PART 1 GENERAL

1.01 SECTION INCLUDES

A. Custom fabricated stainless steel units, including:
   1. Serving counters and casework.
   2. Food preparation tables, sinks, and shelving.
   3. Pot and pan washing sinks.
   4. Dish and tray washing tables, sinks, and shelving.

1.02 RELATED REQUIREMENTS

A. Section 114000 - Foodservice Equipment: General requirements covering all food service equipment work; manufactured equipment items.

B. Section 221005 - Plumbing Piping: Water supply, sanitary drainage, vent piping, and specialties.

C. Section 224000 - Plumbing Fixtures: Faucets and fittings; specialty food service fixtures.

D. Section 231123 - Facility Natural-Gas Piping: Natural gas piping and specialties.

E. Section 260583 - Wiring Connections: Rough in and wiring of electrical equipment to building distribution.

1.03 REFERENCE STANDARDS

A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2012.

B. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2018.

C. ASME B16.26 - Cast Copper Alloy Fittings for Flared Copper Tubes; 2018.

D. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

E. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

F. ASTM A240/A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications; 2016.

G. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2015a.

H. ASTM A270/A270M - Standard Specification for Seamless and Welded Austenitic and Ferritic/Austenitic Stainless Steel Sanitary Tubing; 2015 (Reapproved 2019).

I. ASTM A276/A276M - Standard Specification for Stainless Steel Bars and Shapes; 2017.

J. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2018.

K. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.

L. ASTM B32 - Standard Specification for Solder Metal; 2008 (Reapproved 2014).

M. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2016.

N. AWS A5.8M/A5.8 - Specification for Filler Metals for Brazing and Braze Welding; 2011 (Amended 2012).

O. AWS D1.6/D1.6M - Structural Welding Code - Stainless Steel; 2017.

P. NSF 2 - Food Equipment; 2019.

Q. SMACNA (KVS) - Kitchen Ventilation Systems and Food Service Equipment Fabrication and Installation Guidelines; 2001.

R. SMACNA (SRM) - Seismic Restraint Manual Guidelines for Mechanical Systems; 2008.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Submit manufacturer's data sheets on each manufactured product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.
   4. Configuration, sizes, materials, finishes, locations, utility connections and locations.

C. Shop Drawings: Submit floor plans, elevations, cross-sections, and construction details for fabricated units specified, including:
   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 and floor drains.
   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.

D. Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

E. Operation and Maintenance Data: Provide maintenance manual listing routine maintenance procedures, possible breakdowns, repairs, and troubleshooting guides; include instructions for maintenance of stainless steel fabrications and components and simplified diagrams for equipment as installed.

F. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Manufacturer/Fabricator Qualifications: Company specializing in manufacture of commercial food services equipment with minimum three years documented experience and NSF certified for type of equipment specified.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver fixed equipment that is not to be integrated into structure until after completion of finished ceilings, floor and walls, painting, and lighting.

B. Store products in manufacturer's unopened packaging until ready for installation.

C. Tape fiberboard or plywood to surfaces as required by equipment shape and installation access requirements.

D. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.07 FIELD CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results, and do not install products under environmental conditions outside manufacturer's absolute limits.

1.08 WARRANTY

A. See Section 017800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective Work within a one year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MATERIALS

A. Stainless Steel: 18-8 percent chromium-nickel composition, minimum; alloy Type 302, 304, or 316; No. 4 - Brushed finish on exposed surfaces.
   1. Sheets: ASTM A240/A240M or ASTM A666.
   2. Tubing: ASTM A269/A269M or ASTM A270/A270M; of true roundness with seams and welds ground smooth.
   3. Bars: ASTM A276/A276M.

B. Copper Tubing: ASTM B88; Type L, hard drawn.
   1. Fittings: ASME B16.18, ASME B16.22, or ASME B16.26.
   2. Solder: ASTM B32, lead-free.
   3. Brazing Alloy: AWS A5.8M/A5.8 silver solder.

C. Sound Deadening Material: Bituminous paint or other water resistant mastic.

D. Manufactured Components:
   1. Finish Hardware: Manufacturer's standard; stainless steel or chrome plated with satin finish.

E. Bolts, Screws, and Rivets: Stainless steel; do not use on exposed surfaces unless specifically indicated or unavoidable.
   1. Bolt and Screw Caps: Provide lock washer and chromium-plated brass/bronze acorn nut to cap visible or exposed threads on inside of fixtures.

F. Anchoring Devices: Stainless steel, of type appropriate for use; provide seismic anchorage as specified in SMACNA (KVS).

2.02 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 (KVS) and NSF 2 and stainless steel components, unless otherwise indicated.
   1. Where details are referenced as "SMACNA" details, refer to SMACNA (KVS).
   2. Stainless Steel Sheet: For surfaces up to 12 feet (3.7 m) in length provide one continuous sheet without joints or welds, including back and end splashes.
   3. Joints: Provide welded joints unless specifically indicated or not possible; do not solder or braze stainless steel; do not use bolts, screws, or other fasteners on work surfaces, food contact surfaces, or wet surfaces.
   4. Drainage of Surfaces: Provide distinct pitch of top surfaces toward waste or drain outlets while maintaining level tops of rolled and marine edges and back and end splashes.
   5. Drainage of Equipment: Provide drain piping as indicated; where compartments or pans are intended to hold liquids or catch drips and no drain piping is indicated, provide drain fitting and gravity draining piping terminating over nearest floor drain.
   6. Shop prepare openings for plumbing fixtures, fittings, and other service components.
   7. Sound Deadening: Apply sound deadening material to accessible internal surfaces of metal work and underside of metal counters and sinks.

C. Sinks: Stainless steel, 14 gauge, 0.0747 inch (1.9 mm) thickness, minimum; provide integral sinks continuously welded to work surfaces, unless otherwise indicated.
   1. Slope to drain at 1 percent, unless otherwise indicated.
   2. Adjacent Sinks: Provide double wall partitions between sinks.
   3. Where sinks are set into countertops provide separate sink supports stud bolted to bottom of counter top; at minimum, provide painted galvanized steel angles, 1-1/2 inches (38 mm) by 1-1/2 inches (38 mm) by 1/8 inch (3 mm).
   4. Fittings: Provide waste and overflow fittings, faucets, baskets, and other plumbing fittings as specified in Section 224000.
   5. Sink Faucet Spout Outlets: 5 inches (127 mm), minimum, above rim of sink.

D. Counter and Table Tops: Stainless steel, 14 gauge, 0.0747 inch (1.9 mm) thick, minimum; with underbracing as recommended by 1, and bullnose edges and 45-degree back and end splashes, unless otherwise indicated.

E. Counter, Table, and Sink Edges: Provide finished edge on all open sides; close open ends down to bottom edge of turn down; if not otherwise indicated provide bullnose edges.
   1. Dish Tables and Counters: Make watertight joint into dishwashing machine.

F. 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. Where indicated and where required for concealment of plumbing, make horizontal dimension of back and end splashes at least 2-1/2 inches (64 mm) from face of wall.
   2. Wall Clips: 4 inch (102 mm) long 14 gauge, (0.0747 mm) stainless steel "zee" clips; anchored to wall at 36 inches (914 mm) on center.

G. Legs: Stainless steel tubing, 1-5/8 inches (41 mm) outside diameter; fit legs with set-screw fastened sockets and adjustable feet as specified.
   1. Legs Over 12 inches (305 mm) Long: 14 gauge, 0.065 inch (1.65 mm), minimum, wall thickness.
   2. Legs Up To 12 inches (305 mm) Long: 16 gauge, 0.06 inch (1.5 mm), minimum, wall thickness.
   3. Weld leg sockets to continuous channel or angle or gusset plates; provide stainless steel triangular pad where leg gussets are welded to frame.
   4. Legs may be bolted to table tops using studs welded to bottom of top.
   5. Where vibration or oscillation is anticipated anchor in floor with 1/4 inch (6 mm) stainless steel pins.
   6. Unless otherwise indicated provide legs for all units.

H. Shelves: Stainless steel.
   1. Undercounter Shelves: 16 gauge, 0.0598 inch (1.5 mm) thick.
   2. Overshelves: 16 gauge, 0.0598 inch (1.5 mm) thick.
   3. Overshelf Supports: Stainless steel tubing extending through table top and shelving, 12 gauge, 0.1046 inch (2.7 mm).
   4. Wall Mounted Shelf Supports: Stainless steel, 14 gauge, 0.0747 inch (1.9 mm) thick.

I. Tray Slides:
   1. Support Brackets: Stainless steel.

J. Flatware Dispensers: Removable stainless steel containers recessed into counter top.
   1. Containers: Rectangular compartments; stainless steel, 18 gauge, 0.0478 inch (1.2 mm) thick.
   2. Size and Quantity: As indicated on drawings.

K. Casework Not Otherwise Specified: Stainless steel, 20 gauge, 0.0359 inch (0.90 mm) thick.

2.03 FOOD PREPARATION

A. Bakers Table: Stainless steel table with leg spacing for mobile ingredient bins furnished by others.
   1. Provide drawers where indicated on drawings.

B. Vegetable Preparation Counter: Integral sinks and drainboards.
   1. Provide drawers where indicated on drawings.

C. Preparation and Work Tables:
   1. Provide drawers where indicated.
   2. Provide sinks where indicated on drawings.

D. Steam Jacketed Kettle Table:

E. Pot and Pan Washing: Counter/table with integral sinks and drainboards.
   1. Number of Sink Compartments: Three.

2.04 DISH AND TRAY WASHING

A. Design dishware washing units to accommodate trays and dish racks of standard dimensions:
   1. Dish Racks: 20 inches (508 mm) by 20 inches (508 mm) by 4 inches (152 mm) high.

B. Soiled Dish Table: Stainless steel table on legs; raised roll front edge.
   1. Provide spray rinse assembly as specified in Section 224000.
   2. Fittings: Scupper drain, pre-rinse spray assembly, drains, and other plumbing fixtures as specified in Section 224000.

2.05 FABRICATION

A. Joints, Bends, and Edges: Make each joint 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.

B. Welding: Make each welded joint smooth, ductile, and watertight, without gaps, holes, or discoloration or marring of surface adjacent to welds.

1. Welding:
   a. Stainless Steel: Comply with AWS D1.6/D1.6M.
2. 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.
3. Grind exposed welds flush with adjacent material; finish and polish to match adjacent surface.
   a. Avoid excessive heating of metal and metal discoloration.
   b. When grinding, use iron-free abrasives, wheels, and belts that have not been used on carbon-steel.
   c. Remove pits, runs, sputter, cracks, low spots, voids, buckles, and other imperfections.
   d. Remove grain of rough grinding by several successively finer polishings until specified finish is attained.
4. When welding sheet, penetrate entire thickness for entire length of joint; make joints flat, continuous and homogeneous with sheet metal without reliance on straps under seams, filling with solder, or spot welding.
5. When stainless steel is joined to dissimilar materials, use stainless steel for fastening devices and welding material.
6. Protection Against Corrosion: Eliminate possibility of corrosion wherever welding occurs on stainless steel, and minimize possibility of carbide precipitation in welding bolts and screws.
7. When welding galvanized steel, thoroughly clean and repair damaged galvanizing and coat welds with polyurethane coating.
8. Where bolts or screws are welded to underside of tops or trim, finish and undepress the exposed side of welds.
9. 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, and do not braze stainless steel.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Verify correct locations of utility connections, floor drains, ventilation connections, and supports.

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under project conditions.

3.03 INSTALLATION

A. Install in accordance with fabricator's instructions and recommendations, plumb and level and in proper locations, ready for utility connections.

B. Lay out work in advance to prevent damage to building, piping, wiring, or equipment; cut, fit, and patch where necessary; coordinate work with others.

C. 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.

D. Do not field weld unless absolutely necessary; weld and grind field joints in accordance with specified fabrication procedures.

E. Securely anchor and attach non-mobile or adjustable-leg equipment to walls, floors, or bases with stainless steel bolts.

F. Follow SMACNA (SRM) seismic restraint recommendations for project location.

3.04 ADJUSTING

A. Adjust new and existing equipment to ensure proper operation.

3.05 CLOSEOUT ACTIVITIES

A. See Section 017800 - Closeout Submittals, for closeout submittals.

B. Demonstrate operation of foodservice equipment and identify potential operational problems.

3.06 CLEANING

A. Remove masking or protective covering from stainless steel and other finished surfaces.

B. Clean equipment to condition suitable for food preparation use.

3.07 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