SECTION 11 4000 - FOODSERVICE EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Fabricated equipment.
   2. Food waste machines.
   3. Cooking equipment.
   4. Self-contained refrigeration equipment.
   5. Walk-in refrigeration equipment.
   7. Warewashing equipment.
   8. Serving equipment.

B. Owner-Furnished Equipment: Where indicated, Owner will furnish equipment for installation by Contractor.

C. Related Sections:
   1. Section 064023 "Interior Architectural Woodwork" for interior cabinets and millwork supplemental information for items not included under foodservice equipment.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged, or removed and relocated.

B. Remove and Salvage: Carefully detach from existing construction in a manner to prevent damage and deliver to Owner.

C. Remove and Relocate: Detach items from existing construction, deliver to Owner’s designated storage area, and reinstall in new venue where indicated.

D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and relocated.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include the following:
   1. Manufacturer’s model number.
   2. Accessories and components that will be included for Project.
   3. Clearance requirements for access and maintenance.
   4. Utility service connections for water, drainage, power, and fuel; include roughing-in dimensions.

B. Shop Drawings: For fabricated equipment. Include plans, elevations, sections, roughing-in
dimensions, fabrication details, utility service requirements, and attachments to other work.

1. Equipment specified for fabrication shall be detailed and fully dimensioned to a minimum scale of 3/4" = 1'-0" (1:20) for plan and elevation views and 1-1/2" = 1'-0" (1:10) for sections. Show all materials, gauges, and methods of construction.

2. Prepare separate electrical and mechanical dimensioned rough-in drawings at 1/4" = 1'-0" (1:50) showing exact point of penetration of floors, walls and ceilings for all services required to operate the equipment that the Contractor shall furnish, including the requirements for Contractor supplied and installed refrigerant and beverage piping line runs. These drawings shall also show exact locations of final connections to equipment that will be made by the Contractor. Indicate floor drains, floor sinks, receptacles, lights and other special conditions related to the equipment known to the Kitchen Equipment Provider but provided by the Contractor.

3. Dimensioned drawings shall be submitted showing the location and size of all bases, depressions, grease interceptors, special height walls, openings in walls for equipment or operations, and critical dimensions, etc. Drawings shall be drawn to a scale of not less than 1/4" = 1'-0" (1:50).

C. Samples for Initial Selection: For units with factory-applied color finishes.

D. Samples for Verification: For each factory-applied color finish required, in manufacturer's standard sizes.

E. Full scale mock up: Upon Architect's approval of prefabricated custom counter shop drawings and prior to fabrication, Kitchen Equipment Contractor shall create a full scale mockup of a typical counter, complete with applicable drop-in unit, food guard post and shield, and base and ship to the job site for Owner and Architect review and approval. Review and approval required prior to fabrication of units specified in this Section.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: For foodservice facilities.

1. Indicate locations of foodservice equipment and connections to utilities.
2. Key equipment using same designations as indicated on Drawings.
3. Include plans and elevations; clearance requirements for equipment access and maintenance; details of equipment supports; and utility service characteristics.

B. Warranty: Samples of special warranty.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For foodservice equipment to include in emergency, operation, and maintenance manuals. In addition to items specified in Section 017700 “Closeout Procedures” and Section 017823 "Operation and Maintenance Data," include the following:

1. Product Schedule: For each foodservice equipment item, include the following:
   a. Designation indicated on Drawings.
   b. Manufacturer's name and model number.
   c. List of factory-authorized service agencies including addresses and telephone numbers.
1.6 QUALITY ASSURANCE

A. NSF Standards: Provide equipment that bears NSF Certification Mark certifying compliance with applicable NSF standards. Mark shall be affixed to equipment from the factory. Any equipment delivered to the Project without NSF Certification will be rejected.

B. UL Certification: Provide electric equipment and components that are evaluated by UL for fire, electric shock, and casualty hazards according to applicable safety standards, and that are UL certified for compliance and labeled for intended use.

C. Steam Equipment: Provide steam-generating and direct-steam heating equipment that is fabricated and labeled to comply with ASME Boiler and Pressure Vessel Code.

D. Regulatory Requirements: Install equipment to comply with the following:
   3. NFPA 70, "National Electrical Code."
   5. Guilford County Department of Public Health.

E. Preinstallation Conference: Conduct conference at Project site.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of construction contiguous with foodservice equipment by field measurements before fabrication. Indicate measurements on Coordination Drawings.

1.8 COORDINATION

A. Coordinate foodservice equipment layout and installation with other work, including layout and installation of lighting fixtures, HVAC equipment, and fire-suppression system components.

B. Coordinate locations and requirements of utility service connections.

C. Coordinate sizes, locations, and requirements of the following, as applicable:
   1. Overhead equipment supports.
   2. Equipment bases.
   3. Floor depressions.
   4. Insulated floors.
   5. Floor areas with positive slopes to drains.
   6. Floor sinks and drains serving foodservice equipment.
   7. Roof curbs, equipment supports, and penetrations.
1.9 **WARRANTY**

A. **Refrigeration Compressor Warranty:** Manufacturer's standard form in which manufacturer agrees to repair or replace compressors that fail in materials or workmanship within specified warranty period.

1. Failure includes, but is not limited to, inability to maintain set temperature.
2. Warranty Period: Five years from date of Owner's acceptance.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

A. **Metal:**

1. **Stainless Steel:** All new, first grade, material; U.S. Standard Gauges as specified or shown; 18-8, Type 304, No. 4 finish, ASTM A 167.
2. **Galvanized Steel:** All new, commercial quality, zinc-coated carbon steel; U.S. Standard Gauges as specified or shown, ASTM A 526.
3. **Steel Pipe:** All new, commercial quality galvanized; rust resistant coating on threads.

B. **Wood:**

1. **Plywood:** All new material; thickness as specified; waterproof glued, marine grade. (Particle board is not acceptable.)
2. **Hardwood:** Birch, kiln dried, clear stock sizes.
3. **Construction Lumber:** Douglas fir, commercial construction grade, select "Wolmanize" where in contact with concrete or masonry.

C. **Hardware:**

1. **Locks:**
   a. Provide locks for drawers and doors for locked cabinetry as mortise type minimum 5 pin locks of the type designed specifically for drawers and cabinet doors. Satin chromium plated finish. Key as directed by Owner.
   b. All refrigerated and heated cabinets of the reach-in type shall be furnished with heavy-duty cylinder locks, on all doors, all keyed alike unless specified otherwise.

2. **Catches:**
   a. All cabinet doors shall be self-aligning magnetic, unless specified otherwise.

3. **Door and Drawer Pulls:**
   a. Four (4) inch long wire pulls with 1 - 5/16 inch projection. Satin chromium plated finish.

4. **Hinges:**
   a. Concealed hinges mounted three (3) per door. All hinges self-closing type
   b. For metal cabinet doors, shall be heavy-duty concealed pivot hinge of stainless steel or cadmium plated, unless shown or specified otherwise.
c. For wood cabinet doors, shall be heavy-duty concealed pivot hinge finished to harmonize with cabinet finish unless shown or specified otherwise.

d. All hinges shall have 170 degree opening.

5. Casters:

a. Heavy-duty, bright zinc or chrome plated, ball-bearing type with greaseproof rubber, neoprene or polyurethane tires. Wheels shall be 5 inch diameter with minimum width treads of 1-1/8 inch and minimum capacity of 250 lbs. per caster. Furnish with rubber donut bumpers and wheel brakes.

D. Plumbing Fixtures:

1. Faucets:

a. Deck mounted mixing faucet assemblies shall be 6 inch swing nozzle with lever handles, 8 inch centers and non-splash aerator, T&S Brass, Component Hardware or Chicago Faucet, unless specified otherwise.

b. Splash mounted mixing faucet assemblies for pot sinks shall be 12 inch swing nozzle with lever handles, 8 inch centers and non-splash aerator, T&S Brass, Component Hardware or Chicago Faucet, unless specified otherwise.

c. Splash mounted mixing faucets for preparation and utility sinks shall be 12 inch nozzle with non-splash aerator, or equal, T&S Brass, Component Hardware or Chicago Faucet, unless specified otherwise.

d. All faucet assemblies shall be polished chromium plated.

2. Rotary Wastes:

a. Lever twist handle with 2 inch drain outlet (for pot sinks) and lever twist handle with 2 inch drain outlet and overflow (for utility sinks) with stainless steel basket strainer, T&S Brass, Component Hardware or Chicago Faucet, unless specified otherwise.

3. Pre-Rinse Assemblies:

a. Splash mounted pre-rinse assemblies shall be with 8 inch centers, spring check cartridges and lever handles flanges, 18 inch riser, spray valve, flex stainless steel hose and wall bracket, T&S Brass, Component Hardware or Chicago Faucet, unless specified otherwise.

b. Deck mounted pre-rinse assemblies shall be with 8 inch centers, spring check cartridges and lever handles flanges, 24 inch riser, spray valve, flex stainless steel hose and wall bracket, T&S Brass, Component Hardware or Chicago Faucet, unless specified otherwise.

c. All pre-rinse assemblies shall be polished chromium plated.

4. Scrapping Troughs:

a. Provide water inlet fitting and control valve as part of all scrapping troughs ready for final connection. Furnish with Swirl Inlet Fitting, highly polished chrome plated brass with mounting hardware and chrome plated control valve indexed “cold.”

5. All plumbing fixtures shall be identifiable for manufacturer.

6. Furnish all built-in mechanically cooled and ice cooled water chillers with interconnecting insulated pipe between units and faucets installed and ready for final connection.
E. Heating Equipment:

1. Furnish all built-in gas and electric heating equipment as complete systems, in size and rating specified, ready for final connection.
   a. All controls shall be readily accessible.
   b. All equipment shall be readily cleanable or easily removable for cleaning.

2. Furnish thermostatic controls and low water protection on all gas and electric heated warewasher and utensil washer tanks.

3. Furnish thermostatic controls on all gas heated appliances other than open burner units, hot plates, hot tops, and broilers, unless specified otherwise.

4. Furnish all built-in steam heating equipment as complete systems, including valves, strainers, steam traps, gauges and pressure regulators in size or rating specified ready for final connection.
   a. All control valves, gauges, and safety valves shall be readily accessible.
   b. All steam traps and check valves shall be accessible.

5. Furnish all buy-out steam operated equipment with necessary pressure regulators, traps and valves, etc., for final connection.

F. Electrical:

1. Furnish a control switch and starter with overload protection for each motor driven appliance and electrical heating unit, unless specified otherwise.

2. Furnish and install all electrical devices, including hood lights unless specified otherwise, and do all internal wiring of electrical apparatus built into or forming an integral part of fabricated equipment, complete to a J-box or breaker panel, as shown on plans, ready for final connection.

3. Furnish cord and plug for all mobile and portable equipment operating on 120 volts or 208 volts single phase power supply, unless specified, or indicated otherwise.
   a. Cord to be rubber-covered, three-wire or proper current capacity; furnish appropriate length.
   b. Plug to be three-prong, ground type of proper NEMA configuration. (Verify for matching receptacle.)

4. Furnish and install all fluorescent and incandescent fixtures, with lamps, when specified or shown on the Drawings. Light switches (unless a part of equipment) shall be furnished and installed by the Contractor.

G. Mechanical:

1. All ventilators shall be constructed with a totally all welded shell in strict accordance with NFPA 96, 2008 edition, and must meet this criteria even though the ventilators may carry a “U.L. Listed” or “U.L. Classified” designation. Ventilator and installation shall meet all requirements of the 2006 I.M.C. and all local codes as required by the authority having jurisdiction.

2. All penetrations for lights or fire suppression must be minimal and sealed with a heat resistant sealant or gasket material.

3. Recessed light fixtures are not approved if they require cutting the all welded shell.

4. Special ventilator designs necessary to meet exceptional field conditions must be submitted to the local agency in charge for approval prior to installation.

5. Furnish and install all welded stainless steel ducts, stacks and vents to finished ceiling
connections from hoods, ventilators, ovens and other appliances furnished by this section. Contractor to make final connections.

6. The flue risers of broilers, griddles, fryers and their equipment furnished by this section shall be verified for proper venting.

7. All equipment heights shall be verified by the Kitchen Equipment Provider with the Contractor for clearance under ceilings, beams, pipes, and all exhaust devices including hoods and ventilators.

8. Any variation or modification of ventilators shall be the sole responsibility of the Contractor.

9. Provide emergency gas shut-off valve as part of the Fire Extinguishing System.

2.2 METAL FABRICATION

A. General:

1. Custom fabricated items shall be fabricated by one manufacturer in an approved manner acceptable to the Owner.

2. Weld all top, splash, sink and panel construction, of 18 gauge or heavier, into uninterrupted integral units.
   a. All seams and joints shall be shop welded where possible.
   b. All exposed stainless steel to have No. 4 finish.

3. Grind and polish all welds on stainless steel, with finish abrasion marks running longitudinally to a No. 4 finish.

4. Grind smooth welds on galvanized steel and restore coating with Allstate No. 321 Galvanizing Powder or equal.

5. Conceal fasteners where possible; cap exposed bolts, nuts, and pipe ends.
   a. Use non-corrosive materials.

6. Use 1-5/8 inch, 16 gauge stainless steel tubing for all legs, tubular supports and cross rails unless shown or specified otherwise.
   a. Furnish stainless steel foot insert and leg socket for mounting each leg.
   b. Furnish 6 inch high cabinet base legs, including foot.

7. For metal top tables, weld gussets to 14 gauge stainless steel hat sections, or open channels.

8. Fully weld all cross rails to legs 10 inches above floor, grind smooth and polish.

9. Legs without shelves or cross rails shall have 1/2 inch O.D. stainless steel pin for anchoring to floor.

10. Undercoat sink tops (drainboards), dish table and work tables with Component Hardware latex sound deadening material, light tan color.

B. Tops:

1. Table tops, drainboards, counter tops, splashes and extensions shall be constructed of 14 gauge stainless steel, unless shown otherwise.

2. All tops with turned up rolled edge shall be reinforced with 14 gauge stainless steel closed hat sections, or open channels, spaced 30 inches O.C. or less, fastened to threaded studs, welded to underside of top, with acorn nuts.

3. All tops with turned down rolled edge shall be reinforced with 14 gauge stainless steel
closed hat sections or open channels, spaced 30 inches O.C. or less, fastened to threaded studs, welded to underside of top, with acorn nuts.

4. All hat sections shall be sealed to underside of tops with pad of 3M-1000 sealant.

5. Raised rolled edges shall have a roll diameter of 1-1/2 inches. Corners shall be bull nosed.

6. Inside radius bends, wherever horizontal and vertical surfaces intersect, shall be 9/16 inches.

7. All drainboard surfaces shall pitch toward drainers, scrapping trough, dishwashers, and sinks.

8. Tops shall be turned down no less than 1 inch into openings for ice bins; and 1/4 inch minimum raised embossment shall be provided on horizontal surface of top around entire perimeter of opening.

9. All openings for exposed foods shall be provided with 1/4 inch minimum raised embossment on horizontal surface of top around entire perimeter of opening.

C. Sinks:

1. Sinks that are integral with drainboards shall be fabricated and constructed of same gauge and material as drainboard and splash.

2. Sinks that are integral with table or counter tops may be fabricated or die formed.
   a. Fabricated sinks shall be of same gauge and materials as top.
   b. Die formed sinks shall be not less than 18 gauge stainless steel.

3. All interior vertical and horizontal corners shall be coved.

4. Partitions between adjacent sink compartments shall be 1 inch apart joined with continuously welded radius top closure.

5. Exterior front of multiple compartment sinks shall be continuous.

6. Bottom of all sink compartments shall be pitched to insure complete drainage to waste opening.

D. Cabinets:

1. Fabricate all visible parts of counter cabinet of 18 gauge stainless steel, unless shown otherwise, reinforced with formed steel sections, welded throughout to form a one-piece box-like structure, including front rails and mullions.

E. Drawers:

1. Furnish all-welded double pan drawer front with 16 gauge stainless steel exterior pan, 18 gauge stainless steel interior pan and interlocking channel supports, with drawer track; shall be easily removable; recessed stainless steel drawer pulls; 128 gauge stainless steel die-formed, easily removable, drawer bowl.
   a. Drawers mounted on underside of open tables; furnish 18 gauge stainless steel enclosures on sides and rear. Furnish with keyed cylinder lock.
   b. Drawers in refrigerated units; furnish large ball bearing wheels and large flat track bearing surfaces; wheels and bearings of corrosion resistant, long wearing material, grease packed before assembly. Drawers shall be self-closing with easily removable drawer pans, perforated on all sides.

F. Doors:

1. Furnish double cased steel doors, unless specified otherwise; 16 gauge stainless steel outer pan with corners welded, ground smooth and polished; 18 gauge stainless steel
inner pan fitted tightly into outer pan with sound deadening material, such as Celtex, used as a core; tack weld pans together and fill seams with solder; finished door shall be approximately ¾ inch thick and furnished with recessed pull.

a. Reinforce and stiffen with closed hat sections, single pan type doors, when specified.

2. Flush mount sliding doors; suspend with large ball-bearing quiet rollers in 14 gauge stainless steel overhead tracks; made easily removable.

3. Flush mount hinged doors.

G. Shelves:

1. All wall mounted shelves, elevated shelves and undershelves with open leg bases shall be constructed of 16 gauge stainless steel, unless shown otherwise.

2. Unless shown otherwise, wall mounted shelves shall be die-rolled down 2 inches at fronts and ends, and turned up 2 inches at back and flared. Shelf shall be mounted on 14 gauge stainless steel brackets and anchored securely to wall.

3. Elevated and undershelves shall be as detailed. Where rolled edges are indicated, they shall be die-rolled down 2 inches. Elevated shelf supports shall extend below table or counter tops and be securely attached to structural frame.

4. Shelf and flange of undershelf with open leg base shall be notched a full 90 degrees, with radius to match leg. Flange shall be welded to leg from back side, 10 inches above floor.

5. Shelves in cabinet bases shall be constructed of 16 gauge stainless steel, unless shown otherwise.

6. Unless shown otherwise, shelves in cabinet bases shall be formed with minimum 2 inches turn-up at back and sides and feathered to insure a tight fit to enclosure panels and shall be turned down at front.

a. Bottom shelves shall be removable unless shown otherwise.

H. Ducts:

1. Verify size and position of all exhaust duct connections required for hoods, ventilators, washers and appliances; furnish and install 16 gauge stainless steel all welded ducts to ceiling connection locations. Welds on seams shall be continuous. Grind and polish welds to a No. 4 finish. Include stainless steel duct collar at exposed connection.

I. Undercounter Refrigerators:

1. Outer casing shall be constructed of 18 gauge stainless steel; inner liner shall be of 20 gauge stainless steel with #2B finish unless shown otherwise.

2. Refrigerator shall be fully insulated with 2 inch minimum thickness of urethane between outer casing and inner liner at top, bottom and sides including doors.

3. Entire perimeter of door opening shall be faced with a 1/8 inch black Bakelite thermal breaker strip approximately the width of mullion. Breaker strip at door sill shall be faced with 16 gauge stainless steel.

4. Door shall be constructed with 18 gauge stainless steel outer casing and 20 gauge stainless steel, #2B finish, inner lining, unless shown otherwise, molded gray vinyl latex door gasket shall be attached to perimeter of doors with concealed fasteners.

5. Drawer fronts shall be of same materials as specified for doors. Insulation shall be of same material as used in refrigerator walls and shall be a minimum of 1 inch in thickness. Unless shown otherwise, drawers shall be provided with Standard-Keil No. 1260-1410-1283, or equal, flush style pulls.

6. All refrigerators shall be furnished with one 40 watt incandescent appliance light bulb and
socket for each mullion connected in parallel with automatic door switch mounted in each door opening; full set of Kason No. 65 with No. 66 shelf clip bracket, or equal, stainless steel, removable adjustable pilaster standards for shelves for each refrigerator opening; two heavy-duty epoxy coated wire shelves per compartment; one exterior reading, flush mounted dial type thermometer with -40 to +60 degree F. range.

7. All electrical wiring, including service for built-in evaporator coil fan shall be run in flexible conduit within refrigerator walls and shall terminate in external J-box mounted on end or rear of refrigerator cabinet in an accessible location for final connection.

8. Hardware for doors shall be Kason No. 218 self-closing edge mount hinge and Kason No. 171C, cylinder-locking, edge mount, magnetic latch, or equal, (all locks keyed alike).

9. All undercounter refrigerators shall be furnished with 20 gauge stainless steel box to house expansion valve located in base of fixture housing refrigerator or other concealed but accessible location.

10. Where cut-outs in refrigerator tops are specified or shown on detail drawings, raw edges of cut metal and insulation shall be covered with stainless steel sleeve. Counter top shall be turned down into opening to overlap sleeve with thermal barrier installed between. A stainless steel expanded metal guard shall be furnished for the full length and width of opening with sides attached to underside of refrigerator interior with closed bottom of guard located 6-1/2 inches below counter top.

J. Ice Bins and Cold Pans:

1. Inner lining shall be constructed of 18 gauge stainless steel and outer casing shall be of 18 gauge galvanized iron, unless shown otherwise.
2. All ice bins and cold pans shall be fully insulated with 2 inch minimum thickness of urethane or Styrofoam between outer casing and inner liner.
3. Ice bins and cold pans shall be isolated from tops of support fixtures by means of thermal barrier.
4. Furnish 16 gauge stainless steel perforated false bottom raise 1 inch above bin or pan bottom.
5. Furnish 1 inch drain and extend to floor skin.

K. Wall Flashing:

1. Wall flashing shall be of 18 gauge stainless steel affixed to wall with heavy-duty, heat-resistant adhesive.
2. Flashing shall be fabricated from maximum width sheets for minimum amount of vertical joints and shall be sealed with silicone and capped with 1 inch wide “T” molding, without exposed screws or fasteners.
3. When wall flashing includes capping of wall ends, capping shall be fabricated from 16 gauge stainless steel.

2.3 WOOD AND LAMINATED CONSTRUCTION

A. General:

1. Wood fixtures included under this section shall comply with the requirements of the drawings, and the following listed standard specifications.

2. Selection of all colors, patterns, laminates, paint, stain and varnish are to be made by the
Architect and as indicated on the drawings.

B. Interior Finishes:

1. Finish all interior surfaces of cabinets, including shelves and drawers as follows (except when specified otherwise):
   a. Cabinets: Non-exposed interiors shall be stained to match exterior finish of cabinets; finish with one coat of clear plastic varnish painted with a light colored enamel.
   c. Drawers: Wrap in shelf-grade laminate, light in color.
   d. Doors and Panels: When exterior face and edges are of plastic laminate, apply plastic laminate backing sheet to match color.

2.4 Refrigeration Requirements for Remote Systems

A. Vibration absorbing mountings for condensing units and suction lines.

B. Step-down transformers, disconnect switches, automatic starting switches, motor protectors and pressure limit switches all enclosed and with interconnecting wiring, factory installed ready for line connections.

C. Automatic pressure operated water valve; liquid line sight glass; and liquid line dehydrator filter of ample capacity.

D. Refrigerant lines shall be type “L” hard copper with “Silfos” brazed joints.

E. A heat exchanger for each evaporator.

F. A thermostatic expansion valve for each evaporator.

G. A full charge of refrigerant and oil for each system.

H. Start up, adjustment and one-year free warranty service. Five-year warranty on motor compressor units.

I. Where refrigerant suction lines are trapped, use next size smaller pipe in vertical portion of the trap than that indicated so as to acquire sufficient gas velocity for proper air return.

J. Suction lines shall be insulated their full length with anti-sweat pipe covering of 1/2 inch ARMAFLEX or equal.

K. 1 inch copper drain tubing from cooling units to floor drains outside refrigerator properly insulated and heated where required.

L. The systems shall be completely sealed and fully automatic in operation. All condensers and compressors shall be identified to correspond with the unit they are chilling.

M. Systems used for freezing temperatures shall have automatic defrosting devices.

N. The foamed-in-place urethane panels shall be in compliance with 1998 CFC reduction level requirements and shall be in compliance with the 1989 Montreal Protocol Agreement on chlorofluorocarbon emissions. Only those panel manufacturers that meet these requirements
will be acceptable.

O. Use non-CFC refrigerant (R-404A or equal). The use of R-12 or R-22 is not acceptable.

2.5 MISCELLANEOUS MATERIALS

A. Installation Accessories, General: NSF certified for end-use application indicated.

B. Elastomeric Joint Sealant: ASTM C 920; silicone. Type S (single component), Grade NS (nonsag), Class 25, Use NT (nontraffic) related to exposure, and Use M, G, A, or O as applicable to joint substrates indicated.

1. Public Health and Safety Requirements:
   a. Sealant is certified for compliance with NSF standards for end-use application indicated.
   b. Washed and cured sealant complies with the FDA's regulations for use in areas that come in contact with food.

2. Cylindrical Sealant Backing: ASTM C 1330, Type C, closed-cell polyethylene, in diameter greater than joint width.

2.6 FINISHES

A. Stainless-Steel Finishes:

1. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
2. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
   a. Run grain of directional finishes with long dimension of each piece.
   b. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

B. Powder-Coat Finishes: Immediately after cleaning and pretreating, electrostatically apply manufacturer's standard, baked-polymer, thermosetting powder finish. Comply with resin manufacturer's written instructions for application, baking, and minimum dry film thickness.

PART 3 - EXECUTION

3.1 CONDITIONS AND PREPARATION

A. Verify all pertinent dimensions of the building and examine conditions affecting proper execution of this section. Evaluate access to various areas for moving in or equipment, and coordinate with Contractor.

B. Verify water pressures and furnish necessary reducing valves.

C. Inspect flooring and raised concrete bases, wall finishes; verify existence of required mechanical and electrical rough-ins; check painting, ceiling installation and all related work for readiness to receive installation of kitchen equipment.
D. Coordinate with Contractor as to the proper sequence for installation of equipment and wall finish.

E. Sweep clean all floor areas and tops of raised concrete bases before setting equipment in place; remove any spillage of foreign matter.

3.2 EQUIPMENT CONNECTIONS

A. Equipment shall be complete with connection terminals as standardized by equipment manufacturers, except where specified otherwise, for others to make plumbing, electrical, ventilation, and refrigeration connections.

B. Install hoods or exhaust ventilators in the locations indicated. All ducts to the hoods or ventilators and welding the transitions in accordance with all codes.

C. Indirect waste lines for equipment, except sinks, shall be furnished and extended to drain location by the Kitchen Equipment Provider.

D. Indirect waste lines shall be hard copper tubing, wrapped with insulating tape when extended from ice storage bins, ice bins or other equipment where “sweating” may occur.

E. All exposed utility lines, valves, gauges, tubing, and conduit including mounting brackets, shall be chrome plated stainless steel or sheathed in stainless steel.

3.3 TRIMMING AND SEALING EQUIPMENT

A. All gaps, joints, and seams between fixtures and walls, ceilings, and floor shall be completely closed and sealed with stainless steel trim strips, welding, silicone (Dow Corning No. #784 or equal), or epoxy sealant.

1. Sealant is not permissible in joints or seams which exceed 3/16 inch width.
2. Wood fixtures shall be scribed to exactly fit floor and wall surfaces and shall not be shimmed. Tops are to be installed level and securely fastened to bases.

B. All hollow sections shall be sealed.

C. All exposed ends of back splashes shall be capped with stainless steel, welded, ground smooth, and polished.

D. Fixtures resting on concrete bases shall be set into a mastic bed to eliminate crevices between fixture and base, and caulked after installation has been completed.

E. Where applicable, ends of all fixtures, splash backs, and shelves, shall be finished flush to walls or adjoining fixtures.

3.4 STATEMENT OF CLARIFICATION OF WORK RESPONSIBILITY PERTAINING TO THE INSTALLATION OF FOOD SERVICE EQUIPMENT

A. Clarifications regarding areas of work performance and responsibility by the various trades.

B. Contractor:
1. The Contractor is responsible for creating depressions, adding insulation under the floor, adding redwood screens within the floor for the purpose of installing Walk-In Coolers and Freezers.
2. The Contractor is responsible for adding concrete or masonry bases where required.
3. The Contractor is responsible for any or all wall penetrations for refrigeration lines, soda lines, beer lines, etc., that may be required.
4. The Contractor is responsible for the roof penetrations or wall penetrations for exhaust ducts or make-up air ducts for the exhaust ventilators.
5. The Contractor is responsible for creating fire retention chambers around exhaust ducts, hoods or ventilators that require closures by code.
6. The Contractor shall install all internal wall supports for shelves, cantilever brackets, cabinets, utensil racks, etc., as shown on plans.
7. The Contractor is responsible for making the final plumbing, mechanical, and electrical connections to foodservice equipment.

C. Kitchen Equipment Provider:

1. The Kitchen Equipment Provider shall deliver, uncrate and set-in-place all equipment.
2. The Kitchen Equipment Provider shall install all custom stainless steel items including tables, dishtable, sinks, hoods and ventilators, utility distribution systems, and shelving. The Kitchen Equipment Provider shall deliver, set in place and install equipment that is part of the Kitchen Equipment Specifications and Drawings. The equipment shall be connected as called for under the Plumbing, Mechanical, and Electrical specifications and drawings. Final connections are by Contractor.
3. The Kitchen Equipment Provider shall install the exhaust ventilators including hanger rods, and channel supports and leave ready for the final duct connections by other trades. (When a ventilator has internal piping such as a water wash system, the internal piping connections between units, the piping between the control panel and ventilator and the drain extension to the floor sink is the responsibility of the Plumbing Contractor).
4. The Kitchen Equipment Provider shall engage the Walk-in Cooler/Freezer Complex Manufacturer to erect the Walk-in Coolers and Freezers, install the cooling coils, and the complete refrigeration system including wiring and interconnections. The Manufacturer shall be responsible for running hard copper drain lines from the cooler and freezer coil drainer pan to a floor sink or floor drain. Drain lines in the freezer shall be wrapped with heating tape and wired to prevent freezing. The Manufacturer supplies all lighting fixtures for Walk-ins including a light bulb for each fixture. The Manufacturer shall complete the conduit and wiring. The Manufacturer shall install all loose light fixtures supplied for the Walk-ins and connect the cooling coils to the remote condensers complete with disconnects.
5. The Kitchen Equipment Provider shall install the Fire Extinguishing Systems for all exhaust hoods requiring same. This includes piping, fittings, remote pulls and tanks. Kitchen Equipment Provider shall also furnish emergency gas shut-off valve as part of the Fire Extinguishing System.
6. The Kitchen Equipment Provider shall complete the wiring from source through the control panel and solenoid valve to disposers.

D. Plumbing Work:

1. The Contractor shall install all drains, traps and fittings from hand sinks, prep sinks, pot sinks, ice machines, steamers, ventilators, dishtable, dish machines, booster heaters, drainers in tables and in all appliances requiring drains except those specifically called out in the specifications to be pre-plumbed.
2. The Contractor shall provide incoming water lines as required on all appliances in hard copper without reduction in size to the faucets. All water lines are to be provided with stops upstream from the appliance.
3. The Contractor shall install water filters or special valves, strainers, dampers, vacuum
breakers and similar items that may be supplied as part of the appliance or by the Contractor separately.
4. The Contractor shall extend the water supply line through the disposer solenoid to trough inlets or cone hopper inlets complete with a control valve.
5. The Contractor shall pipe between the booster heater and the dish machine including the temperature gauge, pressure gauge, line strainer or check valves that may be supplied by others.

E. Electrical Work:

1. The Contractor shall supply all disconnects, shunt trips, and switches required for individual appliances including conduit, flex and fittings as necessary for final connection.
2. The Contractor shall furnish all special receptacles that may be required that are not furnished with the appliances.
3. The Contractor shall furnish all Ground Fault receptacles that may be required by code.
4. The Contractor shall supply all switch and receptacle plates in stainless steel and moisture resistant covers where necessary or as specified.

3.5 INSTALLATION

A. Install foodservice equipment level and plumb, according to manufacturer’s written instructions.

1. Connect equipment to utilities.
2. Provide cutouts in equipment, neatly formed, where required to run service lines through equipment to make final connections.

B. Complete equipment assembly where field assembly is required.

1. Provide closed butt and contact joints that do not require a filler.
2. Grind field welds on stainless-steel equipment until smooth and polish to match adjacent finish.

C. Install equipment with access and maintenance clearances that comply with manufacturer's written installation instructions and with requirements of authorities having jurisdiction.

D. Install cabinets and similar equipment on bases in a bed of sealant.

E. Install closure-trim strips and similar items requiring fasteners in a bed of sealant.

F. Install joint sealant in joints between equipment and abutting surfaces with continuous joint backing unless otherwise indicated. Produce airtight, watertight, vermin-proof, sanitary joints.

3.6 CLEANING AND PROTECTING

A. After completing installation of equipment, repair damaged finishes.

B. Clean and adjust equipment as required to produce ready-for-use condition.

C. Protect equipment from damage during remainder of the construction period.
3.7 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain foodservice equipment.