electric heating or thermostat control is specified, it shall be complete, and of the materials, size and rating specified by the manufacturer. All such equipment shall be designed to be easily cleanable, or removable for cleaning.
- C. Provide internal wiring for equipment, including electrical devices, wiring controls, with all items complete to junction box for final connection by the Electrical Contractor.
- D. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Enclose terminal lugs in terminal box sized to NFPA 70.
- E. Provide equipment with connection terminals, so that connections for services can be made.
- F. Provide suitable length of three wire cord with plugs to match grounded building receptacles.
- G. Lighting Fixtures: Provide lamps for lighting fixtures in equipment

## 2.9 PLUMBED EQUIPMENT

- A. Indirect Waste Piping: Copper with silver paint unless specified otherwise. Drain lines in public areas to be chrome plated where exposed to view.

## 2.10 REFRIGERATION EQUIPMENT

- A. Refrigerant Piping: Type ACR copper tubing, hard temper, with wrought fittings and silver solder joints. Insulate suction lines with 1/2 inch premolded foamed plastic insulation.
- B. Electrical Wiring: Provide required wiring between electrical rough-in and refrigeration units for proper operation.
- C. Special Fittings and Accessories: Provide as required refrigerant dryer, liquid line solenoid valves, suction line filters, expansion valves and water regulating valves. Provide pump down control circuit consisting of thermostat and solenoid valve. Maintain box temperature from thermostat and liquid line solenoid valve, control compressor from suction pressure.

## 2.11 ACCESSORIES

- A. Installation Accessories: Provide all rough-in hardware, supports and connections, attachment devices, closure trim, and accessories required for complete installation.
- B. Casters: NSF-certified, stainless steel swivel-stem casters with 5 inch wheel diameter unless otherwise noted. Polyurethane tires with 1 inch tread width, non-marring. Provide brakes on two casters per unit.
- C. Feet for Legs: Fully enclosed, bullet shaped stainless steel; screwed into tubular legs with concealed screw threads; minimum 1 inch vertical adjustment without any threads showing.

- D. Counter-Mounted Equipment: All counter-mounted equipment weighing over 25 pounds shall be mounted on 4" stainless steel adjustable legs.
- E. Finish Hardware: Manufacturer's standard, NSF certified.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify correct locations of utility connections, ventilation connections, and supports.
- C. Verify that water pressure, electrical loads and water quality meet the requirements of equipment manufacturers and all applicable codes. Any variation from those requirements shall be brought to the attention of the appropriate contractor and confirmed in writing to the architect prior to the installation of equipment.

#### 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 fabricator's instructions and recommendations, plumb and level and in proper locations, ready for utility connections.
- B. Set equipment in its final location, permitting Trades to make necessary arrangements for connection of service lines. Where necessary, Food Service Equipment Supplier shall move equipment to allow final connections to be made, then relocate equipment to its final position.
- C. Cold storage rooms shall be erected by the factory trained and certified installers or shall be supervised by factory personnel. Cold storage room refrigeration systems shall be installed by factory authorized personnel.
- D. Insulate to prevent electrolysis between dissimilar metals.
- E. Do not cut or fit units in the field; if adjustments are necessary due to inadequate field measurement prior to fabrication, take unit back to shop and perform modifications there.
- F. Weld and grind joints in steel work tight, without open seams, where necessary due to limitations of sheet sizes or installation requirements.
- G. Securely anchor and attach non-mobile or adjustable-leg equipment to walls, floors, or bases with stainless steel bolts.

- H. Follow SMACNA seismic restraint recommendations for project location.
- I. Other than sink compartments, extend all indirect waste lines to nearest floor receptor. All such drain lines to be properly sized. Drain shall terminate with proper air gap above flood rim of floor receptor.
- J. Treat enclosed spaces, inaccessible after equipment installation, for vermin protection in accordance with industry practice. Close ends of all hollow sections.
- K. Provide sealant to achieve clean sanitary joint with adjacent building finishes and between abutting components.
- L. Provide protective coverings for duration of construction activities.

### 3.4 ADJUSTING

- A. Adjust equipment and apparatus to ensure proper working order and conditions.
- B. Remove and replace equipment creating excessive noise or vibration.

### 3.5 CLEANING AND PROTECTION

- A. Remove masking or protective covering from stainless steel and other finished surfaces.
- B. Clean equipment to condition suitable for food preparation use.
- C. Polish glass, plastic, hardware, accessories, fixtures, and fittings.
- D. Protect finished work from damage.
- E. Touch-up, repair or replace damaged products.

### 3.6 CLOSEOUT ACTIVITIES

- A. All equipment using water, gas, and electricity shall be performance inspected and tested by factory certified service agent. FSEC shall document that these inspections have been performed prior to scheduling demonstrations and owner acceptance of equipment.
- B. FSEC shall remove immediately any work or equipment rejected by Architect, Owner, and/or Owner's Agent, replacing same with work conforming with contract requirements, and shall reimburse mechanical and/or other contractors involved for extra work made necessary by such replacement.
- C. Coordinate with requirements of section 11 4000 to provide training, operations and maintenance manuals for all food services equipment.



## PART 4 – FOOD SERVICE EQUIPMENT SCHEDULE

GENERAL: Refer to the Kitchen Equipment Schedule at Sheet AK-101 for equipment to be provided and installed by the FSEC.

PLUMBING, MECHANICAL, ELECTRICAL CHARACTERISTICS: For bidding purposes, service characteristics for all equipment shall be as scheduled on the drawings.

### ITEM K1: SOILED DISHTABLE

- A. Custom fabricated dishtable with integral sink, per the drawings and the specifications included in this section, having the following features:
  - 1. Size and configuration as shown on the drawings. Coordinate table dimensions for connection to [Item K4 Dishmachine](#) (refer to specifications, Section 11 4000).
  - 2. Top with raised rolled edges at fronts.
  - 3. Sink Compartments: One single bowl sink, 24 x 24 inches, 7 inches deep.
  - 4. Backsplash, Endsplash: 8 inch high from deck plus 2 inch return at 45°.
  - 5. 1 5/8" diameter stainless steel legs, with adjustable bullet feet.
  - 6. Coordinate with [Item K2 Spray Assembly](#), [Item K3 Garbage Disposal](#) and [Item K4 Dishmachine](#) (refer to specifications, Section 11 4000).

### ITEM K6: CLEAN DISHTABLE

- A. Custom fabricated dishtable, per the drawings and the specifications included in this section, having the following features:
  - 1. Size as shown on the drawings. Coordinate table dimensions for connection to [Item K4 Dishmachine](#) (refer to specifications, Section 11 4000).
  - 2. Top with raised rolled edges at front and open side.
  - 3. Backsplash: 8 inch high from deck plus 2 inch return at 45°.
  - 4. Solid undershelf, partial length.
  - 5. 1 5/8" diameter stainless steel legs, with adjustable bullet feet.

### ITEM K7: POT SINK

- A. Custom fabricated three compartment sink with drainboards, per the drawings and the specifications included in this section, having the following features:
  - 1. Size: Nominal 120 by 36 inches, 36 inches high at raised edge.
  - 2. Top with raised turn-down edge front side and reinforcing on underside.
  - 3. Sink Compartments: Nominal 24 inches x 30 inches wide, 14 inches deep, creased to drain.
  - 4. Drainboards: One at each end, 24 inches long.
  - 5. Backsplash: 7 inch high from deck plus 2 inch return at 45°.
  - 6. Lever Wastes at each sink.
  - 7. Stainless steel legs, with adjustable bullet feet.

### ITEM K11: CASHIER STATION

- A. Basis of Design: LTI SpecLine 28-CSE (S).

- B. Description: Provide cashier's stand complying with the requirements of this specification and having the following features:
1. Solid plain top cabinet, nominal 28 x 30 inches. Open on operator side, closed on end and sides.
  2. Open understorage with drawer, stainless steel tubular foot rest.
  3. Hinged trayslide at cabinet side.
  4. Provide round cutout in countertop with solid plastic grommet, nominal 3 inches diameter.
  5. Locking stainless steel cashier's drawer.
  6. Convenience outlet, power suitable for computer and printer use.
  7. 5 inch diameter caster set, line-up locks.
  8. Wired to single connection, cord and plug.

#### ITEM K12: CASHIER STATION

- A. Basis of Design: LTI SpecLine 36-CSE (S).
- B. Description: Provide cashier's stand complying with the requirements of this specification and having the following features:
1. Solid plain top cabinet, nominal 36 x 30 inches. Open on operator side, closed on ends and sides.
  2. Open understorage with drawer, stainless steel tubular foot rest.
  3. Hinged trayslide at two cabinet sides.
  4. Provide round cutout in countertop with solid plastic grommet, nominal 3 inches diameter.
  5. Locking stainless steel cashier's drawer.
  6. Convenience outlet, power suitable for computer and printer use.
  7. 5 inch diameter caster set, line-up locks.
  8. Wired to single connection, cord and plug.

#### ITEM K13: SOLID TOP COUNTER

- A. Basis of Design: LTI SpecLine 36-ST-S (S)
- B. Description: Provide serving line cabinet complying with the requirements of this specification, with the following characteristics:
1. Solid plain-top cabinet, nominal 36 x 30 inches. Open on operator side, closed on ends and customer side.
  2. Understorage with sliding doors, intermediate shelf.
  3. Hinged trayslide at customer side.
  4. No food shield.
  5. 5 inch diameter caster set, line-up locks

## ITEM K14: SOLID TOP COUNTER

- A. Basis of Design: LTI SpecLine 36-ST-S (S)
- B. Description: Provide serving line cabinet complying with the requirements of this specification, with the following characteristics:
  - 1. Solid plain-top cabinet, nominal 30 x 36 inches. Open on operator side, closed on ends and customer side.
  - 2. Understorage with sliding doors, intermediate shelf.
  - 3. Hinged trayslides at two customer sides.
  - 4. No food shield.
  - 5. 5 inch diameter caster set, line-up locks

## ITEM K16: HOT/COLD FOOD COUNTER

- A. Basis of Design: LTI SpecLine 66-ST-L (S) with DI-QSCHP-4 Drop-In.
- B. Description: Provide serving line cabinet with quick-switch hot/cold food wells complying with the requirements of this specification, with the following characteristics:
  - 1. Cabinet nominal 66 x 30 inches. Open on operator side, closed on ends and customer side.
  - 2. Four individually controlled sealed dry wells, each individually operable as hot or cold, nominal 12 x 20 inches.
  - 3. Self-contained refrigeration system with hermetically sealed condensing unit, designed to NSF standards.
  - 4. 500 watt digitally controlled heating system.
  - 5. Drains from food wells plumbed to common valve.
  - 6. Hinged trayslide at customer side.
  - 7. Two-tier overshelf, single service food shield.
  - 8. Infrared radiant heat rod, LED lights at overshelves.
  - 9. 5 inch diameter caster set, line-up locks.
  - 10. Daisy chain, cord and plug.

## ITEM K17: SOLID TOP COUNTER

- A. Basis of Design: LTI SpecLine 60-ST-S (S)
- B. Description: Provide serving line cabinet complying with the requirements of this specification, with the following characteristics:
  - 1. Solid plain-top cabinet, nominal 60 x 30 inches. Open on operator side, closed on ends and customer side.
  - 2. Open understorage with intermediate shelf.
  - 3. Hinged trayslides at customer side.
  - 4. No food shield.
  - 5. Convenience outlet, power suitable for [Item K49 Pizza Merchandiser](#).
  - 6. 5 inch diameter caster set, line-up locks
  - 7. Daisy chain, cord and plug.

**ITEM K18: HOT FOOD COUNTER**

- A. Basis of Design: LTI SpecLine EF4-CPA-66-S (S).
- B. Description: Provide hot food serving line cabinet complying with the requirements of this specification, with the following characteristics:
  - 1. Cabinet nominal 66 x 30 inches. Open on operator side, closed on ends and customer side.
  - 2. Four individually controlled sealed dry wells, nominal 12 x 20 inches, interwired.
  - 3. Drains from food wells plumbed to common valve.
  - 4. Open understorage with intermediate shelf.
  - 5. Hinged trayslide at customer side.
  - 6. Two-tier overshef, single service food shield.
  - 7. Infrared radiant heat rod, LED lights at overshelves.
  - 8. 5 inch diameter caster set, line-up locks.
  - 9. Daisy chain, cord and plug.

**ITEM K19: TRAY/SILVERWARE DISPENSER**

- A. Basis of Design: LTI SpecLine 36-RTS (S).
- B. Description: Provide tray stand complying with the requirements of this specification, with the following characteristics:
  - 1. Cabinet nominal 36 x 30 inches. Closed on ends and customer side.
  - 2. Two tier platform.
  - 3. Provide silverware wells with removable inserts.

**ITEM K32: VEGETABLE PREP SINK**

- A. Custom fabricated prep table with integral sink, per the drawings and the specifications included in this section, having the following features:
  - 1. Size as shown on the drawings.
  - 2. Rolled front edge and turned down side edges.
  - 3. Sink Compartment: Double bowl sink, each basin 24 x 24 inches, 12 inches deep.
  - 4. Drainboard: None.
  - 5. Backsplash: 4 inch high from deck plus 2 inch return at 45°.
  - 6. Solid undershelves, partial length.
  - 7. Drawer: Two drawers, nominal 20 x 20 x 5 inches deep.
  - 8. Lever waste on sink basins.
  - 9. Stainless steel legs, with adjustable bullet feet.
  - 10. Coordinate with [Item K32A Spray Assembly](#) (refer to specifications section 11 4000).

**ITEM K33: MEAT PREP SINK**

- A. Custom fabricated prep table with integral sink, per the drawings and the specifications included in this section, having the following features:
  - 1. Size as shown on the drawings.
  - 2. Rolled front edge and turned down side edges.
  - 3. Sink Compartment: Single bowl sink, 24 x 24 inches, 12 inches deep.

4. Drainboard: None.
5. Backsplash: 4 inch high from deck plus 2 inch return at 45°.
6. Solid undershelf, partial length.
7. Drawer: Two drawers, nominal 20 x 20 x 5 inches deep.
8. Lever waste.
9. Stainless steel legs, with adjustable bullet feet.
10. Coordinate with [Item K33A Faucet](#) (refer to specifications section 11 4000).

**ITEM K37: MOBILE WORKTABLE**

- A. Custom fabricated table, per the drawings and the specifications included in this section.
- B. Description: Mobile stainless steel work table, having the following features:
  1. Size as shown on the drawings.
  2. 1/2 inch raised marine edges.
  3. Solid undershelf.
  4. One drawer, nominal 20 x 20 x 5 inches deep.
  5. Heavy-duty swivel casters, two with brakes.

**ITEM K38: WORKTABLE**

- A. Custom fabricated table, per the drawings and the specifications included in this section.
- B. Description: Stainless steel work table, having the following features:
  1. Nominal 60 x 24 inches.
  2. Rolled front and turned down side edges.
  3. Solid undershelf, full length.
  4. Two drawers, nominal 20 x 20 x 5 inches deep.
  5. Stainless steel legs, with adjustable bullet feet.
- C. Utensil Rack: Provide one unit, mounted to one worktable where shown on the Drawings. Factory fabricated or custom fabricated stainless steel table-mounted pot and utensil rack, per the drawings and the specifications included in this section.
  1. Basis of design: Aero FPR, FUR, RFAO.
  2. Size: Nominal 60 inch length, 24 inch width, rear-mounted.
  3. 1-5/8 inch stainless steel tubular legs.
  4. 3/16 inch by 2 inch flat stainless steel bar rack and bracing.
  5. Mount rack with top at 84 inches a.f.f., permanently mounted to Item K38 Work Table.

**ITEM K39: WORKTABLE**

- A. Custom fabricated table, per the drawings and the specifications included in this section.
- B. Description: Stainless steel work table, having the following features:
  1. Size: Nominal 36 x 24 inches.
  2. Rolled front and turned down side edges.
  3. Solid undershelf, full length.
  4. Stainless steel legs, with adjustable bullet feet.

## ITEM K40: PREP TABLE

- A. Custom fabricated prep table, per the drawings and the specifications included in this section, having the following features:
1. Size as shown on the drawings.
  2. Flat top with bullnose edges, or bullnose front edge and turned down side edges.
  3. Drainboard: None.
  4. Backsplash: 4 inch high, minimum, from deck plus 2 inch return at 45°.
  5. Solid undershelf, full length.
  6. Drawer: Two drawers, nominal 20 x 20 x 5 inches deep.
  7. Stainless steel legs, with adjustable bullet feet.

## ITEM K41: PREP TABLE

- A. Custom fabricated prep table, per the drawings and the specifications included in this section, having the following features:
1. Size as shown on the drawings.
  2. Flat top with bullnose edges, or bullnose front edge and turned down side edges.
  3. Drainboard: None.
  4. Backsplash: 4 inch high, minimum, from deck plus 2 inch return at 45°.
  5. Solid undershelf, full length.
  6. Drawer: One drawer, nominal 20 x 20 x 5 inches deep.
  7. Stainless steel legs, with adjustable bullet feet.

## ITEM K43: WALL-MOUNTED RACK SHELF

- A. Custom fabricated stainless steel rack shelf with 14 gauge end panels with mounting flanges, 16 gauge tubes spanning between end panels, open bottom. Include all brackets and fasteners for a complete assembly.
1. Nominal 20 x 60 inches.
  2. Provide mounting hardware suitable to masonry wall substrate.
  3. Mounting Height: 66 inches A.F.F.

## ITEM K50: COLD FOOD COUNTER

- A. Basis of Design: LTI SpecLine 60-CFMX-S (S).
- B. Description: Provide cold food serving line cabinet complying with the requirements of this specification, with the following characteristics:
1. Cabinet nominal 60 x 30 inches. Open on operator side, closed on ends and customer side.
  2. One fully insulated mechanically cooled pan with drain, NSF7, nominal 7 inches deep. Provide adapter bars.
  3. Self-contained refrigeration system with hermetically sealed condensing unit, adjustable cold pan control, condensate evaporator. CFC-free refrigerant. Provide prefinished grille in body, operator side, as required for air circulation.
  4. Open understorage with intermediate shelf.
  5. Hinged trayslide at customer side.
  6. Two tier glass overshelf with single-service food shield.

7. 5-inch diameter caster set, line-up locks.
8. Daisy chain, cord and plug.

#### ITEMS K51 & K52: WALK-IN COOLER & FREEZER

- A. Basis of Design: W.A. Brown.
- B. Description: Custom Fabricated cold storage assembly installed on depressed building slab per the drawings and specifications included in this section.
- C. Assembly and Finishes:
  1. Size as indicated on the drawings.
  2. Unexposed exterior surfaces: Not less than 24 gauge galvanized steel.
  3. Exposed interior and exterior wall and ceiling surfaces: Not less than 24 gauge galvanized steel with embossed finish.
  4. Floor Panels (Freezer Only): One-piece, spanning full width of assembly where possible. Otherwise stagger floor joints to eliminate "four-corner" intersections; no joints in doorways.
  5. Floor Finish (Freezer Only): 0.10 inch diamond tread aluminum.
  6. Ceiling panels shall be one-piece, self supporting, spanning the full width of the assembly.
  7. All interior wall, floor and ceiling intersections shall have integral coved corners. Add-on cover strips are not acceptable.
  8. All panel intersections and wall, floor and ceiling intersections shall be secured by cam-lock fasteners.
  9. No floor required at cooler compartment. Provide manufacturer's standard vinyl track for securement of cooler walls to quarry tile floor by others. Paragraph added, 5/22/20.
  10. Provide closure panels to trim assembly to all adjacent building surfaces.
  11. Provide sleeves properly located for utility entrance, drain lines and refrigeration lines. After lines are installed, fit sleeves with spray foam compound, suitable for use in refrigerated spaces. Trim excess foam away and cover with stainless steel escutcheon.
  12. Provide 1/8 inch diamond trade wainscot along exposed front exterior of assembly, mounted from floor level to 48 inches A.F.F.
  13. Provide top closure panels with "C" channel rails. Lift-out panel sections to have turn-down edges for strength and are not to exceed 48 inches in length.
  14. Provide and install threshold where required to allow for direct access into cooler and freezer by mobile carts.
- D. Doors:
  1. Nominal 34 x 78 inches, finished to match exterior.
  2. All doors to be furnished with three lift-type hinges and 30 inch high, 16 gauge stainless steel kick plate both sides, sill wiper gasket. Hinges, latches and hardware shall be chrome plated.
  3. Furnish each door with heavy duty padlocking pull-handle lever, with inside safety release.
  4. Exterior doors shall be equipped with automatic door closers.
  5. Freezer door to be equipped with perimeter heat.
  6. Provide plastic strip curtains at door locations, transparent vinyl overlapping strips and

aluminum bar hanging rod and bracker, suitable for low temperature application.

- E. Floors: Fully insulated floor at freezer compartment only, 850 psf load capacity. *Paragraph revised, 5/22/20*
- F. Insulation: Closed cell, foamed in place polyurethane, nominal thickness of 4 inches throughout. Foam shall be 2.5 lb. density, 95% closed cell. Panels shall meet ASTM E 84 and be listed by U.L. and by Factory Mutual as a Class I, self-extinguishing, fire retardant-type building material.
- G. Thermometers: Install digital thermometers, provided by owner, at each compartment.
- H. Lights: Each compartment to be furnished complete with manufacturer's standard vapor-proof light fixture mounted and prewired to switch with pilot light in door section. Provide extra lights as required to provide 30 footcandles at 30 inches above floor.
- I. Refrigeration System: Furnished by cold storage assembly manufacturer. As part of cold storage room assembly, furnish each compartment with complete refrigeration system sized to maintain appropriate temperature.
  - 1. Condensing units to be air-cooled, remote. Units to have performance and wiring characteristics as shown on the drawings, as suitable for equipment operation. Provide prewired disconnects.
  - 2. Refrigerant systems designed for use with R40A or R-507 refrigerant only.
  - 3. Condensing units to be provided with painted galvanized steel housing, crankcase heaters, suitable for outdoor conditions, roof mounted. Coordinate dimensions of roof curb. *Paragraph revised, 5/22/20*.
  - 4. Unit coolers to be low-silhouette type, mounted at locations shown on the drawings.
  - 5. Freezer system to be provided with timed electric defrost.
  - 6. Evaporator drain lines to be provided by this section and extend to floor receptors outside assembly.
  - 7. Freezer drain lines to be wrapped with heater cable and insulated with premolded foamed plastic insulation suitable for the application. Thickness as recommended by the manufacturer.
  - 8. All refrigerant systems to be provided with all required refrigerant piping, insulation, sight glass, vibration eliminator, dryer, suction line filter, expansion valves, solenoids, thermostats, heat exchangers and defrost timers, etc. as required for a complete installation. Provide pump down control circuit consisting of thermostat and solenoid valve. Provide and install conduit between evaporator coils and condensing units. All components including piping and insulation to be installed using accepted industry standards, manufacturer's instructions and first class workmanship.

END OF SECTION 114001