

SECTION 11 40 00 - FOOD SERVICE EQUIPMENT**PART I - GENERAL**

1.1 SCOPE OF WORK

- A. FSEC shall furnish all labor, materials and service necessary for the installation of foodservice equipment in strict accordance with the Contract Documents and local codes that is reasonably inferred. Unless otherwise noted all scope within this section is the responsibility of the FSEC. No extra charge will be allowed for that which the Food Service Equipment Contractor (FSEC) should have been familiar. Include all applicable provisions of Division 1. It shall be the responsibility of the FSEC and all trade contractors for this project to review Division 1 and all portions of this section to determine scope.
- B. FSEC shall remove, store and relocate all existing foodservice equipment as necessary and specified for remodeling, renovation and reconfiguration of the related project. All existing equipment not scheduled for relocation shall be relocated to the Owner's storage area as directed. Follow Article 3.3 for description of responsibilities.
- C. Coordinate mechanical, electrical and plumbing rough-in services, manufactured equipment and custom fabricated equipment construction, equipment bases, curbs, ceiling heights, depressed areas, sleeves, wall openings, refrigeration lines, service access, existing building conditions that affects equipment, and all other building conditions required to accommodate the Section 11 40 00 equipment including new, existing, Owner furnished and future equipment with other trades. Cut holes in equipment to accommodate pipes, drains, electrical conduit and outlets as required.
- D. Supervise and furnish required instructions for work to be performed by other trade contractors in connection with requirements for all equipment under this section.
- E. Perform work in a timely manner consistent with the construction schedule, submit written notice of any manufacturer or construction related problem that can or will cause a delay in the equipment delivery or installation; substitution for failure to order equipment in a timely manner understanding all lead times is not acceptable.
- F. The FSEC for this project must have completed a minimum of two projects of similar size and complexity within the past five years. The project must have been a consultant specified project and the project must have been completed to the Owner's satisfaction.
- G. Obtain and pay for all required permits, tests and inspection as required by State and local jurisdictions for the completion of this project.

- H. **Mackesey and Associates, LLC is the Foodservice Consultant for this project** and represents the Owner in all matters included and also acts as a technical advisor to the Architect. In order to function effectively, Mackesey and Associates, LLC shall be advised of any modifications proposed by any party to this project which may affect the performance of this project.
- I. All contracts documents furnished by Mackesey and Associates, LLC are the property of Mackesey and Associates. They are not to be used by any other person or business entity, wholly or in part.
- J. Drawings and specifications are intended to complement each other, so that neither is complete without the other. The FSEC should not submit pricing or bid, enter agreements or entertain execution of this contract without complete access to all contract documents.
- K. All drawings produced by Mackesey and Associates are definitive only and are not to be used for construction or shop details. Consultant drawings are to be used to develop scope, bidding values, special condition details and coordination of the mechanical, electrical and plumbing requirements.
- L. Drawings and specifications are for assistance and guidance of the FSEC and indicate the arrangement and location of foodservice equipment. Exact locations, distances and levels will be governed by the building and final coordination of the FSEC. Any deviations of the intended layout and foodservice equipment configuration must be brought to the attention of the Foodservice Consultant before installation is completed. The FSEC shall accept this and all requirements of the specifications with full knowledge and understanding of the requirements.

1.2 RELATED DOCUMENTS AND SPECIFIED WORK BY OTHER CONTRACTORS

- A. Applicable provisions of Division 1 shall govern work in this section.
- B. The General Contractor (GC) shall provide the following:
1. Floors and settings beds, quarry tile and base, masonry pads, wall penetrations / wall sleeves, protective curbing, walls and finished ceilings and related building work by the General Contractor.
 2. Transit-level recesses, sub-floor, water proofing, floor depressions, wire cloth, concrete setting bed, floor tile and base, wearing floor and coved base, and related building work including cold storage rooms by the General Contractor.
 3. Concealed wall backing to support all wall mounted equipment shall be provided by the GC. (Drywall and stud type construction only).
 4. Provide closure panels above walk-in cold storage rooms and ventilation hoods with materials matching unless otherwise specified.

5. Install floor troughs and floor pans furnished by the FSEC.
 6. Provide roof curb or concrete pad for foodservice refrigeration systems.
 7. All related work by the GC shall meet or exceed applicable codes and governmental standards.
- C. The Mechanical Contractor (MC) shall provide the following:
1. All hood or ventilator duct work upstream from the duct collar.
 2. Provide rough-in and final connections for all steam systems. Make necessary connections between sections of modular equipment such as utility distribution systems, steam kettle banks, warewashing equipment. Install required components including but not limited to check valves, pressure reducing valves, strainers, steam traps, etc. Clear line of any foreign matter before making final connections.
 3. Provide ducts, fans, dampers, etc. as required for ventilation systems including exhaust hoods.
 4. Disconnection of existing foodservice equipment and interconnection of new equipment.
 5. All related work by the MC shall meet or exceed applicable codes and governmental standards.
- D. The Plumbing Contractor (PC) shall provide the following:
1. All water, waste, indirect waste piping from sinks and ventilators, steam and gas services to the equipment including all shut-off valves, plumbing trim, traps, gas pressure reducing and regulation valves for pressures above 14" W.C., grease traps and PVC conduit for beverage or refrigeration lines, etc. and final connections to the equipment except as specified herein shall be provided by the Plumbing Contractor.
 2. Install all faucets, pre-rinse spray assemblies, lever drains, vacuum breakers, flow control valves, check valves, water inlets, traps, filters, pressure reducing valves, strainers, temperature/pressure gauges, gas valves, flexible gas hoses, gas pressure regulators, etc. that are furnished by the FSEC. Provide special care in installation to eliminate tool marks from installation. Horizontal piping shall be a minimum of 6" AFF. Water pressure range for foodservice equipment shall be between 35 psi and 65 psi.
 3. Provide all eye wash stations, emergency showers, floor sinks, mop sinks, hose bibbs and floor drains.
 4. Provide 1" cooler/freezer condensate drain line piping. Trap line(s) outside of box. Walk-in cooler drain piping cannot pass through freezer compartments.

5. Final connection of the recirculating and municipal water to refrigeration equipment.
 6. Make plumbing connections between sections of modular equipment such as utility distribution system, exhaust hoods, remote refrigeration systems or walk-in coolers and freezers.
 7. Provide all reduced pressure backflow, pressure reducing valves except where included as specified within this section.
 8. Disconnection of existing foodservice equipment and interconnection of new equipment.
 9. All related work by the PC shall meet or exceed applicable codes and governmental standards.
- E. The Electrical Contractor (EC) shall provide the following:
1. All electrical services and components including wiring to and final connections to all equipment except as specified herein including rough-in and final connections for all services. Make electrical connections between sections of modular equipment such as utility distribution system, exhaust hoods, remote refrigeration systems or walk-in coolers and freezers.
 2. Connect and install electrical devices furnished by the FSEC.
 3. Provide receptacles, conduit, contactors, controllers, switches, disconnects, starters, etc. unless otherwise indicated.
 4. Conduit to and within cold storage rooms in cooperation with the Food Service Equipment Contractor. Wire from all compressor timers to evaporators coils as indicated on the Schedule. Wire to all remote condensers or packaged refrigeration systems. Wire to all components of the walk-in cooler and freezer including door assemblies, power door openers, lights, switches, condensate line heater outlets, heated air vents and audio/visual alarms.
 5. Provide main power lines to foodservice refrigeration systems control panel and wiring for controls/defrost heaters between panels and coils according to factory supplied diagrams and local codes.
 6. Connection of light fixtures installed by the FSEC in cold storage/work rooms.
 7. Connection of cold storage rooms temperature alarm systems to the building security system.
 8. Grounding type receptacles for all wall mounted outlets to be used for plug-in equipment.
 9. Disconnection of existing foodservice equipment and interconnection of new equipment.

10. Shunt trip breakers as indicated and/or required by code. Where shunt trip breakers are indicated on the Electrical schedule or within this specification, provide shunt trips and/or contactors with 120 volt coils with contact ratings matching the electrical appliance or device. Wire from the micro switch relay on the fire control system head to the contactors / shunt trip breakers.

11. All related work by the GC shall meet or exceed applicable codes and governmental standards.

1.3 DEFINITIONS AND ABBREVIATIONS

- A. "INSTALL" as used in this section means to set in place, complete, secure, anchor and connect and in operable condition.
- B. "FURNISH" as used in this section means to supply and deliver to the project ready for installation and in operable condition.
- C. "PROVIDE" as used in this section means to supply all necessary material, labor and equipment to furnish and install for final connection by appropriate trades.

D. Abbreviations:

Americans with Disabilities	ADA
Above finished floor	AFF
American Gas Association	AGA
American Society for Mechanical Engineers	ASME
American Society for Refrigeration Engineers	ARE
American Society of Heating, Refrigeration and Air Conditioning Engineers	ASHRAE
Cubic feet per minute	CFM
Construction Manager	CM
Duplex convenience outlet	DCO
Electrical Contractor	EC
Floor drain	F.D.
Food Service Equipment Contractor	FSEC
General Contractor	GC
Heating, Ventilation and Air Conditioning Contractor	HVAC
Mechanical Contractor	MC
One thousand British Thermal Units	MBTU
National Electrical Manufacturers Association	NECA
National Fire Protection Association	NFPA
National Sanitation Foundation	NSF
Occupational Safety and Health Administration	OSHA
Plumbing Contractor	PC
Stainless Steel	S/S
Temperature Differential	T.D.
Underwriters Laboratories	UL

1.4 OWNER / PURVEYOR FURNISHED EQUIPMENT

- A. Obtain and coordinate manufacturer and model number not less than 120 days before equipment is required.

B. Obtain and coordinate utility requirements.

1.5 REGULATIONS

A. All work and materials shall be in accordance with the latest rules, codes and/or regulations of agencies/authorities having jurisdiction. Furnish all foodservice equipment-related permits, approvals and installation as required.

B. All regulations, including building codes and other codes applying to this jurisdiction should be followed. In addition all equipment shall comply with the following:

1. National Electric Manufacturer's Association (NEMA).
2. Underwriter's Laboratories, Inc. (U.L.), and must bear label.
3. National Electric Code, (NEC).
4. National Sanitation Foundation, (NSF) and must bear label.
5. American Society of Mechanical Engineers (ASME) and must carry the ASME stamp.
6. American Gas Association (AGA).
7. National Fire Protection Association (NFPA) including #70, 96 and 54.
8. American Institute of Electrical and Electronics Engineers
9. American Society of Heating, Refrigeration and Air Conditioning Engineering (ASHRAE).
10. American Society of Tested Materials (ASTM).
11. American National Standards Institute (ANSI).
12. Sheet Metal and Air Conditioning Contractors National Association (SMACNA).
13. American Disabilities Act (ADA).
14. Uniform Building Code (UBC).
15. Safe Drinking Water Act.

C. The Contract Documents shall govern whenever they require larger size or higher standard than required by regulations. When requirements of the Drawings exceed the written Specifications, the Drawings shall govern and when the written Specifications exceed the Drawings, the Specifications shall govern.

D. Should it appear that the work intended or required to be described or any of the matters relative thereto are not sufficiently detailed or explained on the Drawings or in the specifications, the FSEC shall apply to the Foodservice Consultant so explanation or additional information questions can be answered before contracting the work.

E. When seismic regulations are applicable, all equipment shall be fabricated and installed in accordance with those regulations. All seismic requirements shall be shown on all submittals. Submit required information to the agencies and authorities having jurisdiction.

F. No extra charge will be paid for furnishing items required by the regulations, but not specified and/or shown on the Drawings.

G. Ruling and interpretations of the enforcing agencies shall be considered a part of the regulations.

H. Substitutions or alternate manufacturer requests:

1. Substitution requests must be supplemented by sufficient information in the form of manufacturer technical specifications, drawings, pictures and or samples to evaluate equality, appearance and all other rated conditions.
2. Written substitution requests must be made by FSEC and shall be submitted to the Foodservice Consultant a minimum of 10 days prior to bid date. Substitution will not be allowed if submitted at bid date without prior approval.
3. Where substitutions are made by the FSEC, with the approval of the Foodservice Consultant, the FSEC shall be responsible and pay the cost of any consequential modifications which may result from the substitution.
4. Any approval of an alternate manufacturer will not relieve the FSEC of any costs resulting from changes to size, weight, mechanical, electrical or plumbing requirements.

1.6 WARRANTY

- A. Provide all labor, materials, refrigerant and incidental expenses to maintain proper operation of all related equipment. Systems to be kept in full working condition for a period of one (1) year from the date of acceptance by the Owner. Any parts requiring replacement during warranty period shall be replaced with new parts and installed at no cost to the Owner.
- B. Equipment shall be serviced within a reasonable period of time by a competent and factory-trained local service agency. Service shall be performed within 24 hours of request of service. Repairs not completed within 24 hours will allow the Owner to contract with an outside agency and charge the costs to the FSEC.
- C. A pro rata basis extension shall be included for the condensing units for four (4) additional years, exclusive of labor.

1.7 SUBMITTALS

A. Product Data

1. After award of contract and before proceeding with the purchase of manufactured equipment, develop the information listed below and submit a printed copy and an electronic copy of the in Adobe Acrobat PDF format complete as directed by the Foodservice Consultant with:
 - a. Cover sheet including the name of the project with date of submission.
 - b. Title Sheet including an index, name and address for the Architect, General Contractor, Client Contact, Food Service Equipment Contractor.

- c. Provide a separate page for each manufactured piece of equipment showing: Item number, quantity, description, manufacturer's name and telephone, model number, optional finishes, equipment, accessories and modifications, utilities required and special notes.
 - d. Consultant shall comment and insert the Consultant's stamp on the cover sheet indicating review of the documents.
 - e. Brochure booklets will be returned with comments for distribution by FSEC. The FSEC shall provide up to 10 copies of the brochure when requested.
 - f. No printed copies of the brochure booklets should be provided as part of the submittal review process. Printed material will be returned to the FSEC.
 - g. Provide confirming statement of completion of code review and code compliance of submitted documents.
2. Based on the request of the Foodservice Consultant provide submittals in one of the requested formats listed below:
- a. Provide two (2) sets shop and rough-in drawings, and equipment schedules within 30 days of award of the contract or as required by the Architect. Submit 1/4" scale reproducible paper rough-in drawings for review. Drawings shall be dimensioned, showing ventilation requirements, floor and wall sleeves, plumbing, gas, steam, and electrical connections, including those items supplied by the Owner. Provide concrete pad dimensions, depressions and special conditions as required for equipment. Elevations and sections of special work shall be prepared for use by the respective trades. The Food Service Equipment Contractor shall be responsible for the accuracy of all information on their drawings. Consultant shall comment and stamp drawings and return to FSEC for duplication. Provide an adequate number of drawings (up to 10 sets) as directed by the GC or Owner.
 - b. Provide an electronic copy of the equipment and utility schedules, shop drawings, rough-in and detail drawings in Adobe Acrobat PDF format within 30 days of award of the contract or as required by the Architect. Drawings shall be dimensioned, showing ventilation requirements, floor and wall sleeves, plumbing, gas, steam, and electrical connections, including those items supplied by the Owner. Provide concrete pad dimensions, depressions and special conditions as required for equipment. Elevations and sections of special work shall be prepared for use by the respective trades. The Food Service Equipment Contractor shall be responsible for the accuracy of all information on their drawings. Consultant shall comment and insert Consultant's stamp on drawings and return to FSEC. No printed copies of the brochure booklets should be provided as part of the submittal review process. Printed material will be returned to the FSEC.

FSEC shall be responsible for providing the adequate number of approved submittal documents and drawings (up to 10 sets) as directed by the GC or Owner.

NOTE: The reproduction of the drawings from Mackesey and Associates are prohibited.

- i. The following shall each be produced on separate sheets and/or plans: Plumbing; Electrical; Building Works and Ventilation; Refrigeration and Beverage systems.
 - ii. Utilities shall be stubbed out of walls whenever possible.
 - iii. Verify mechanical, plumbing, electrical and ventilation rough-in and sleeve locations before walls and floor slabs are poured.
 - iv. In the event rough-in has been accomplished before the award of the contract, check existing facility and furnish all equipment to suit building conditions and utilities. If inspection reveals that the existing conditions seriously interfere with the execution of the Work, the FSEC shall report these conditions to the Architect and await instruction before proceeding with that portion of the work. No extra charges shall be allowed for utility changes to fit equipment during installation and connection.
3. Prepare and submit wall backing drawings in the format listed above. The drawings shall show the location and size of all wall backing required. The drawings shall be submitted for review and submitted to the General Contractor in time for the wall backing to be installed prior to the closing of the walls. (This applies to drywall and stud wall systems only).
 4. Prepare and submit shop drawings in the format listed above for all custom (special) items of work included in this contract. The detail drawings shall be submitted at minimum of $\frac{3}{4}$ " scale for elevations and $1 \frac{1}{2}$ " scale for sections. Drawings shall show all dimensions, all details of construction, installation and relation to adjoining and related work. Drawings shall show all reinforcements, anchoring and other related work required for the complete installation of all fixtures. Include size and strength for type, size and location of concealed anchorage of adequate size and strength to securely mount any ceiling-hung equipment. Shop drawing paper shall be a minimum of 24" x 36".
 5. Checking product data sheets, rough-in drawings, wall backing drawings, shop drawings and refrigeration drawings by Consultant is for design concept only, and does not relieve the Food Service Equipment Contractor of the responsibility for compliance with Contract Documents, verification of utilities

with equipment requirements for conformity and location, verification of all dimensions of equipment and building conditions or reasonable adjustments due to deviations. Review of submittals by the Foodservice Consultant is for design concept only and does not relieve the FSEC of the responsibility for compliance with design drawings, details, specifications and verifications of utilities with equipment requirements for conformity, location and verifications of all dimensions of equipment bidding conditions or reasonable adjustments due to deviations.

6. All checking of submittals shall be accomplished before ordering equipment or starting fabrication. Corrected brochure booklets and drawing sheets will be returned by the Foodservice Consultant for revisions by the FSEC. Repeat until all corrections are made satisfactorily.
7. Submit complete detail factory engineered shop drawings including system description, configuration, system component locations, proposed piping routes; after review by design team, incorporate review comments and submit to fire authorities having jurisdiction for exhaust hood and fire suppression system approval prior to fabrication of both the exhaust hood and the fire suppression system.
8. All drawings provided for the GC or Owner shall be delivered rolled in a mailing tube when requested. Folded drawings shall be returned.
9. After final approvals have been received, supply one printed copy of the approved submittals and drawings to the Foodservice Consultant.
10. Provide all samples of materials requested by Foodservice Consultant for test purposes or comparisons. Samples used for testing shall not be used on the project without the approval of the Foodservice Consultant.

1.8 PARTS AND SERVICE WARRANTY

- A. Prior to demonstration and final inspection submit three (3) copies of the Operations and Maintenance manuals to the Architect or GC for approval. Manuals shall be in hard cover three-ring binders and shall include replacement part lists and a typewritten sheet listing name, address and phone numbers of all service agencies to be involved, with reference to the names and item numbers of the pieces of equipment each services. Provide a typewritten index sheet showing, in numerical order, the item numbers and corresponding model and serial number of each piece of equipment. Provide a cover sheet listing the name, address and phone for the Architect, General Contractor, Food Service Equipment Contractor and the Foodservice Consultant.
- B. Manuals must be submitted before the Owner issues final acceptance of the installation and starts the warranty.
- C. Provide the information listed above in both PDF and printed form.

1.9 VERIFICATION AND COORDINATION OF PROJECT / DATA

- A. All front manifolded range lines shall be assembled and aligned at the factory before shipment, including back guards, high shelves and salamanders.
- B. Verify sizes with the Owner on the following items before ordering or fabrication:
 - 1. Steam pans
 - 2. Sheet pans
 - 3. Trays
 - 4. Glass and cup racks
 - 5. Plates, bowls, platters and all other dinnerware including requirements for disposables.
- C. Quietness of operation of all foodservice refrigeration equipment is a requirement of the equipment. Remove or repair any equipment producing objectionable noises.
- D. Verify all conditions at the building site(s), particularly door openings and passageways to avoid delivering items too large for entry. Coordinate with the General Contractor access to insure delivery of equipment to the required areas. Coordination shall include, but not be limited to, early delivery, hoisting, window removal and/or delay of wall construction. All special equipment handling charges, window removal, etc. shall be paid for by the FSEC. Do not deliver equipment until authorized by the GC. Verify storage location prior to delivery. If jobsite is not adequate to insure proper installation of the equipment, notification shall be in writing with sufficient time to effect corrective measures to meet the installation schedule.
- E. Verify and coordinate with trades, the height and location of piping and duct work in areas above exhaust hoods and cold rooms.
- F. All shipments shall be made freight prepaid. Equipment shall be wrapped and crated at the factory and shall be delivered in undamaged condition. Store all equipment and materials in such a manner as to prevent damage due to moisture, foreign materials, impact or unintended use.
- G. Coordinate the timely installation of the wearing floors inside the cold storage rooms with the General Contractor to prevent prolonged exposure of the floor insulation. Notify trades that cold storage areas are not to be used by any other trades for storage or work areas. Repair or replace any damaged areas on the interior of the cold storage room before Owner occupancy.
- H. Determine the acceptability of the location of the remote refrigeration condensing units in regards to ambient temperature, noise, vandalism and accessibility. If the condensing unit location is determined to be unacceptable for any reason, advise Architect/Owner and require direction in writing.
- I. FSEC shall be responsible for the equipment until a review and inventory of the completed installation has been accomplished by

the FSEC. Any damage to equipment prior to Owner acceptance will be corrected by FSEC with no additional cost to Owner. It is the sole responsibility of the FSEC to keep the equipment safe from use or damage while on site and before acceptance by the Owner. Store all equipment and materials in such a manner as to prevent damage due to moisture, foreign material and impact.

- J. FSEC shall be responsible for maintaining the code approvals for all exhaust hoods including protecting the hoods from any penetrations during the building construction. The FSEC shall provide signs for all sides of the hood stating - ANY PENETRATIONS OR INSTALLATION OF FASTENERS WILL VIOLATE AGENCY APPROVALS.

PART II - PRODUCTS

2.1 COMMERCIALY MANUFACTURED EQUIPMENT

- A. All items of standard equipment shall be the latest model available at time of delivery.
- B. Manufacturer's directions shall be followed in cases where the manufacturer of articles used in this contract furnishes direction or covers points not shown on the drawings or specifications.
- C. All doors shall be hinged as shown on the Drawings.
- D. FSEC shall be responsible for execution of all articles of Part II unless otherwise specified.
- E. All refrigeration equipment whether self-contained or refrigerated by use of remote equipment shall be designed and installed to maintain the following general temperatures unless otherwise specified:
- | | |
|------------------------------|------------------------|
| 1. Walk-in Refrigerator | 35 degrees Fahrenheit |
| 2. Walk-in Freezer | -10 degrees Fahrenheit |
| 3. Reach-in Refrigerator | 35 degrees Fahrenheit |
| 4. Reach-in Freezer | -10 degrees Fahrenheit |
| 5. Undercounter Refrigerator | 35 degrees Fahrenheit |
| 6. Undercounter Freezer | -10 degrees Fahrenheit |
| 7. Cold pan | 0 degrees Fahrenheit |

2.2 PLUMBING WORK

- A. Provide suitable pipe slots, chases and/or do all drilling, punching and cutting of equipment required to provide access for appropriate trade to make connections and/or runs. Such work performed at the job site shall be of the same quality as similar to the factory or fabrication shop.
- B. To insure proper clearance for cleaning, all horizontal piping lines shall be run at the highest possible elevation and not less than 6" above the finished floor, through equipment whenever possible.

- C. Indirect waste piping (except from sinks and ventilators) shall be installed in accordance with the codes in effect at the job site. Piping shall run as described hereinafter, and shall discharge into open site drains and floor sinks. Extend piping to a point at least 2" above the rim for the drain/floor sink and with a cut bottom on 45 degree angle. All indirect waste piping shall be installed and routed in a manner to insure proper drainage and shall conform with shelves, spaces, equipment or building conditions. Secure all indirect waste piping as required to achieve same.
- D. Indirect waste piping from ice bins, ice pans or similar items shall be insulated and installed to prevent condensation.
- E. Trough and disposer cone water inlets shall be located above positive water level to prevent siphoning of liquids in the water systems. Wherever conditions shall require a submerged inlet, a suitable and code approved back flow device such as a reduced pressure backflow, check valve and vacuum breaker shall be placed on the fixture to form part of same to prevent siphoning. Include ¼ turn valves for each of the water inlets to control water volume. All backflow devices not specifically specified by the FSEC, the code compliant units shall be provided by the PC.
- F. Where exposed, FSEC shall provide S/S or chrome plated piping and fittings to PC for installation.
- G. Based on the maximum allowed incoming line pressure per gas fired piece of equipment, the FSEC shall provide the necessary gas pressure regulator to reduce pressure from 14" W.C. to the factory recommended gas pressure.
- H. All valves where required shall be American made to insure availability of replacement parts.
- I. FAUCETS
1. Faucets shall be furnished by the FSEC for all sinks, bain maries, water stations, and other fixtures as specified and shall be supplied with non-splash aerator, and water saving devices where required by local codes. Faucets shall be EPAct 2005 compliant. Unless otherwise specified, faucets shall be provided as follows to match elevation drawings. PC to install and plumb to fixtures.
 - a. Deck mount sink faucet - T & S Model B-0201 faucet with B-0199-01 aerator.
 - b. Splash mount sink faucet - T & S Model B-0231 faucet with B-0199-01 aerator.
 - c. Deck mount pre-rinse spray - T & S Model B-0123-0156-109 with B-0199-01 aerator.
 - d. Splash mount pre-rinse spray - T & S Model B-0131-0156-109 with B-0199-01 aerator.
 - e. Splash mount fast fill pre-rinse spray - T & S Model B-0287-109 "Big-Flo" pre-rinse spray assembly with faucet with 12" spout.
 - f. Splash mounted fast fill faucet - T & S Model B-0290.

- g. Hand sink - touchless - T&S Model EC-3100, deck-mounted electronic faucet with mixing valve, #GN2AH8 spout and aerator. Include two sets of alkaline batteries for each faucet.
- h. Fill faucet - T & S Model B-0208 faucet with B-0199 aerator.

Acceptable alternate - Chicago Faucet, wherever not already specified. Owner reserves the option to require either T & S Brass and Bronze or Chicago Faucet. With the exception of the hand wash sink, faucet brand shall be consistent throughout the project.

J. DRAINS AND WASTES

- 1. The FSEC shall furnish all necessary drains and wastes with the equipment as follows unless otherwise specified. PC to install and plumb as required.
 - a. Drain (2") - rotary lever - T & S Model B-3900 or approved equal Component Hardware model.
 - b. Drain (2") - rotary lever drain with rear overflow - T & S Model B-3902 or approved equal Component Hardware model.
 - c. Drain (1 ½") - Basket strainer - Component Hardware Model E38-1012.

Acceptable alternate manufacturers for drain and waste items - Franklin Products. Owner reserves the option to require a specific brand. The brand shall be consistent throughout the project.

K. FLEXIBLE GAS AND WATER LINES

Flexible gas and water supply hoses shall be furnished by the FSEC for all cooking, beverage dispensing and other fixtures as specified with casters or noted on the Mechanical / Electrical / Plumbing Schedule in the mobile configuration as required by local codes. Unless otherwise specified, flexible lines shall be furnished as follows to match Drawings and include quick disconnect features, furnish devices to PC to final installation:

- 1. One Dormont Model 1675KITCF2S48PS flexible gas hose kit. Include Posi Set wheel locators for all equipment with casters.
- 2. One Dormont Series HW, Dormont Model HW37BP2Q72 flexible water hose kit.
- 3. Verify hose length based on equipment location and connection location, confirm length with Consultant. One hose per connection.

L. WATER FILTERS

Furnish Everpure or Cuno complete filter assemblies for the following equipment:

- 1. Steamers.
- 2. Combination ovens.

3. Rack style baking ovens.
4. Beverage equipment, including Beverage vendor supplied equipment.
5. Ice makers.
6. Ice makers / soda dispensers.

Filter assemblies shall be sized based on factory recommendation including required service flow, peak water demand and water quality.

2.3 VENTILATION WORK

- A. Provide all labor, material and service required to install hoods, vent ducts and other specified capture devices; verify sizes and location of duct connections and provide all exposed S/S duct work from hoods, ventilators and dishwashers to building duct work, including trim and watertight or grease tight connections.
- B. Coordinate with appropriate trade requirements for ducts, fans, dampers, starters, etc., necessary for the operation of all required exhaust and ventilation systems, as specified.

2.4 ELECTRICAL WORK

- A. For all fabricated equipment, the FSEC will provide all outlets, switches, controls, service fittings and load centers. Load centers shall be complete with individual "visi-trip" circuit breakers for each device built in for forming an integral part of the unit. Furnish to Division 16 a wiring schematic including circuit breaker diagram for each required load center.
- B. Insure that all equipment furnished under this contract shall be so wired, wound and constructed as to conform to the characteristics of electrical and other service at the premises.
- C. Appliances shall be new, of manufacturers current production and furnished complete with motor drive mechanism, starters and controllers, including master switches, timers, cut-outs, reversing mechanism and other electrical equipment if and as applicable. Wiring and connection diagrams shall be furnished with electrically operated machines and for all fabricated equipment.
- D. Only rigid steel conduit shall be used, zinc coated where unexposed and chrome plated where exposed on fabricated equipment. All conduits/wiring shall be run concealed wherever possible. Conduit shall be continuous between outlets and from outlet to load center or pull boxes and shall enter and be secured in such a manner that each system shall be electrically continuous throughout. All conduits shall be thoroughly and substantially supported by accepted industry practices and meet all codes.
- E. Supply on each motor drive appliance or electrical heating unit, a suitable control switch or starter of proper type whenever such equipment is not provided with same.

- F. All plug-in equipment shall be plugs and neoprene cords (of adequate length) factory installed. Coordinate with Division 16 so that the receptacles provided will match the specific plugs installed as part of the plug-in equipment. Any changes of cords or plugs required in the field due to lack of coordination between Division 16 and the Food Service Equipment Contractor shall be the responsibility of the Food Service Equipment Contractor.
- G. All surface mounted receptacles indicated for fabricated equipment are to be Component Hardware series R58-1010 or equal aluminum outlet boxes complete with satin stainless steel cover and receptacles as indicated below:
1. 2-pole, 3 wire grounding, 20 amp, 120V; Hubbell #5352 or equal (NEMA 5-20R)
 2. 2-pole, 3 wire grounding 20 amp; 250V; Hubbell #5461 or equal (NEMA 6-20R)
 3. 2-pole, 3 wire grounding 30 amp; 250V; Hubbell #9330 or equal (NEMA 6-30R)
- H. All built-in receptacles indicated for fabricated equipment are to be 2" x 4 ½" deep, S/S "Handy Box" tack welded to fixture and fitted with receptacle indicated above and satin finish stainless steel cover. Splash mounted receptacles to be horizontal with all others installed vertically. 30 amp, 250v receptacles required at 2 ½" deep. Coordinate installation by increasing splash depth to 2 ½".
- I. All switches, controls etc. shall be conspicuously labeled as to use with phenolic plastic name plates screwed to adjacent surfaces, with white recessed lettering on black background. Submit a sample to the Foodservice Consultant for approval as part of submittal process.
- J. All electrically heated, fabricated equipment shall be internally wired to a thermostat control and an "on/off" red neon light indicator, both to be mounted in a terminal box with a removable access panel and located outside the heated area. Wiring to be nickel-plated copper, properly insulated.
- K. All cold storage room electrical components shall be provided with conduit, splice boxes, switches, fittings, etc. concealed within the insulated panel at time insulation is foamed in place. Conduit shall extend up within wall panels, through ceiling panels ready for EYS fittings and final connection by Division 16. Sealing and insulation of all electrical penetrations shall be provided by the EC.
- L. Provide all incandescent and fluorescent tubes required for equipment under this section. Unless otherwise specified, all tubes shall be fluorescent or LED.

2.5 FABRICATED EQUIPMENT

- A. All specially fabricated equipment must be by one manufacturer acceptable to the Foodservice Consultant. As described in the Item Specifications the equipment shall be of uniform design and

finish. All work must be completed in an approved manner to the satisfaction of the Foodservice Consultant.

- B. Standard details included as part of the drawings are to be considered guides to quality and scope of work involved for all custom fabricated equipment. Where shop practices indicate, alternate construction methods and component items of equal manufacturer may be substituted. It will be the responsibility of the Food Service Equipment Contractor to prove the quality of the proposed alternate methods.
- C. All fabricated equipment shall be fabricated in accordance with the Contract Documents and shall bear the NSF seal.
- D. Upon request, the fabricator shall submit evidence of completion of comparable contracts.
- E. No nameplates or stickers other than NSF, UL or manufacturers name shall be permitted. Any damages caused by correction shall be borne by the FSEC.
- F. All seams and joints shall be shop welded and soldered as the nature of the material may require. Welds to be ground smooth and polished to match original finish. Field joints in stainless steel and/or brass tops shall be welded or fused and finished as specified. Body joints shall be draw type with hairline joints. Provide extra angle bracing on each side of body joint, $\frac{3}{8}$ " diameter draw bolts, lock washers and lock nuts.
- G. Framework of galvanized steel shall be welded construction. Where galvanizing has been burned off, the weld shall be sealed with high grade aluminum paint.
- H. Metal Top Construction
 - 1. All seams and joints shall be one-piece welded construction, reinforced on the underside with galvanized steel welded in place so tops can support heavy weights without deflection. Cross braces to be not more than 30" on center lengthwise and front to back. Fully welded intersections of channels are required. Tack welding of channel intersection will not be acceptable.
 - 2. Tabletops shall have edges turned down square 1 $\frac{1}{2}$ " with $\frac{1}{4}$ " turn back angled downward 15 to 30 degrees. Provide alternate top edges as indicated in the Contract Documents.
 - 3. If inverted hat sections are used in lieu of channels, close ends.
 - 4. As indicated on the Drawings - provide sound dampening, NSF certified, non-adsorbent, hard-drying, sound deadening coating. Provide coating compounded for permanent adhesion to metal in $\frac{3}{8}$ " (3mm) thickness that does not chop, flake or blister.

I. Wood Table Tops

Table tops specified as wood top tables shall be a minimum of 1 ¾" thick, sectional, hard rock, kiln dried maple construction. Non island tables shall have 1" thick x 6" high cover maple backsplash on the back and ends unless otherwise specified. Top to be NSF approved. In lieu of maple tops, Richlite composite materials may be provided as specified.

J. Fasteners

1. Exposed bolt heads will not be permitted on fixtures.
2. Butt joints made by riveting straps under seams and then filled with solder will not be acceptable.
3. Rivets of any kind, including pop-rivets, will not be acceptable.
4. Exposed screw heads, when necessary, shall be one of the same materials as the pieces joined and countersunk flush.
5. Fasten reinforcing to tops with studs welded to underside and capped with locking chrome acorn nuts. No exposed bolt or stud threads will be permitted on fabricated equipment.

K. Rolled Edges

1. Rolls shall be as detailed with corners bullnosed, welded, ground and polished.
2. Fabricate rolled edges as shown on the details in the Construction Documents.

L. Corners

Dishtables, drainboards, backsplashes and turned up edges shall be ½" or larger radius bends in all horizontal and vertical corners, coved at intersections unless specified otherwise.

M. Enclosed Cabinet Bases

1. Bases shall be made of 18 gauge stainless steel sheets reinforced by forming the metal. Sides and partitions shall terminate at front in a 2" wide fully enclosed mullion and welded at all intersections. Shelves are to be removable where detailed and supported by adjustable shelf standards. Exposed ends, partitions and shelves are stainless steel. Concealed partitions to be galvanized. Vertical partitions shall be #4 finish.
2. Maximum shelf width of 30" will be acceptable.

N. Legs and Crossrails

1. Equipment legs and crossrails shall be 1½", 16 gauge stainless steel tubing unless otherwise specified. All welding at

crossrails shall be continuous and ground smooth. Tack welded is not acceptable. Tops of legs to be fitted with Component Hardware Model A18-9912-C, 14 gauge stainless steel gussets or approved equal. Gussets are to be secured as follows:

- a. Whenever sectional, removable undershelves are specified, the crossrail configuration shall allow the crossrails to be extended to the wall and attached to the wall with S/S wall flanges in lieu of S/S feet.
 - b. For sink basins, weld gussets to triangular stainless steel gusset plates, which are in turn welded to underside of sinks.
 - c. For tables and dishtables, utilize gussets which shall be welded to reinforcing channel/hat channels 14 gauge or heavier.
 - d. For wood or composite tops provide welded stainless steel hat channel sections to support the top and to be held in place with stainless steel metal screws in slotted holes of flanges.
2. Bottom of legs to be fitted with Component Hardware Model A10-0851-C adjustable stainless steel foot or approved equal. Foot plug to be welded, ground and polished. When flanged feet are specified, use Component Hardware Model A10-0854-C adjustable stainless steel foot or approved equal.
3. Enclosed cabinet bases mounted on 6" high legs are to be equipped with Component Hardware Model A48-5048-C adjustable stainless steel counter legs or approved equal.
- O. Stainless steel shall be 18-8 Type 304, ASTM Specification A167, #4 finish, ASTM Specification A480. Sheets shall be free of warps, buckles, pits and scratches. Galvanized steel shall meet ASTM Standard A#46. Unless specified otherwise the following metal gauges shall be used:

<u>Description</u> <u>Finish</u>	<u>Metal</u>	<u>Gauge</u>	
Dishtables, tables and counter tops	S/S	14	#4
Hat Channel - Unexposed	Galvanized	14	#4
Hat Channel - Exposed	S/S	14	#4
Counter Body			
Exposed - Framework	S/S	18	#4
Exposed - Aprons, Partitions	S/S	18	#4
Unexposed - Framework	Galvanized	18	#4
Unexposed - Aprons, Partitions	Galvanized	18	#4
Shelves	S/S	16	#4
Refrigerated interiors	S/S	20	#4
Doors - Inside face	S/S	20	#4
Doors - Outside face	S/S	18	#4
Drawer Pans	S/S	20	2B

Shelf - wall or fixture mounted	S/S	16	#4
Shelf - Refrigerated areas	S/S	wire	
Shelf Brackets	S/S	14	#4
Wall Flashing	S/S	20	#4
Wall Flashing tee strips	S/S	Component Hardware J64-1450 series	
Equipment Legs & Crossrails	S/S tubing	16	#4

As required by the Consultant, submit a certified copy of the mill analysis of materials.

P. Closure

Backs of all exposed fixtures, backsplashes, endsplashes, shelves, etc. shall be closed with matching materials.

Q. Casters

Casters shall be Jarvis and Jarvis or equal Colson Caster Corporation, Series 2, non-marking, ball bearing NSF approved type with greaseproof neoprene or polyurethane tires. Wheels shall be 5" diameter as further described below:

1. Stem caster - Model 5-405-213G-19A.
2. Locking stem casters - Model 5-405-213G-19A including "Vertilok" brake.
3. Plate caster - Model 5-305-213G-2.
4. Locking plate caster. Model 5-305-213G-2 including "Vertilok" brake.

All casters shall have a minimum capacity of 300# per caster.

R. Sinks

1. Fabricated sinks shall have corners same as for table tops. One piece welded construction with bottom sloped to drains. Multiple compartments shall have double wall partitions and one-piece front panels providing continuous exterior. Use of trim bands as well as opening between compartments or applied panels will not be accepted.
2. Sinks shall be 14 gauge S/S with intersections and corners coved a minimum of $\frac{3}{4}$ ". The use of soldered filleted corners will be not accepted.
3. Provide 10" backsplash for all fabricated units with sinks.
4. Provide brackets for rotary lever drain handles, attached to the bottom of the sink base with welded studs and chrome acorn nuts.

5. For sink compartment with disposer compartments, coordinate the shipment of the disposer collar/cone to the fabricator for factory installation.
6. Include fully welded 12 gauge brackets for control panels, switches, disposer controls, faucet bodies, mixing valves and outlet boxes welded to a full depth U-channel which is attached to the unit by spot-welded studs 6" on center.
7. Sink inserts shall be of same gauge as the top, integrally welded and with #4 finish where exposed.
8. Provide rotary lever drains with rear overflows.

S. Drawers

All drawer pans shall have all corners coved and constructed from 20 ga. S/S 20" x 20" x 5" deep. Pans to be mounted to S/S welded frame supported by Component Hardware Series S52 heavy duty slides, 200# load capacity per pair. Install an angle of ½" in 12" to provide self-closing operation. Mount slides to a 16 ga. S/S channel type three sided housing with an open style bottom with two welded S/S cross braces. Construct the overlay drawer front of 18 ga. S/S double pan construction with a fiberboard insulation between. As shown on the Drawings, each drawer shall have a continuous top pull. Recessed drawer pulls are not acceptable. All assemblies shall include drawer stops and rubber cushion bumpers. Pan to be easily removable without the use of tools.

T. Doors

1. All metal doors to be ¾" thick, double pan type reinforced and stiffened to prevent flexing and filled with sound deadening material.
2. Sliding doors shall be mounted on large ball-bearing quiet rollers in 14 ga. S/S overhead tracks and shall have bottom guides and nylon rollers. Provide travel limit device to prevent sliding doors from telescoping. The doors shall be removable without the use of tools. Slide doors shall be self-closing without assistance from the operator.
3. All hinged doors shall be flush mounted and attached with heavy duty S/S lift-off hinges. Provide cylinder locks as specified.
4. Provide recessed S/S handles and friction latches. Match door provide and door pull configuration as specified and/or shown on the Drawings. Magnetic door latches are not acceptable.

U. Hardware

1. All hardware shall be of heavy duty construction and identified on shop drawings by manufacturer and model number and shall be subject to final approval by the Foodservice Consultant.

2. All hardware shall be identified with manufacturer's name and number so that broken or wrong parts may be replaced.
3. All hardware and buy-out accessories shall be listed on submittals with a bill of materials.
4. Specified locks shall be flush fitting, cylinder dead bolt locks. Component Hardware Model P30 Series or equal. The Owner shall have the ability to request the keying configuration.
5. Confirm with the Owner all glass, dish, and pan sizes, weights and other related items to be stored or dispensed from drop-in style holders and dispensers.

V. Breaker Strips

All ice pans, ice bins, refrigerated pans and cabinets shall be provided with breaker strips where adjoining top or cabinet faces to prevent condensation. Breaker strips shall be fastened with stainless steel counter sunk screws. Pop rivets are not acceptable.

W. Insulation

All insulation shall be foamed in-place polyurethane. Fiberglass insulation shall not be used. Heated areas shall have minimum of 1" thick insulation. Cold areas shall be minimum thickness indicated on Details and Drawings and shall be of adequate thickness to prevent condensation. Insulation shall be bonded to all surfaces.

X. Refrigerated Areas

1. All reach-in refrigerators and freezers with remote refrigeration systems shall be complete with factory installed thermostatic expansion valves at the evaporator.
2. Fabricated compartments, refrigerated shelves, plates, etc. shall be provided with a 20 gauge steel box to house expansion valves when valve is remote from the evaporator. Install in base of fixtures or in a concealed position.
3. All fabricated refrigerators shall be provided with an adequately sized refrigeration system in accordance with Energy Independence and Security Act of 2009 / H. R. 6 and ASHRAE standards. Direct expansion type refrigeration system shall be utilized with replaceable type vinyl coated or S/S evaporator coils. Verify adequate ventilation for air-cooled refrigeration system and service access for all units. All units shall have ruby colored on/off switch for each unit.
4. All refrigerated compartments shall be fitted with dial type exterior thermometers with chrome-plated bezels. Thermometers shall be adjustable and shall be calibrated after installation.

5. The entire perimeter including the doors shall have 2" urethane insulation and continuous plastic breaker strips. Adjustable S/S shelving and Component Hardware or approved equal hardware. All cavities shall include incandescent light with door-activated light switch including light bulb. The bottom of the unit shall be sloped to a 1" drain. Thresholds shall be S/S. Infitting doors shall include self-closing door hinges, edge-mounted magnetic gaskets, cylinder locks if specified.

Y. Breath Guards

1. Breath guards shall be ¼" Plexiglas with Keil Model 137D-1010-1251 stainless steel trim on exposed edges.
2. Breath guard brackets on display and self-service shelves shall be Keil Model 1530-1010-1251 or similar custom built bracket with 16 gauge stainless steel bodies.
3. Breath guard brackets on serving shelves and other enclosed areas shall be Keil Model 1536-1010-1251 or similar custom built brackets with 18 gauge stainless steel bodies.
4. Breath guard brackets shall be Keil Model 1572 or Capital with 21" high posts.
5. Shielded lights shall be installed below each shelf. All wiring for light shall be concealed.
6. Exposed end/s shall include full height end panels.
7. Tempered Glass: ASTM C 1048, King FT (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 ¼" (6mm) thick, unless otherwise indicated. Provide exposed safety edges, if any, seamed before tempering.

Z. Electrical Panels / Components

1. Where UL Listed equipment assemblies with electrical circuit breaker panels are specified for custom fabricated equipment, the equipment shall be fabricated in a UL Listed shop and meet the requirements of UL 165. Provide certifying label for all UL approved work.
2. Field wiring and UL field certification shall not be acceptable. Identify all circuits by typewritten index. Provide all panel specs with breakers and spare breakers.
3. Internal wiring specified for custom fabricated equipment shall be identified with tags indicating item number and electrical characteristics. Furnish wiring diagrams. All wiring shall run in rigid conduits, zinc coated where concealed and chrome or S/S where exposed. Wire wet areas in Sealtite Type EF conduit or equal. Provide conduit raceways where possible. NEMA34 standards shall apply to all splash areas. Final connections by EC.

4. Exposed junction boxes for switches and receptacles shall be S/S or cast aluminum Bell boxes and shall be furnished with S/S cover plates. Provide NEMA #4 water proof boxes for wet areas. All wiring between boxes shall be in rigid conduit.
5. When electrical load centers / electrical panels are specified, provide compartment with electrical subpanel which shall be pre-wired in conduit concealed in cabinet body construction and connected to all electrical components built into or set upon the counter. Electrical sub-panel shall be UL / ETL / CSA listed, three phase, four (4) wire circuit breaker type with a ground buss main breaker and individual breakers for each serviced load. Buss shall be copper and the circuit breakers shall be the molded case, bolt-on type with thermo magnetic quick-make, quick-break trip. Multi-pole circuit breakers shall have an internal trip bar. The circuit breakers shall have an interrupting capacity of 10,000 amperes at 120 volts and there shall be a separate breaker for each connected load. Each breaker shall be sized for 125% of the connected load and a minimum of two (2) extra, single pole, 20 amp circuit breakers shall be provided. The loads shall be connected through the breakers in a phased sequence to balance the load on each phase.

2.6 ARCHITECTURAL MILLWORK EQUIPMENT

- A. The following general requirements shall govern the construction of millwork built fixtures, except where otherwise noted. Work shall be performed by skilled mechanics of the trade and shall be of the highest quality throughout, in such a manner as to fulfill the intent of the Contract Documents. Perform architectural woodwork in accordance with "Architectural Woodwork Quality Standards" published by the Architectural Woodwork Institute (AWI). Fabricator shall have a demonstrated ability in fabricating woodwork items similar in type and quality to those required for this project.
 1. All fixtures shall be made by one manufacturer and assembled in single and complete units as the dimensions will permit shipment to and installation of at the building. Large pieces requiring sectional construction shall have their parts accurately fitted and aligned with all others, and provided with ample screws, glue and bolt blocks, tongues, grooves and splines, dowels, mortises and tenons, screws, bolts or suitable means of concealed fastening, as required to render the work substantial, rigid and permanently secured in proper position to each related section.
 2. Sufficient additional material shall be allowed to permit accurate scribing to walls, floor and related work, and due allowance made whenever possible for such shrinkage as may develop after installation. Single and sectional units shall be provided with adequate cleating, blocking, crating and other forms of protection as required to preclude damage during shipping and handling.

3. Framing and blocking members shall be assembled with bolted and screwed connections and should be secured to the structural backing with cinch, expansion screws or toggle bolts, as required; spaced and installed to insure ample strength and rigidity. Rails and stiles shall be mortised and tenoned, work neatly mitered and membered, all butt joints made flush and smooth, and all permanent joints made up with water resistant glue. All fixtures shall be assembled without face screws or nails, except where it may be necessary to attach items. All face screws or nails which are necessary shall be counter sunk and plastic wood or wood plugs used to cover head, and the plug neatly touched up. The heads of all screws used in any assembly shall be counter sunk below the surface.
4. The core material shall be marine grade, 7 ply substrate or MEDEX exterior resin medium density fiberboard substrate; conform to ANSI A208.2.3.3.4, as manufactured by Medite Corporation (Phone 503-773-2522) or equal by Norbord MDF-MR (Phone 800-367-6338). **All substrate materials shall be LEED certified and meet the LEED requirements for the project.**
5. Back sheet shall be NEMA LD .020" thick, Type V, Grade 91 plastic laminate; apply on all surfaces not covered with plastic laminate; coordinate color with exposed surface color; comply with NSF Standard 35.

B. Construction / Joints

Follow AWI Premium Grade Standards; factory assembled parts and prefinished; flush type fronts and overlapping ends; $\frac{3}{4}$ " core material base cabinet, end and dividers with corner joints between framed members fully lock-jointed, glued and screwed; dado and glue cabinet backs into sides and bottom; scribe counter top and backsplashes; secure countertops to base cabinet from underside; fully cure surfaces prior to installation. Mortise and tenon, spline, dowel and/or pin lock and glue work to avoid use of nails wherever practical. Make butt joints with an approved device for prevention of separation of members. Blind nail and conceal.

C. Plastic Laminate

1. Plastic laminate shall be bonded to all exposed surfaces with Urac 185 adhesive or equal, to minimum $\frac{3}{4}$ " fir faced, close grain marine grade plywood applied under high pressure. In accordance with AWI 1600A-G-1, use horizontal grade on all exposed surfaces, vertical grade on semi-exposed surfaces and sealed paint on all concealed surfaces. Reject plastic laminate or plastic backing shall be used to prevent warping, unless otherwise specified. All edges shall be carefully sanded to smooth finish, removing burns, nicks and cur marks. Plastic laminate joints shall be finished without wavy and unsightly joints. Joints need not be mitered except as specified. Hand sand edges to a slight chamfer.
2. Top sheet shall be placed on and over finished edge. Ease exposed edge to overlap sheet. Use largest sheet possible in order to minimize seams.

3. Coved backsplashes shall be a minimum of $\frac{3}{4}$ ". Endsplashes may have a square intersection with tabletops unless specified otherwise.
4. Plastic laminated shelves shall be laminated with horizontal grade laminate on the side and vertical grade at all edges.

D. Doors, Hinged

Hinged doors shall be fabricated of $\frac{3}{4}$ " thick marine grade plywood with hardwood full perimeter edge with plastic laminate on face and self-edging on exposed sides. Door hinges, pulls and catches shall be supplied and detailed. Provide Grass 1200, 176 degree opening concealed casework hinges or equal by Blum or Amerock. Door catches shall be Component Hardware Model M22-2420 for non-magnetic and Model M30-2400, heavy duty, self-aligning for magnetic.

Utilize EPCO Model MC 4023.5 or as specified in the Item Specifications.

Door locks shall be Component Hardware Model P30 Series; stainless faced; master keyed as specified.

E. Doors, Sliding

Sliding doors shall be fabricated of solid core marine grade plywood with hardwood edges and constructed similar to hinged doors. Doors shall be mounted on E-Z Glides track. Doors shall be removable without the use of tools. Rubber stops shall be provided concealed in end stile or mullion.

F. Access Panels

Access panels shall be fabricated of $\frac{3}{4}$ " nominal thick hardwood and shall be fabricated as a door. Each access panel shall be provided with 2 (two) magnetic catches at top and 2 (two) $\frac{3}{16}$ " positioning pins at bottom.

G. Drawers

Drawers shall have dovetail construction, well glued and blocked. Fronts shall be not less than $\frac{3}{4}$ " thick hardwood. Sides and back shall be $\frac{1}{2}$ " thick fabricated of Birch, Maple, or Sycamore except where extension slides are used, in which the side shall be $\frac{5}{8}$ " thick. Bottom shall be milled into fronts and sides. Drawers shall be provided with suitable stops. Provide pulls as detailed or specified. The inside surfaces of all drawers shall receive one coat of penetrating primer and one coat of glass lacquer.

H. Painted Finishes

Painted finishes shall have exposed surfaces free from defects and blemishes that would show after being finished, regardless of grade specified. All surfaces specified to receive a paint or enamel finish shall receive one crosscoat of lacquer type

undercoat. The undercoat shall be of appreciably different color from that of the finish coat, and of proper ground color with relation to the finish coat. After the undercoat has been thoroughly dried, surfaces shall be sanded smooth and two coats of enamel shall be applied. Back painting shall be provided for all cabinet and woodwork prior to installation.

I. Interior & Wall Shelves

Interior shelves shall be adjustable with flush routed-in shelf standards. Wall shelves to be fabricated as specified and as per "Standard Detail".

J. Fire Retarding

Where required by code, all required materials are to be treated with fire retardant chemicals to achieve the required flame spreading performance rating. Retardant chemicals must be a type approved by local authorities.

2.7 SOLID SURFACE

- A. Solid surface material shall be Formica or approved equal product in the thickness stated in the Item specifications. Joint adhesive and sealant shall be of the same manufacturer of solid surface materials.
- B. Provide silicone, epoxy or polyester adhesive of type recommended by manufacturer for application and conditions of use.
- C. Install drop-in equipment in a manner that will allow for extreme temperature changes and as not to affect the integrity of the surrounding materials.
- D. Fabricators must have a minimum of five years experience in fabricating solid polymer materials; experience must be based on foodservice projects of similar size and complexity.
- E. All solid surface materials shall carry the NSF seal.

2.8 COLD STORAGE ROOMS

- A. All prefabricated cold storage rooms shall be manufactured by one manufacturer and installed by a factory supervised installer. All refrigerated rooms shall conform to the Energy Independence and Security Act of 2009 (EISA) / H. R. 6.
- B. Interior finished ceiling height shall be 8' - 6" unless otherwise specified.
- C. Materials
 - 1. Insulation shall be UL / ETL rated, non-burning urethane, foamed in place, not frothed or rigid board-foam.
 - a. Insulation shall be fluorocarbon filled (F-11) 95% closed cell content, nominal density of 2.0 pounds \pm 0.1 per cubic

foot. Dimensional stability shall be from -45 degrees F to 200 degrees F.

- b. Insulation shall have a thermal conductivity (K-factor) not to exceed (0.14 BTU/hour/square foot) as tested on ASTM C-177, at 75 degrees F mean temperature and an overall coefficient of heat transfer factor (U) not to exceed 0.029.
 - c. Insulation shall be rated as self extinguishing and fire retardant type. Flammability characteristics per ASTM E-84 shall be less than 25 flame spread and less than 450 smoke density, in accordance with U.B.C. Section 1717. Insulation shall meet and comply with the 1989 Montreal Protocol Agreement for reduced CFC content.
 - d. Classification; Class 1 Uniform Building Code, U.B.C. Part Viii, Section 4201-4203. Class A National Fire protection Association, NFPA Number 101, "Life Safety Code".
 - e. Fire hazard classification shall be in accordance with ASTM E-84 (UL723) and have a UL label.
2. Aluminum sheets used as a fascia for wall and ceiling panels shall be stucco aluminum not less than 0.040" thick.
 3. Stainless steel sheets used as a fascia for wall and ceiling panels shall be 20 gauge. Other stainless steel shall be the gauge specified. All stainless steel shall be Type 18-8, Type 304, #4 finish unless otherwise specified.
 4. Galvanized steel sheets used as a fascia for wall and ceiling panels shall be prime finish, not less than 22 gauge complying with ASTM 525 and with G90 coating.

D. Panel Construction

1. Panels shall consist of precision die format metal pans with $\frac{1}{2}$ " to $\frac{3}{4}$ " flanged perimeter, foamed in place urethane insulation between interior and exterior pans, thoroughly checked for gauge and accuracy. Panels shall be of same size wherever possible and shall be interchangeable with panels of like size. Metal pans shall be treated on the inside with a preparation coating of bonding agent to ensure a stable adhesion with the chemical bonding capabilities of the insulation.
2. Wall and ceiling panels shall be a minimum of 4" thick and contain 100% foamed in place insulation and shall not have any internal wood or metal structural members. To ensure tight fitting joints, all panel edges shall have foamed in place urethane tongues and grooves and a flexible vinyl gasket foamed in place on the interior and exterior of all edges.
3. Panels shall be rigidly coupled by a cam action hooked locking device. Locking device shall be foamed in place, a minimum of three locking devices per panel, maximum 36" on center. Locking device shall be accessible from the inside to facilitate installation in confined areas and shall be provided

with press-fit caps to close wrench holes. Joints between panels shall be sealed at interior and exterior edges with a PVC gasket and an odorless nontoxic, synthetic polymerized sealant, to maintain continuity.

- a. Wall panels up to 8' 0" high shall have a minimum of three (3) locking devices between each panel, located at the center, lower corner and upper corner. Panels above 8' 0" high shall have a minimum of four (4) locking devices.
 - b. Ceiling panels shall have a minimum of two (2) locking devices between ceiling panels and at wall panels, located at each corner of the wall panel. Ceiling panel joints shall be off-set from wall panel joints.
 - c. Pre-fabricated floor panels shall have a minimum of two (2) locking devices between each floor panel and at wall panels, located at each corner of the wall panel.
4. All interior vertical corners shall be coved with a ½" radius having an NSF approval.
 5. Exterior panels, interior partitions, corner panels, ceiling panels and "T" intersection panels shall be matching construction.
 6. Section lock parts, joints between floor panels and floor and wall panels shall be filled with silicone sealant.
 7. Interior/exterior ramps with non-slip treads shall be furnished where specified and/or shown on drawings.
 8. Every panel shall be UL, NSF and Factory Mutual approved and bear a certifying label.

E. Metal Finishes

1. Interior ceiling shall be 26 gauge galvalume with baked white painted surface.
2. Exterior floor, ceiling and unexposed exterior wall shall be 22 gauge galvalume steel.
3. Interior walls and exposed exteriors shall be 18 gauge stainless steel.

F. Wall / Ceiling Support System

1. Ceiling panels shall have a maximum deflection of 1/240 of the span under uniform loading of twenty (20) pounds per square foot. When the ceiling panels require a support system, the Manufacturer shall submit details and structural calculations to an engineer for approval prior to fabrication. A copy of the approved submittal shall be forwarded to Owner and Foodservice Consultant.

2. An indoor ceiling panel support system, when required, shall be finished and installed using a hanger wire network attached to hanger brackets, designed to engage with the female locking pins imbedded within the roof panel foam core, space 4' 0" on center.

G. Floor Types and Conditions

Floor construction as stated below or as specified in the Item Specifications:

1. TYPE I - Insulated Depressed Building Floor with finished floor to be as follows:
 - a. The floor shall be constructed at the job site in a 7" deep depressed slab by the GC.
 - b. Cold storage room wall panels shall extend down into the bottom of the depression. GC to provide two (2) 2" thick layers of rigid board form urethane with staggered joints in depression over 6 mil polyurethane vapor barrier, installed after the walls are in place.
 - c. On top of floor insulation provide a protective covering of 15 pounds felt. Overlap joints 6". Flash up side to the height of wall base for the finished floor.
 - d. Coordinate the installation of the topping and finished flooring with the GC. FSEC is responsible to protect the interior surface with adequate ventilation of the space during installation and cleaning of the finished flooring.
 - e. Metal panel surfaces as described for TYPE II - Pre-Fabricated floor installations.
2. TYPE II - Pre-Fabricated Floor to be as follows:
 - a. The floor shall be pre-fabricated metal clad, foamed in place urethane insulated panels. Floor panel construction and insulation to match that of wall and ceiling panels. Floor panels shall be fully coved with a minimum of 1/2" radius.
 - b. Pre-fabricated metal panel on the surfaces of the insulated panels are as follows unless otherwise specified:
 1. For exposed wearing flooring: 16 gauge stainless steel with additional concealed reinforcement fabricated to withstand loads of 5,000 pounds per square foot utilizing a minimum of a 12" on-center structural grid reinforced construction to provide the required support. Utilize 3/16" thick S/S plate on top of structural grid. NO WOOD UNDERLAYMENT may be used in the floor construction. The floor sections shall include an integral 36" deep reinforced ramp with non-skid strips as shown. Coordinate all shop drawings and submittals to match. Floor surface shall be fabricated as a NSF approved floor

surface. Provide 4" x 6" long non-skid, adhesive strips on 6" centers in traffic aisles as manufactured by 3-M Company. Install as per the manufacturer's instructions to provide a safe walking surface.

2. For concealed insulated floor: 14 gauge galvanized steel.

H. Door and Door Frames

1. Entrance door shall have a net door opening of 36" x 78" and shall be flush-type with interior and exterior finish matching that specified for the wall panels. Other door sizes shall be as specified, hinged as indicated on the Drawings. Provide heated relief ports in freezers and non-heated in refrigerators, located in exposed wall for accessibility.
2. Doors, door panels, door opening for bi-parting or sliding doors shall be UL Listed and equipped with the following:
 - a. Magnetic gasket, Posi-Seal door closure and latch. Provide inside safety release to prevent entrapment of personnel within the box.
 - b. Self-closing mechanism with three Standard-Keil Model 2838 Series or approved Kason model, strap camlift hinges and with NSF approved double seep gaskets.
 - c. Doorjamb of extruded aluminum with thermal break. An isolated, low wattage heater strip covered by magnetically attracted S/S shall be fitted into jamb. Strip shall provide perfect sealing of magnetic gasket and prevent frost and condensation build-up.
 - d. Fluorescent vapor-proof light, pilot light switch and rigid conduit between switch box and outlet box. Concealed wiring shall be standard on each entrance door section.
 - e. Heavy gauge S/S threshold with non-skid stripping heater wire shall continue beneath the threshold.
 - f. Solid-state digital thermometer to indicate inside temperature. Extend the probe to the furthest distance from the door.
 - g. Curtron Model M-200 strip curtain having 6" wide strips for each doorway and / or opening including all swing and bi-parting doors.
 - h. Heated viewport approximately 14" wide x 24" high, minimum triple Thermopane glass for all refrigerated storage areas. Viewport wiring to be concealed within the door, complete with flex cable to recessed splice box with door section.
 - i. Temperature alarms as follows: Modularm Model 75-B four digit display with a temperature range of -40 degrees to 193 degrees F including battery back-up. Recess the alarm housing adjacent to the door housing, not more than 6' from an entrance door. Extend the probe a minimum of 6' from the entrance door. Alarms to be completely recessed with conduit running within the wall panel, installed and set to sound at +35 degrees F and +50 degrees F for the cooler; +15 degrees F for the freezer. ALL INTERWIRING WITHIN THE BOX FOR THE TEMPERATURE AND ENTRAPMENT ALARMS IS THE RESPONSIBILITY OF THE FSEC.

Each door shall be monitored by a Modularm Model IP-1 illuminated push button with the DAC-55 box providing an entrapment alarm system mounted inside of each box, adjacent to the door. The alarm button shall be red in color and shall be connected to the Modularm system to provide a visual and audible alarm annunciation indicating the entrapment has been indicated. The alarm shall include contact points for connection with building systems.

I. Provide the following accessories for each refrigerated storage compartment:

1. Factory-installed 16 gauge S/S kick plates on each side of the door, up to a height of 36" AFF.
2. Provide 18" wide x 36" high, 3/16" diamond treadplate on both sides of the door on the interior and the exterior for a total of four pieces, installed.
3. Trim the refrigerated compartment to the wall at the exposed vertical junctures with walls and columns.
4. Furnish removable closure panels to enclose the space between the top of the box and the finished ceiling. Panels to be fabricated to match adjoining surfaces. Closure panels to be lift out type with side turned in to form a pan for added strength. At ceilings, securely fasten a channel and at face of cold storage room, securely fasten an angle for panel to slip into. Channel and angle to match panel material.
5. Corner guards on the exterior outside corners shall be 4" x 4" x 48", 14 gauge stainless steel secured to the wall panels with a full bed of contact adhesive. No fasteners shall be used.

J. Light Fixtures and Switches

1. Quantity and type of light fixtures shall be as indicated on Electrical Rough-in plan. Only fluorescent light or LED fixtures are allowed.
2. Fluorescent light fixtures shall be T-8 style, 48" two-lamp type fixtures, for wet location. Provide cool white lamps, with enclosed insulation jacket. Each fixture shall be provided with a -20 degree F G.E. 8E3736 ballast.
3. Light Emitting Diodes (LED) light fixtures shall be either 24" or 48" long as shown on the Drawings and as specified below:
 - a. Keil Model LED48X6215W, 48" long LED light fixtures with two - 15w lamps.
 - b. Keil Model LED24X418W, 24" lone LED light fixture with 1-8W lamp.
 - c. Operating range for the light fixtures shall be -40 degree F to 104 degree F.
4. Light switches shall be three way or four way where applicable, AC, pre-switch, mounted in recessed "FS" boxes with gray Hypolan, weatherproof plate, press switch cover and unbreakable

red plastic pilot light lens constantly lit on interior with indication on exterior.

5. Cold storage rooms with doors at each end shall have three way switches on the exterior and four way on the interior.
6. Light switches shall be factory mounted on the latch side of doors and pre-wired with rigid conduit and wiring run within the wall panel, terminated in a vapor tight splice box mounted on the inner wall near the ceiling. Manufacturer shall provide a 1 ¼" diameter hole in ceiling panel with a loose escutcheon through which Division 16 shall make final connections. FSEC shall coordinate that requirements for sealing penetrations from lights fixtures have been sealed to prohibit any moisture migration into the refrigerated area or light fixtures.

K. Door Fan Switch

1. Door fan switch shall be provided for each low-temperature cold storage room to shut off the evaporator fan motors when the door is opened.
2. Door fan switch shall be factory mounted on the door jamb and pre-wired with rigid conduit and wiring within the wall panels to a splice box located on the interior near the ceiling. Manufacturer shall provide a 1 ¼" hole in the ceiling panel with a loose escutcheon through which Division 16 shall make interconnection to the evaporator coil(s) motors.

L. Utility Penetrations

1. Coordinate openings in ceiling and wall panel to accommodate all electrical, refrigeration and drain lines. Coordinate installation of required sealant to prevent moisture from collecting in light fixtures.
2. Provide sleeves for refrigeration piping, electrical conduit and condensate piping whenever it passes through an insulated wall panel. Provide sufficient quantity of stainless steel escutcheons or proper sizes to trim all interior and exposed exterior penetrations.

M. Corner Guards

1. Corner guards on the exterior outside corners shall be 4" x 4" x 48", 16 gauge stainless steel secured to wall panels with a full bed of contact adhesive.
2. Rub rails for all exposed surfaces, mounted at 8" AFF.

N. Identification Signs

At the exterior of each cold storage room provide permanently affixed, engraved plastic name plates with the maximum ¾" high letters and the number identifying each cold storage room. Minimum sign size is 2" x 12". Confirm text for each sign before

fabrication. Name plate to be mounted with adhesive below respective digital thermometer alarm.

2.9 REMOTE REFRIGERATION SYSTEMS

- A. All remote refrigeration systems shall be provided by one contractor, unless otherwise specified.
- B. All systems shall comply with the requirements of the Energy Independence and Security Act of 2009 / H. R. 6.
- C. Verify the requirements of and provide any and all additional refrigeration specialty(s) or components(s) required or recommended by the manufacturer for the proposer operation under the specified operation conditions and locations of each system specified.
- D. Compressor and Condensing Units
 1. Units shall be factory assembled complete semi-hermetic air or water cooled condenser as specified, high-low pressure controls, suction accumulator on low temperature systems, sight glass, liquid line dryer, suction and discharge service valves, liquid receiver with inlet and outlet valves and electrical control panel. The electrical control panel shall be furnished with magnetic motor starter, defrost timer clock, and contactors in accordance with manufacturer's recommendation.
 2. Refrigeration systems shall be installed by a knowledgeable, skilled and where applicable licensed refrigeration contractor who shall perform the work according to ASHRAE and ASRE standards and the conditions of the Contract Documents. Systems shall be installed, charged, started, tested and fully operational.
 3. Capacities shall be based on the following:
 - a. Compartment temperature and evaporator temperature greater than 32 degrees, 18 to 20 hours of operation.
 - b. Compartment temperature greater than 32 degrees and evaporating temperature less than 32 degrees, 16 hours of operation.
 - c. Compartment temperature and evaporator temperature less than 32 degrees, 18 hours of operation.
 - d. Systems shall be designed to operate not more than 18 hours per day in a 100 degree ambient condensing temperature. Walk-in compartment shall operate at 35 degrees F with an evaporator at 10 degrees T.D. Walk-in freezer compartments shall operate at -10 degrees F with a 10 degree T.D. at -20 degree suction temperature. Suction lines shall be sized for maximum pressure drop of 2# on medium temperature and 1# on low temperature systems.
 4. Condensing units shall be mounted on a steel base to effect a quiet operation. All rotating parts to be carefully balanced for minimum vibration and lubricated with forced or splash

system. Receiver shall be sized for a complete pump down of the system and shall be shell type with fusible plug.

D. Compressor Racks

1. Racks shall be of the number of tiers and quantity to accommodate the number of condensing units specified for each rack assembly and allow for service clearance and ventilation.
2. Racks shall be fabricated with structural steel of size, rigidity and quantity to properly support the equipment to be installed on the rack.
3. Racks shall be all welded construction with welds ground smooth.
4. After the completion of fabrication, the rack shall be cleaned, primed and painted with top quality oil based enamel, two coats.
5. Racks shall be pre-wired to a circuit breaker panel requiring a single point of electrical connection and preplumbed to a header (when specified water cooled) for single point water and waste connection. All units shall be UL Listed.

E. Coils and Cooling Units

1. Units shall be direct expansion type of size and design to affect required temperature, humidity and to suit application intent with expansion valves factory installed.
2. Units shall be hung from the ceiling with ½" nylon rods with plated steel nuts and washers. Rods shall extend through the ceiling to bracing adequate for the suspended weight. Bracing shall be furnished as required; penetrations shall be sealed and trimmed with escutcheon plates.
3. Units shall be installed tight to the ceiling. All installations adjacent to wall shall be set out a minimum distance conforming to manufacturers directions, to ensure proper air circulation and performance.
4. Units with fan and blower and motor shall have thermal overload protection.
5. Freezer coils to be 4 fins per inch.
6. Coils shall include factory installed T-stats solenoids, thermostats and TX valves. All freezer coils shall include adjustable defrost termination, time initiated and temperature terminated and fan delay starters, Ranco F25-107 or equal.
7. Defrost cycle shall be provided on both medium and low temperature systems. Provide defrost systems on evaporator coils that are scheduled to operate at 35 degrees F and below. Freezer defrost cycles shall be time initiated and temperature terminated.

8. Locations of coils shall be coordinated with shelving and drain lines.
9. All coils for fabricated refrigerators and freezers shall be installed for accessibility and replacement.

F. Penetration Sleeves and Plates

1. All required wall and floor penetrations shall be provided by the FSEC. Service line penetrations of insulation to accommodate electrical conduit, refrigeration and drain lines, shall be limited to a minimum with service stubbed through insulation to locations predetermined by respective divisions.
2. Where service lines penetrate insulated wall and ceiling, the opening shall be lined with PVC sleeve, packed with caulking, before trimming with escutcheon plates.
3. All exposed ends of sleeves, both inside and outside of the compartments, are to be trimmed with 24 gauge stainless steel escutcheon plates, furnished as blanks in which respective work division shall cut required line holes and install.

G. Refrigerant Piping

1. Copper tubing for refrigeration piping shall conform to ASHRAE, ASTM or National Board of Fire Underwriters standard specifications whichever is greater. All piping shall be Type "L" ACR hard copper or cleaned and sealed soft type "L" tubing, dry seal or equal as indicated. Forged or wrought copper fitting with sweat soldered joints shall be used.
2. Tubing shall be cut only with a tube cutter and sized with a sizing tool.
3. Piping shall be exposed to view as required by the standard safety code for mechanical refrigeration.
4. The liquid and suction lines from condensing units to coils shall be sized and run as shown on the submittals approved for this project.
5. Exposed piping run with cold storage rooms shall be finished with aluminum paint.
6. For exposed areas, accessible furred ceiling spaces and in wall or excavated trench type installations, hard copper tubing shall be used. Exposed tubing shall be run in a manner to preclude damage by activities in the area; or shall be protected by conduit, furnished and installed as part of this contract. Conduit shall have water evacuated and both ends completely sealed.
7. For piping runs in conduit through inaccessible areas, such as under slab on grade, soft copper tubing shall be used. In lieu of large piping in conduit, especially vertical runs, random

line sizes may be used, carefully fabricated and assembled to ensure equal pressure drop.

8. Ends of lines shall be capped to prevent contamination and open only at time of final connection.
9. Suction lines shall be sized for a maximum pressure drop from evaporator to compressor of 3 lbs. For high and medium temperature systems, and of 1 lb. for low temperature systems and shall allow gas velocities of not less than 750 FPM in horizontal runs and 1500 FPM in vertical risers. Liquid lines shall be sized for a maximum pressure drop of 3 lbs. from receiver to evaporator.
10. Tubing runs shall be graded or pitched to prevent trapping of oil. Suction lines shall pitch a minimum of $\frac{1}{2}$ " for every 10' of pipe run back to the compressor.

H. Joints and Connections

1. Fittings shall be long radius wrought copper only as manufactured by Mueller Brass Company.
2. Vertically run suction lines shall have oil "P" traps constructed of two (2) 90 degree ells or one (1) piece Mueller "P" trap, of the same size as the vertical lines.
3. $\frac{1}{8}$ " NPT by $\frac{1}{4}$ fl. half union for all suction and discharge service valves with $\frac{1}{4}$ fl. cap.
4. Reduction in piping size shall be made with a manufactured reducer coupling.
5. Flare nuts shall be short forged or frost proof.
6. All surfaces to be joined must be prepared and cleaned. When soldering stop or solenoid valves, wrap valves with moist fabric to absorb excessive heat. Stop valves shall be partly open. When soldering expansion valves or pressure regulating valves, remove power assembly, if necessary, to prevent damage by excessive heat.
7. Copper joints shall be made with Handy & Marmon "sil-fos" brazing, "Phoson 15" allow, "Silvaloy 15" or equal; melting point of 1185-1350 degrees F; silver content of not less than 15%.
8. Copper to brass joints shall be made with Handy & Marmon "Easy Flo 45" brazing allow "Silvaloy 45", Mueller 122 or equal; melting point of 1125-1145 degrees F, silver content not less than 45%.

I. Hangers and Supports

1. For all piping not run in conduit, provide adjustable hangers, anchors or straps as required. Hanger spacing shall not exceed 8' -0".

2. Insulated copper piping shall be provided with approved type sleeves at hanger points.
3. All insulated copper piping shall be insulated from supports by means of felt wrapping or with "Trisolater" by Semco or approved equal.
4. Vertical piping shall be supported at intervals with spring type hangers of substantial spacing to support the pipe. All horizontal pipe runs connected to vertical risers must be adequately supported.
5. For suspended conduit, support shall be by means of hanger permitting screw adjustments. Sufficient hangers shall be used to provide support, allow expansion and limit vibration.
6. The slope of the suction lines shall allow for adequate return of the oil to the compressors based on factory recommendations.

J. Piping Sleeves

1. Provide sleeves through wall which allow for fully insulated lines. Extend sleeves entirely through wall and dress each end with a chromium plated wall plate neatly fitted against the wall, securely fastened and sealed in place. All sleeves through walls shall be of standard weight steel pipe.
2. Piping lines and sleeves at wall or floor penetrations shall be fully sealed and caulked and made vermin proof at all locations.

K. Piping Insulation

1. Suction lines run in conduit shall be insulated according to ambient and humidity conditions to prevent condensation and freezing.
2. Refrigeration suction lines outside of refrigerated compartments, not run in conduit, shall be insulated back to the compressor with Armstrong Armaflex AP foamed plastic insulation or as determined by code. **Thickness of material shall suit service, ambient and humidity conditions, to prevent condensation, minimum thickness 1".**
3. Cold storage room freezer drain lines extended through adjacent cooler compartment shall be installed with 1" minimum thickness of Armstrong Armaflex AP foamed plastic installation to prevent condensation. Carefully seal end of insulation tight against cooler wall surface.
4. Piping for cooling water services or refrigeration piping exposed to external ambient temperature and / or outdoor conditions shall be installed with minimum 22 ga. thickness of S/S jackets or Armstrong Armaflex AP formed plastic jackets over the insulation for complete protection of the insulation.

Paint exterior installation with Armaflex paint to match building exterior.

5. **Thickness of material shall suit service, ambient and humidity conditions to prevent condensation.**
6. Joints shall be sealed with Armstrong 520 adhesive. Insulation shall be continuous through clamps. Provide additional insulation where suction lines must be run 12" or less of water or underground water lines. Provide additional insulation to compensate for insulation compression at clamps or other methods of securing.
7. Refrigeration submittals shall confirm with the ambient temperatures for each area that refrigeration piping will travel through and state insulation size.

L. Valves and Accessories

1. All valves and controls shall be standard weight and suitable for service purpose intended, and subject to approval by the Foodservice Consultant.
2. Each system shall include condensing unit with standard valving, refrigerant piping, refrigerant, evaporator(s), liquid and suction lines isolation valves with 5' -0" of evaporators, thermostatic expansion valve for evaporator, heat exchanger, filter-fryer, liquid lines solenoids for Cold Storage Rooms and liquid indicator.
3. Vibration eliminators on compressor suction and discharge lines, size same as piping, as manufactured by Anaconda.
4. Refrigerant shut-off valves shall be as manufactured by Henry or Superior Valve Company. Valves shall be placed in liquid line at each condensing unit and in liquid line for each evaporator.
5. Expansion valves shall be Sporlan or equal, provided factory installed in the liquid line at the evaporator.
6. Each liquid line sight shall be Sporlan or equal "see all" moisture and liquid indicator and shall be full line size.
7. Solenoid valves shall be Sporlan line voltage, manual lift stem type, to operate at maximum of 2 lbs. Pressure drop across the valve. Valves shall be full line size, using silver solder connection as applicable. A liquid line solenoid, normally closed, shall be used with temperature control for each Cold Storage Room compartment on a system.
8. Include a suction line filter with access valve adjacent to compressor. Filter shall be a Superior "F" series or equal.
9. Time clocks shall be Paragon.

M. Drain Lines

1. PC to provide Type "L" copper coil drain lines extended to exterior of refrigerated compartments over floor sinks / open site drains with "S" traps at termination ends.
2. Provide clean out "T" and cap at each change of direction in the lines. Provide individual drain lines for each coil unless otherwise specified. Drain lines shall be run tight to the refrigeration compartment walls with minimum pitch of 2" per foot. Provide union in drain line by coil for ease of removal.
3. Drain lines on the exterior of refrigerated compartment shall be covered by 16 ga. S/S pipe chase/cover. The S/S covers shall extend from the ceiling to the floor and completely cover the piping, condensate line trap and condensate hub drain. As necessary, scribe the covers to cove base of the floor system.

PART III - EXECUTION

3.1 DELIVERY AND INSTALLATION

A. Delivery

1. The equipment shall be delivered and installed on schedule. Coordinate all work with the General Contractor and other divisions as required.
2. Extra charges resulting from special handling or shipment shall be paid by the Food Service Equipment Contractor if sufficient time was allowed in placing factory orders to ensure normal shipment.

B. Installation

1. The work shall be accomplished so as not to delay the project construction schedule, interfere or conflict with the work being performed by other contractors. Work shall be coordinated and integrated to prevent conflict of work being performed by other contractors. Work shall be coordinated and integrated to prevent conflict of work necessitating changes to work already completed. Should conflicts occur, notify the Owner for their coordination in its resolution.
2. Verify all required field dimensions before fabrication.
3. Include all alterations to walls, floors and ceilings necessary for work, except otherwise shown or specified, accomplished in a manner satisfactory to the Architect and the Foodservice Consultant. Holes through structural beams shall be prohibited unless written approval has been granted by the Architect.
4. Cut holes in equipment for pipe, drains, electrical outlets, etc. as required for this installation. Work shall conform to

the highest standards of workmanship and shall include welded sleeves, collars, ferrules or escutcheons.

5. Repair all damage to the premises as a result of this installation.
6. Remove daily all debris from the site related to this installation.
7. Trim shall not be an acceptable substitute for accuracy and neatness. When trim is required and accepted by the Consultant in lieu of rejection of items of equipment, it shall be the FSEC's responsibility to provide same at no additional cost.
8. Space between all equipment to wall, ceiling, floors, masonry pads, and adjoining units not portable and with enclosed bodies shall be completely sealed against entrance of food particles or vermin by means of trim strips, welded, soldering or mastic. Mastic shall be clear General Electrical Silicone Construction Sealant Services, SE 1200.
9. Trademarks and names of fabricator shall not be fastened to any items without written approval of Mackesey and Associates, LLC.
10. Exposed fire suppression piping shall be chrome plated.
11. All items shall be installed plumb, level and in proper elevation, plane location and in alignment with other work.

C. Cold Storage Rooms

1. The cold storage rooms shall be delivered and installed on schedule by factory supervised and approved installers. Coordinate the work with the General Contractor and other trades as necessary.
2. Become fully familiar with the job site and the architectural drawings and specifications. Provide the necessary job site coordination with the various trades to insure job site conditions will meet the requirements of the cold storage rooms.
3. Establish a time schedule with the General Contractor that will insure the job site coordination with the various trades to insure job site conditions will meet the requirement of the cold storage rooms.
4. All work shall be designed and manufactured to comply with field conditions and fitted with proper joints and sections.
5. During curing and cleaning of the wearing floor inside the cold storage rooms, the cold storage room doors shall be removed or blocked open and the rooms well ventilated to prevent damage to the interior. "KEEP OUT" signs shall be posted at each open door.

6. After the installation of the cold storage rooms and prior to the installation of the wearing floor and after the wearing floor has cured, the cold storage room doors are to be closed and locked. Verify the door perimeter heater strip has not been activated and the circuit will remain off until the refrigeration system has been started.
7. Where the insulated floor sections are depressed or floorless wall panels are specified, walls shall be anchored to the building floor with a concealed 18 gauge galvanized steel floor track or vinyl screed with drive pins 2' -0" on center and sealed at interior and exterior edges with a bead of sealant.

D. Refrigeration Systems

1. Refrigeration systems and connecting piping shall be installed as indicated in contract documents in a manner that provides complete and operational systems and eliminates any noise and vibration being transmitted to any part of the building.
2. Piping shall be installed to permit normal installation, service, removal of the condensing units and their components and view sight glasses and allow expansion and contraction without damage to the systems.
3. Extreme care shall be taken to keep the entire system clean and dry.
4. Nitrogen gas shall flow through piping being welded to prevent scaling. The Owner or Foodservice Consultant shall have the option of cutting a maximum of three (3) welded fittings to inspect for the proper use of nitrogen. Food Service Equipment Contractor shall replace all fittings at their cost where scaling is present.
5. All refrigeration lines shall be factory extended to one end of the compressor rack in a neat and orderly manner and shall be supported and anchored with "Unistrut" or equal clamps and channels. Ends of lines shall be capped against contamination.
6. Compressors and all accessories on the compressor rack shall be factory mounted and pre-wired to a main circuit breaker control panel and with individual circuit breakers wired to a main breaker disconnect requiring a single power connection. All wiring shall be run inside a code approved raceway.
7. Condenser water supply and return header shall be factory pre-plumbed using hard tubing with shut-off valves for supply and return for each.
 - a. Provision shall be provided for connection to city water for emergency use on systems piped to chilled water recirculating systems.
 - b. Verify water pressure and provide all necessary components to insure proper operation of the water cooled

system and the return of the water to the recirculating systems.

If, in the opinion of the Food Service Equipment Contractor, additional ventilation is required to ensure correct operation temperatures, the FSEC shall so state in a letter to Owner and Foodservice Consultant for evaluation and decision before installation.

E. Refrigeration System Instruction and Identification

Food Service Equipment Contractor shall at each component for every system identify it with the letter/number shown on the approved Refrigeration Shop drawing. The identification shall be with black paint, decal, or other approved permanent method. Plastic tape labels are not acceptable. Identification shall be in an easily seen location.

F. Refrigeration Piping Testing

1. Notify Owner and/or Foodservice Consultant in advance when a test is being made and ready for inspection.
2. Each system shall be pressure tested for leaks. The test for R-404a refrigeration shall be 250 PSI on the high side and 150 PSI on the low side. All valves shall be fully opened during the test.
3. Test to be accomplished as follows:
 - a. Charge the systems with refrigerant through the port of liquid shut off valves of the receivers to a pressure of 10 to 20 PSI.
 - b. Add dry nitrogen, the supply of which shall be equipped with pressure regulating valve to provide the specified pressure.
 - c. Carefully test all points for leaks using either a Halide torch or an electric Halogen leak detector.
4. The Owner and Foodservice Consultant shall approve all tests.
5. Precautions shall be taken to disconnect the low pressure controls for protection of the bellows during testing.

G. Refrigeration System Evaluation

1. Advise Owner and/or Foodservice Consultant when the evacuation of the system is to start, so the procedures can be checked.
2. Evacuation shall be Airserco, Stroke KC8r or Robinaire, 150021 vacuum pumps with an indicating gauge registering pressure in microns. Pump shall be connected to the system with a 5/8" O.D. line or larger.
3. Evacuate the high and low sides to 500 microns. Break the vacuum with refrigerant to 0 p.s.i. Evacuate the high and low sides below 500 microns; and then break vacuum to 0 p.s.i with the refrigerant to be used in the system.

3.2 START-UP AND DEMONSTRATION

- A. All equipment under this section shall be cleaned and ready for operation at time building is turned over to the Owner.
- B. Provide a competent factory trained representative of the Food Service Equipment Contractor to be present when installation is put into operation. The FSEC shall lubricate and put into proper operation all equipment and instruct the Owner's employees in the proper use and maintenance of all items in this contract and set up a maintenance schedule to be followed thereafter. Three (3) copies of the schedule shall be provided before final acceptance of the installation.
- C. When cleaning, testing and adjusting have been completed and operation and maintenance manuals approved, arrange for demonstration times at Owner's convenience but during normal working hours. Demonstration shall be done by competent, trained personnel, thoroughly familiar with the operation, techniques of usage, capacities and maintenance of the equipment.
- D. The Food Service Equipment Contractor contract representative for this Project shall be present at all equipment demonstrations.
- E. Furnish all warranty cards and advise Owner to complete and file the registrations. Demonstration and instruction may take up to two full days.
- F. Refrigeration System Start-Up
 1. Charge each system with the refrigerant listed on the "approved" refrigeration shop drawings.
 2. All systems and controls shall be set and checked for proper operation temperature.
 3. Check compressor for proper oil level. Refrigeration oil shall be Suniso 3G, inhibited only, delivered to the job site in sealed containers. Oil shall be added to the system to maintain $\frac{1}{4}$ " to $\frac{1}{2}$ " sight glass.
 4. Check all electrical circuits by Division 16 for compliance with the manufacturer's specifications. Division 16 shall make corrections to wiring as required. The Food Service Equipment Contractor shall be responsible for corrections to his wiring and/or components as required.
 5. The manufacturer's requirement for lubrication shall be checked and followed before the operation of fan and pump motors, and/or associated equipment.
 6. Furnish a set of "As Built Drawings" to the Owner upon completing the installation. The drawings shall include refrigeration line runs and wiring diagrams. Drawings shall be submitted in the form of reproducible sepias.

7. Review the refrigeration systems, operation, maintenance, emergency procedures, and proper service procedures with the Owner's Engineering Staff. Provide a competent serviceman who shall remain for a minimum of eight (8) hours during the first day of operations.
- G. Where concrete has been poured inside a low temperature cold storage room it shall be allowed to cure twenty-eight (28) days, minimum seven (7) days before starting the refrigeration system. Check moisture level before energizing refrigeration system. After the curing period the temperature shall be brought down in regulated stages. The temperature shall be brought down as follows: to 40 degrees and held for twenty-four (24) hours; to 20 degrees and held for twenty-four (24) hours; and then to the specified temperature.
- H. During start-up provide all required instructions for the operation and maintenance of the equipment, after one year warranty period.
- I. The fire suppression system shall be tested in the Owner's presence. Certificate shall be obtained and provided to the Owner from the authorities and from the Fire Insurance Rating Bureau. Include six month system check.
- J. After installation and hook-up, verify air volumes at each exhaust and make-up air duct by a factory trained specialist. A report shall be submitted to the Owner and the Foodservice Consultant of all readings. All incorrect air volumes shall be rechecked after adjustments.
- K. Provide a complete set of as-built drawings including foodservice layout, rough-ins, special condition, manufacturer's shop, technical bulletins, etc. for a comprehensive record set of drawings for the installation of the foodservice equipment package.

3.3 EXISTING EQUIPMENT

- A. All existing foodservice equipment that is affected by the project shall be disconnected by the appropriate trade.
- B. Existing foodservice scheduled and specified for reuse shall be handled as follows:
 1. Disassemble the equipment as required, remove and store the equipment until appropriate locations are ready for installation of existing equipment.
 2. Reassemble and set existing equipment in place ready for final connection as required for new equipment.
 3. Identify the equipment and schedule as part of submittal process with picture of equipment.
 4. Install existing equipment in the same manner as it was before relocation.

C. Existing foodservice equipment not scheduled for reuse shall be handled as follows:

1. Contact the Owner's representative to confirm the final disposition of the unscheduled equipment.
2. When equipment is to be relocated to a storage location, deliver the equipment to the appropriate storage area within the existing building or site.
3. When FSEC is requested to dispose of existing equipment, the FSEC shall take possession and dispose of the equipment. The FSEC must receive written authorization before removing any equipment from the site.

3.4 CLEANING

Remove masking and protective covering from all finished surfaces; wash, clean and polish equipment, provide finish to glass, solid surface, plastic, laminate and other wearing surfaces, accessories, fixtures, etc. prior to the inspection and final acceptance of the completed installation.

3.5 MAINTENANCE SCHEDULE

- A. Provide operation and service inspections 180 days after start-up during warranty period. Provide a final inspection 30 days before the end of the warranty period of each piece of equipment. Any service or report requirements shall be performed before the end of the warranty period. Schedule 180 day and 335 day inspections within 30 days of the start of operations. Inform Consultant of time and date.
- B. Copies of all warranty service calls and inspection reports shall be mailed to the Owner and Building Operations Engineer.
- C. The Owner may call an outside company at the expense of the Food Service Equipment Contractor, if the repair technician does not arrive within four (4) hours of the time called, in response to an emergency call.

PART IV - EQUIPMENT

**CAPTAIN JAMES A LOVELL FEDERAL HEALTH CARE CENTER
DEPARTMENT OF VETERANS AFFAIRS
NORTH CHICAGO, ILLINOIS**

NOTE 1: Where multiple names and model numbers of foodservice equipment manufacturers are provided within the Equipment Schedule, the first named manufacturer shall be utilized to determine the design, capacity, materials and performance standards upon which other approved manufacturers shall be tested. Similar equipment types shall be of the same manufacturer.

NOTE 2: Point of connection or rough-in drawings for this project have been prepared by Mackesey and Associates, LLC. It shall be the responsibility of the Food Service Equipment Contractor (FSEC) to verify all dimensions, plumbing and electrical services and prevailing codes as they relate to this Project and to show any required changes on the documents submitted for approval. Use of M & A drawings are not allowed for construction.

NOTE 3: Schedules of plumbing, electrical and ventilation specifications for foodservice equipment have been provided with the set of construction document drawings. Where the plumbing, electrical or ventilation requirements of equipment provided by the Food Service Equipment Contractor exceed those requirements or cause any added costs to the owner, construction manager, trade contractor, architect or engineers, the added cost shall be borne by the FSEC.

NOTE 4: All items shall be provided with standard accessories for the first named manufacturer.

Approved fabricators:

Best Way
603 19th Avenue, NE
Saint Joseph, Minnesota 56374
1-320-363-4600

Keas Stainless Steel Fabricators
P. O. Box 15747
Del City, Oklahoma 73155
405-232-0869

Eagle Group
100 Industrial Blvd.
Clayton, DE 19938
800-441-8440

Best-Way Fabricating
603 19th Ave. NE
Saint Joseph, Minnesota 56374
320-363-4600

Institutional Equipment (IEI)
704 Veterans Parkway, Unit B
Bolingbrook, Illinois 60440-5094
630-771-0990

FRED, Inc.
P. O. Box 5716
Traverse City, MI 49696
231-947-4580

Nationwide Fabrication, Inc.
10923 Leroy Drive
Northglenn, Colorado 80233
303-853-0107

Two Rivers Enterprises
490 River St W
Holdingford, MN 56340
320-746-3156

ITEM 1 UTENSIL AND PAN WASHING EQUIPMENT

Existing, as is.

ITEM 2 MOBILE PAN SHELVING

Lot required

InterMetro or approved equal Amco, Eagle, Focus or Nexel model
Provide the following:

- A. Ten Model A2148NK3 shelves.
- B. Twenty Model A2160NK3 shelves.
- C. Twenty-four Model 63UPK3 posts.
- D. Twelve Model 5M swivel casters.
- E. Twelve Model 5MB locking swivel casters.

ITEM 3 OPEN NUMBER

ITEM 4 OPEN NUMBER

ITEM 5 OPEN NUMBER**ITEM 6 OPEN NUMBER****ITEM 7 LARGE WASTE CANS**

Existing, relocated by Owner.

ITEM 8 HAND SINKS WITH ELECTRONIC FAUCETS

Eight required

Eagle or approved equal fabricated equal

Eight Model YHSA-SPEC*2 wall-mounted hand sinks, **14 ga. #304 S/S, each with a Z-bracket, 14 gauge S/S three-sided apron.** Include the following accessories for each unit:

- A. One T & S Brass and Bronze Model EC-3100, deck-mounted infrared sensor faucet with thermostatically controlled mixing valve, gooseneck swivel spout and aerator. Include two sets of alkaline batteries for each faucet. As a part of this item provide a total of two additional faucets for replacement.
- B. Pre-cut hole for the faucet.
- C. 17 1/2" high backsplash installed on a S/S Z-clip. Mount to the wall with S/S anchors.
- D. Custom bowl size - 14" x 12" x 10" deep bowl.
- E. Chrome P-trap with rear overflow.
- F. Marine edge on the front and both sides.
- G. ADA approved 14 ga. S/S apron mounted with S/S anchors.
- H. 1 1/2" S/S basket strainer.
- I. FSEC shall provide the GC with detailed drawings for wall blocking to support the S/S anchors for this item.
- J. The eighth hand sink will be located in the temporary servery. When the temporary servery is dismantled this sink is to be removed and turned over to Owner as a spare.

ITEM 9 MOBILE UTILITY CARTS

Existing, relocated by FSEC.

ITEM 10 WORKTABLE WITH SINKS

One required

Fabricate

One 30" wide x 10'- 0" long x 34" high custom fabricated S/S worktable with sink with 14 ga. S/S top as shown on the Drawings with the following accessories:

- A. Two 20" x 21" x 10" deep sink.
- B. One 2" rotary lever drain with rear overflow. All rotary lever drains shall include rear overflows.
- C. Partial undershelf as shown on the Drawings.
- D. 10" high backsplash.
- E. Pre-cut holes for the faucet.
- F. One drawer.
- G. Legs, feet and crossrails as shown on the Drawings. This applies to all wall mounted tables.
- H. Provisions for the installation of Item 12.

ITEM 11 DISPOSER

One required

In-Sink-Erator or approved equal Salvajor model

One Model SS-150-7-AS-101 complete disposer package with the following:

- A. Syphon breaker.

- B. Solenoid valve.
- C. Flow control valve.
- D. Short body.
- E. One T & S Model B-0455 vacuum breaker assembly.
- F. Manual wall mounted switch, 208/3.

ITEM 12 SPRAY AND FILL ASSEMBLY

One required

T&S Brass or approved equal Chicago model

One Model B-0131-B "rigid mast" pre-rinse spray with One Model B-0156 Add-a-Faucet with aerator.

ITEM 13 WALL SHELVES

Two required

Fabricate

One 12" wide x 42" long wall mounted shelf and one 12" x 54" long wall mounted shelf.

ITEM 14 OPEN NUMBER**ITEM 15 OPEN NUMBER****ITEM 16 OPEN NUMBER****ITEM 17 OPEN NUMBER****ITEM 18 OPEN NUMBER****ITEM 19 OPEN NUMBER****ITEM 20 OPEN NUMBER****ITEM 21 MOBILE WORKTABLE**

One required

Fabricate

One 30" wide x 6'- 0" long x 34" high custom fabricated S/S worktable as shown on the Drawings with the following accessories:

- A. Full undershelf.
- B. 10" high backsplash with finished back panel.
- C. One drawer.
- D. Locking casters.

ITEM 22 MOBILE SLICER STAND

One required

Piper or approved equal Advance, Eagle or fabricated equal

One Model 331-3424, 28" high special height, mobile slicer stand with the following accessories:

- A. Locking casters.
- B. Raised perimeter edge.
- C. Floor lock.

ITEM 23 SLICER

Existing, relocated by FSEC.

ITEM 24 MOBILE MIXER STAND

One required

Piper or approved equal Advance, Eagle or fabricated equal

One Model 331-3424, 28" high special height, mobile mixer stand with the following accessories:

- A. Locking casters.
- B. Raised perimeter edge.
- C. Floor lock.
- D. Install Item 25 on this unit and bolt to the stand.

ITEM 25 20 QUART MIXER

Existing, relocated by FSEC installed on Item 24.

ITEM 26 OPEN NUMBER

ITEM 27 OPEN NUMBER

ITEM 28 OPEN NUMBER

ITEM 29 OPEN NUMBER

ITEM 30 OPEN NUMBER

ITEM 31 FOOD PROCESSOR

Existing, relocated by FSEC.

ITEM 32 WORKTABLE WITH DISPOSER CONE

One required

Fabricate

One 30" wide x 9'- 0" long x 34" high custom fabricated S/S worktable with sink with 14 ga. S/S top as shown on the Drawings with the following accessories:

- A. Partial undershelf as shown on the Drawings.
- B. 10" high backsplash.
- C. Pre-cut holes for the pre-rinse spray.
- D. One drawer.
- E. Legs, feet and crossrails as shown on the Drawings. This applies to all wall mounted tables.
- F. Welded disposer cone and control bracket.

ITEM 33 WALL SHELVES

Two required

Fabricate

One 12" wide x 5'- 6" and one 12" wide x 2'- 0" long wall mounted shelves.

ITEM 34 SPRAY AND FILL ASSEMBLY

One required

T&S Brass or approved equal Chicago model

One Model B-0131-B "rigid mast" pre-rinse spray with One Model B-0156 Add-a-Faucet with aerator.

ITEM 35 DISPOSER

One required

In-Sink-Erator or approved equal Salvajor model

One Model SS-200-18B-AS-101 complete disposer package with the following:

- A. Syphon breaker.
- B. Solenoid valve.
- C. Flow control valve.
- D. Short body.
- E. One T & S Model B-0455 vacuum breaker assembly.

- F. Manual wall mounted switch, 208/3.
- G. Weld cone to Item #32.

ITEM 36 MOBILE PAN RACKS

Existing, relocated by FSEC.

ITEM 37 60 QUART MIXER

Existing, relocated by FSEC.

ITEM 38 ISLAND WORKTABLE WITH SINK

One required

Fabricate

One 36" wide x 11'- 0" long x 34" high worktable with the following accessories:

- A. One 24" x 24" x 10" deep sink with 2" rotary lever drain and rear overflow.
- B. Partial length 14 ga. S/S undershelf shall be support by full perimeter 1 5/8" round S/S pipe welded to the legs. The shelf shall be further reinforced with full perimeter and cross angle steel reinforcement. This reinforcement shall apply to all exposed undershelves on custom fabricated equipment for this project.
- C. Flanged feet.
- D. Two 115/1 duplex receptacles mounted below top with S/S bracket. Receptacles to be in cast aluminum or S/S boxes and provided with a S/S cover plate. The tables shall be fully wired by the fabricator to a J-box located under the undershelf. All wiring shall be concealed. This wiring requirement applies to all custom fabricated worktables for this project.
- E. One 12" wide x 8'- 0" table overshelf as shown on the Drawings. Extend the support posts for the undershelf through the table top and weld to the crossrails for anchoring and securing the posts.
- F. One drawer.
- G. One T & S Model B-0201 deck-mounted faucet with aerator or approved equal Chicago or Component Hardware model. The alternate faucets manufacturers apply to all faucets, pre-rinse spray and vacuum breaker assembly for the project, although the manufacturer must be consistent through the project.

ITEM 39 MOBILE PAN SHELVING

Lot required

InterMetro or approved equal Amco, Eagle, Focus or Nexel model

Provide the following:

- A. Five Model A2136NK3 shelves.
- B. Four Model 63UPK3 posts.
- C. Two Model 5M swivel casters.
- D. Two Model 5MB locking swivel casters.

ITEM 40 WALK-IN COOK'S COOLER

One required

Thermalrite or approved equal Imperial, Kolpak, Norlake or Thermal Kool model

One assembly of 6" **thick** prefabricated panels, 9' 6" high box with 2" thick floor for this Item and 4" thick insulated floor for Item 47 installed in accordance with NSF Standard #7 as shown on the Drawings. Provide the following:

- A. One Jamison Model JAMOCLEAR or approved equal model, 36" wide swing type plastic cooler door and one S/S swing door for the freezer.

Door panel to be constructed of 1" thick clear, transparent cast acrylic, Type #1 Grade A in accordance with Federal Specification L-P-391C. Bottom of the door to be protected on front and back with #16 gauge stainless steel toe plates. The frame of the door to be clad on all exposed surfaces with 24 gauge stainless steel.

Gasket at sides and head of frame to be special extruded synthetic rubber. Sill gasket to be sweep type.

Hardware to be chrome-plated and consisting of three hinges and top mounted door closer. Provide S/S 5' 0" door pull on front. Back push plate to be #16 gauge stainless steel. Provide this door for each of the JAMOCLEAR door indicated for this project.

Provide frame protection with #16 gauge stainless steel kick plates.

Include locking provision with emergency escape feature.

THIS APPLIES TO ALL JAMOCLEAR OR EQUAL DOORS SPECIFIED FOR THIS PROJECT.

- B. Reinforced door jam to support the installation of the face mount swing door.
- C. Door bumper.
- D. Installation with S/S fasteners.
- E. Provide one replacement door sweep for each door.
- F. Floor insulation system: Insulated floor sections shall be fabricated to withstand loads of 5,000 pounds per square foot utilized a minimum of a 12" on-center structural grid reinforced construction to provide the required support. Utilize 3/16" thick S/S plate in lieu of typical wood underlayment substrate. NO WOOD UNDERLAYMENT may be used in the floor construction. The floor sections height shall be installed and the installation of the exterior ramp. Coordinate all shop drawings and submittals to match. GC to provide finished flooring as scheduled on the Architect's drawings. FSEC shall provide and coordinate the installation of the vinyl channel and insulated wall panels with GC.

ITEM 41 MOBILE COOLER SHELVING

Lot required

InterMetro or approved equal Amco, Eagle, Focus or Nexel model

Provide the following:

- A. Twenty-five Model A1848NK3 shelves.
- B. Thirty Model A1860NK3 shelves.
- C. Forty-four Model 63UPK3 posts.
- D. Twenty-two Model 5M swivel casters.
- E. Twenty-two Model 5MB locking swivel casters.

ITEM 42 EXTERIOR REFRIGERATION SYSTEM

One required

Cold Zone or approved equal Kairak, Keeprite, RDT or Zero Zone model

One Model ET-4H exterior air cooled refrigeration rack system as further described and with the following accessories:

Refrigeration rack shall consist of two individual, semi-hermetic condensing units mounted on a painted common steel frame with common, single point utility connection with a stainless steel enclosure. The

system shall provide complete assembly and prewiring of all electrical components configured for a single point of electrical connection. Coordinate with GC for early installation. System shall include a 208/3 pre-wired electrical panel with separate compressor and fan motor circuit breakers, contactors and defrost clock for low temp system/s. A main fused disconnect shall be provided on the assembly. Refrigerant is R-404A.

Compressor schedule:

Item 40	Walk-in Cooler	4.0 HP - Copeland Model CS27K3E
Item 41	Walk-in Freezer	7.5 HP - Copeland Model ZF24K4E
Item 94	Walk-in Cooler	4 HP - Copeland Model CS27K3E
Item 118	Walk-in Cooler	2 HP - Copeland Model CS18K6E
Item 99	Blast Chiller	7.5 HP - Copeland Model ZS56K4E

Other system components common to this system are:

- A. Liquid line kit with filter/drier and sight glass with moisture indicator.
- B. Cold weather package for operation in -25 degree temperatures including but not limited to crankcase heater, flooded head pressure control valve, heated receiver section and .
- C. High / low pressure safety controls with "superhose" type flexible lines.
- D. Sectional removable condenser sized to operate at 100 degree ambient.
- E. Freezer shall include suction line accumulator, factory installed.
- F. Factory installed thermostats, liquid line solenoid valves and thermostatic expansion valves.
- G. UL and ETL labels package.
- H. Evaporator fan and defrost contactors per coil mounted in panel (electrical defrost only).
- I. All factory brazing done under a nitrogen flow and shipped with dry nitrogen charge.
- J. Control panel with switches / disconnects and lights for each compressor and refrigerant circuit.
- K. Low voltage / loss phase monitor.
- L. Single point of electrical connection with code compliant disconnects. Provide emergency back-up power for refrigeration controller to maintain computer operation during power outage.
- M. One Johnson A419ABC-1 digital T stat per walk-in storage location.
- N. Installation by factory authorized and supervised refrigeration contractor.

Refrigeration control systems shall include a CPC RX-100 controller to control the following and include:

- A. Include modem & software.
- B. Input / Output boards as required to for temp monitoring, temp termination & control.
- C. Temperature sensors for each "walk-in" for temp control & monitoring (ship loose).
- D. Temperature sensors for each electric defrost coil for defrost termination.
- E. Control of each condenser fan motor individually.
- F. Control of temp sensor for condenser splitting control.
- G. High and low temperature alarms for all refrigerated rooms.
- H. Ultra site software installed on Owner supplied dedicated PC with 18 hour day of training.

EVAPORATOR COILS

Evaporator coils as manufactured by Cold Zone Refrigeration shall be mounted tight to the ceiling of the walk-in box per manufactures directions. Air throws to be parallel to the ceiling and down the aisles in boxes where pallet racking is used. All coils shall have full flow isolation ball valves on the liquid line and suction line of each coil. In addition, all coils shall have insulated drain pans, factory mounted sweat fit balanced port expansion valves. Freezer coils shall be a maximum of 4 fins per inch. Cooler coils shall be a maximum of 6 fins per inch. Provide the evaporator coils as listed below:

- A. Provide the Cold Zone evaporator coils or equal Bohn or Russell model complete with factory installed thermostats, solenoids and TX valves as follows:
 - 1. Item 40, Walk-in Cooler - Two Model AA38-160B with off-cycle defrost.
 - 2. Item 41, Walk-in Freezer - Two Model AE36-140B with electric defrost.
 - 3. Item 94, Walk-in Cooler - Two Model AA38-160B with off-cycle defrost.
 - 4. Item 99, Blast Chiller - Provided as part of Item 99
 - 5. Item 118, Walk-in Cooler - Two Model AA28-106B with off-cycle defrost.
- B. **FSEC shall provide all non-line voltage wiring for control and sensor wiring per manufacturers requirements and recommendations.**
- C. 1" copper condensate lines by PC. Walk-In Freezer shall have heat tape and insulation provided by the FSEC.
- D. Condenser coil engineered for 100 degree outside ambient temperature.
- E. 208/3, 150 amp electrical connection in a single point fused connection. Single point of electrical connection - 150 AMP fused with minimum ampacity of 128.6 amps.
- F. System dimensions of 142" L x 61.5" W x 72" in height at a maximum weight of 3300 pounds.

Procedure for completing the system shall follow the requirements of the Section 11 40 00 specifications including Article 2.9 with all requirements for shop drawings illustrating the line runs, details, materials and accessories. The FSEC shall provide all control, sensor and other interwiring other than line voltage power for the system. The FSEC is responsible to ensure the systems including all features of the systems are operational.

The FSEC in coordination with the GC shall expand the existing elevated platform to suit the size and weight of the new refrigeration system.

Warranty shall follow Section 11 40 00 Specifications.

- ITEM 43 OPEN NUMBER**
- ITEM 44 OPEN NUMBER**
- ITEM 45 ISLAND WORKTABLE WITH SINK**
One required
Fabricate

One 36" wide x 10'- 0" long x 34" high worktable with the following accessories and as further specified for Item 38:

- A. One 24" x 24" x 10" deep sink.
- B. Full length 14 ga. S/S undershelf shall be support by full perimeter 1 5/8" round S/S pipe welded to the legs. The shelf shall be further reinforced with full perimeter and cross angle steel reinforcement. This reinforcement shall apply to all exposed undershelves on custom fabricated equipment for this project.
- C. Flanged feet.
- D. Two 115/1 duplex receptacles mounted below top with S/S bracket. Receptacles to be in cast aluminum or S/S boxes and provided with a S/S cover plate. The tables shall be fully wired by the fabricator to a J-box located under the undershelf. All wiring shall be concealed. This wiring requirement applies to all custom fabricated worktables for this project.
- E. One 12" wide x 8'- 0" table overshelf as shown on the Drawings. Extend the support posts for the undershelf through the table top and weld to the crossrails for anchoring and securing the posts.
- F. One drawer.
- G. One T & S Model B-0201 splash-mounted faucet with aerator or approved equal Chicago or Component Hardware model. The alternate faucets manufacturers apply to all faucets, pre-rinse spray and vacuum breaker assembly for the project, although the manufacturer must be consistent through the project.

ITEM 46 FOOD PROCESSOR

Existing, relocated by FSEC.

ITEM 47 WALK-IN COOK'S FREEZER

Specified for Item 40.

ITEM 48 FREEZER DUNNAGE RACKS

Two required

Cambro or approved equal Eagle or InterMetro model

Two Model DR480-131 dunnage racks.

ITEM 49 MOBILE FREEZER SHELVING

Lot required

InterMetro or approved equal Amco, Eagle, Focus or Nexel model

Provide the following:

- A. Five Model A1848NK3 shelves.
- B. Sixty-five Model A1860NK3 shelves.
- C. Fifty-six Model 63UPK3 posts.
- D. Twenty-eight Model 5M swivel casters.
- E. Twenty-eight Model 5MB locking swivel casters.

ITEM 50 MOBILE HOT FOOD TRANSPORT CABINETS

Two required

FWE or approved equal Cres-Cor or InterMetro model

Two Model ETC-UA-10HD mobile heated cabinet with the following accessories for each:

- A. Heavy-duty push pull handle.
- B. Full extension bumpers.
- C. Corner bumpers.
- D. Floor lock.
- E. Ultra-universal transport slides.
- F. Door edge trim.

- G. Paddle latch secondary latching system.
- H. Dutch doors.

ITEM 51 OPEN NUMBER

ITEM 52 EXHAUST HOOD

One required

Gaylord or approved equal Avtec, Caddy or Halton model

One Model ELXC-GBD-BB-AS-PBW-23-142, 29' 0" wide x 13' 10" deep x 30" high S/S exhaust hood mounted 6'-8" above finished floor. Ventilator shall be a high velocity centrifugal grease extractor constructed entirely of 304SS, with a minimum of 16 Ga., Type 304 S/S construction includes the full length hanging angles, exhaust connections, supply connections, and standoff supports. Coordinate the configuration and routing of the supply and exhaust duct work and supply adequate support and mounting devices to allow for factory approved support system for the hood. This applies to all hoods for this project. Hood shall include smoke and vapor sensors as well as temperature sensors The ventilator shall be listed in accordance UL and NSF standards, and shall comply with all requirements of NFPA-96, UMC, BOCA, IMC, and SBCCI. Access for maintenance and service shall be done without access panels through the roof of the ventilator or at the duct shaft enclosure at the exhaust duct collar. Each ventilator shall be provided with "extractor inserts not to exceed 6.5lbs" with a grease extraction efficiency of 90% when operated at design conditions. Extractors shall be easily removable, for periodic cleaning, from the floor area immediately in front of the equipment by utilizing an extractor removal tool as provided. The grease-collecting gutter shall be sloped to one end to a removable collecting container concealed by an apron, which extends the full length of the hood. The ventilator shall include matching enclosure panels to finished ceiling for this hood and all hoods for this project. Prepipe shall include UL recessed detection boxes recessed in the roof of the canopy, duct and plenum piping with nozzles, and manifold on top of hood with UL hood penetration fittings install at the factory for surface protection. The ventilator shall operate at air quantities as shown on the equipment schedule and on the plans, provide adjustment dampers as required. This applies to all hoods for this project.

The ventilator shall be factory pre-wired to a single connection point. Ventilators built in multiple sections shall be pre wired at the factory with coiled conduit sections suitable for re-connection in the field during installation by the electrical contractor. The ventilator shall be equipped with light fixtures as indicated on the plans. The ventilator shall be UL Listed under the category "Exhaust Hood with Exhaust Damper" and listed by NSF. The ventilator shall comply with all requirements of NFPA-96, UMC, IMC, BOCA and SBCCI model codes.

The ventilator shall be factory pre-wired to a single connection point. Ventilators built in multiple sections shall be pre wired at the factory with coiled conduit sections suitable for re-connection in the field during installation by the electrical contractor.

- A. The ventilator shall be equipped with light fixtures as indicated on the plans. The ventilator shall be UL Listed under the category "Exhaust Hood with Exhaust Damper" and listed by NSF. The entire ventilator shall comply with all requirements of NFPA-96, UMC, IMC, BOCA and SBCCI model codes. In Canada the ventilator shall be ULC Listed and CSA Certified.

- B. All low voltage control wiring for the proper operation of this system shall be the responsibility of the FSEC.
- C. Trim between this item and Item 61.
- D. EC to provide interwiring for fan and damper interlock. This applies to this item and Item 129.

ITEM 53 RANGE WITH OVEN

One required

Southbend or approved equal Jade or Montague model

One Model P36D-BBB range with oven with the following accessories:

- A. 1" rear gas connection with gas pressure regulator, cap and cover front manifold.
- B. Locking casters.
- C. Coordinate gas hose requirement for Item 61. Furnish kit to PC for final installation.
- D. S/S rear riser double overshef.
- E. S/S front and sides.

ITEM 54 CONVECTION STEAMER

One required

Cleveland or approved equal Groen, Market Forge or Vulcan model

One Model 24-CSM two compartment, pressureless, steam coil generator steamer with the following accessories:

- A. Doors hinged as shown on the Drawings.
- B. Moisture separator trap, factory installed.
- C. S/S frame.
- D. Boiler descaling pump kit.
- E. Kleen Steam water filtration system.

ITEM 55 COMBINATION OVENS

One oven required

Alto Shaam or approved equal Cleveland or Rational model

One Model 7-14ESG/CT gas fired, combination oven installed on the specified S/S stand with the following accessories:

- A. CombiGuard 10 triple guard water filtration system.
- B. Model 5005732 S/S stand, 29 ½" high with pan slides and solid S/S shelf.
- C. Six S/S shelves.
- D. One eight hour session of training and demonstration with a four hour follow-up session.
- E. Model 5005732, Multi-point temperature probe.
- F. Gaylord flexible gas and water hose kits. FSEC to furnish kits to PC for final installation. Include hose kits with Item 61. Provide POSI SET wheel guides for the back wheels.
- G. Flue diverter.

ITEM 56 40 GALLON TILTING BRAISING PAN (UDS MOUNTED)

One required

Cleveland or approved equal Groen or Market Forge model

One Model SGL40TR 40 gal. braising pans with the following accessories:

- A. Natural gas fired.
- B. TD2SK 2" tangent draw off valve.
- C. DPK - double pantry faucet.
- D. Pull out drain pan.
- E. Complete braising pan battery installation in the matching profile to Item 61. Ship braising pans to UDS manufacturer of Item 61 for

factory assembly and verification of utility connections. Coordinate with Cleveland Engineering Drawing.

- F. Heavy duty tilting mechanism with five years parts and labor warranty.
- G. Spring assist cover.
- H. Food strainer.
- I. Pan carrier.
- J. Braising pan mounting kit with front S/S legs with flanged feet.

ITEM 57 FLUSH FLOOR TROUGH WITH GRATES

One required

Fabricate

Furnish one approximately 30" x 5'-0" 12 ga. S/S floor trough as shown on the Drawings. Unit to be complete as follows:

- A. Include beehive strainer for 3" drain.
- B. Include equal sized 1" thick FRP fiberglass **HEAVY DUTY, REINFORCED** grating with 1" x 4" x 1" rectangular grid and non-skid surface. The grating shall be of consistent 1" thick material and shall not use fiberglass rod as tie-bars for use with pallet truck support.
- C. Give to GC for early installation. Refer to Building Works Plan and Details for additional information
- D. Coordinate the installation with PC and GC.

ITEM 58 6 AND 12 GALLON TRUNNION KETTLES ON STAND (UDS MOUNTED)

One required

Cleveland or approved equal Crown, Groen or Market Forge model

Two Model KDT-6-12-T, table type, direct steam, tilting kettle twin trunnion kettles with the following accessories:

- A. Type 316 stainless steel kettle interior.
- B. Installed on a UDS mounted Model ST-28 equipment stand with drain pan and direct steam adaptor top.
- C. Steam trap and strainer, chrome plated.
- D. Steam supply moisture separator / trap.
- E. Double pantry faucet.
- F. One piece lift off cover.
- G. Food strainer.
- H. Kettle accessory kit.
- I. Kettle mounting kit with front support legs.

ITEM 59 FLUSH FLOOR TROUGH WITH GRATES

One required

Fabricate

Furnish one approximately 30" x 5'-0" 12 ga. S/S floor troughs as shown on the Drawings. Units to be complete as follows:

- A. Include beehive strainer for 3" drain.
- B. Include equal sized 1" thick FRP fiberglass **HEAVY DUTY, REINFORCED** grating with 1" x 4" x 1" rectangular grid and non-skid surface. The grating shall be of consistent 1" thick material and shall not use fiberglass rod as tie-bars for use with pallet truck support.
- C. Give to GC for early installation. Refer to Building Works Plan and Details for additional information
- D. Coordinate the installation with PC and GC.

ITEM 60 40 GALLON STEAM KETTLE (UDS MOUNTED)

One required

Cleveland or approved equal Groen model

One Model KDL-40-T, 40 gallon tilting steam kettle with the following accessories:

- A. One Model TD3, 3" tangent draw off valve with strainer.
- B. 316 S/S kettle interior.
- C. 50 PSI steam jacket rating.
- D. DPK double pantry faucet for each kettle with ¾" spout.
- E. Complete kettle battery installation with front legs utilizing the CM-W console mounting option.
- F. Gallon markings.
- G. Two pan carriers, a total of eight for all four kettles.
- H. IWC-K reinforced, heavy duty construction with rear support carriers to integrate with Item 61, Utility Distribution System - **(not standard fabrication)**. Ship kettle to the manufacturer of Item 61 for factory assembly and verification of connections. FSEC shall be responsible for the coordination of the fabrication, construction and installation of this item to Item 61 to provide for seamless meshing of both systems for Item 61 and this item.
- I. Heavy duty tilting mechanism with five year parts and labor warranty.
- J. Contact factory representative for pricing.
- K. Factory supervised coordination with fabrication of Item 61 and kettle installation. FSEC shall coordinate shop drawings for this item and Item 61 and match requirements. Provide a factory approval after assembly, before final connections.
- L. Kettle accessory kit.
- M. Food strainer.
- N. Three tangent drain strainers.
- O. Spring assisted cover.
- P. Heat shield.
- Q. Measuring strips.
- R. Steam control kit.
- S. Coordination with Cleveland Engineering Drawing.
- T. Front support legs with flanged feet.

ITEM 61 UTILITY DISTRIBUTION SYSTEM (UDS)

One required

Gaylord or approved equal Avtec, Caddy or Halton model (Item 52 and 61 must be of the same manufacturer)

One Model DB-IM-E3-HC-G-S-29 stainless steel, self contained utility distribution system (UDS) of the size and shape as shown on Drawings. Provide all required design coordination with support arms for Items 56, 58 and 60. Utilize Foodservice Drawings to further identify the requirements. The system shall be completely pre-wired as required by food equipment specified. All electrical services shall include a minimum of 20% over-capacity for future changes in the food equipment. The UDS shall be U.L. listed under the category "Commercial Appliance Outlet Center" and manufactured in accordance with the National Electrical Code (NEC), National Electrical Manufacturers Association (NEMA), National Fire Protection Association (NFPA) pamphlet number 96 & 54. The UDS shall be constructed entirely of stainless steel type 304 number 4 finish not less than 18 gauge, except for insulating and supporting materials for plumbing and electrical components as specified herein. All vertical support members such as risers and pedestals shall be internally reinforced with stainless steel angle. All hardware for utility interconnects for multiple section raceways and risers shall be provided by manufacturer for reassembly by field contractors. U.L. certification must be obtained before the start of fabrication.

The disconnect panel shall be enclosed including the main shunt trip circuit breaker and branch circuit breakers dedicated to the convenience outlets, ventilator lights and equipment circuit breakers. The disconnect panel; shall also enclose all switches, relays and terminal blocks necessary for fire/fuel shutdown of the equipment and shall be factory wired in accordance with national electrical code.

The disconnect panel access door shall be mounted on a full-length, stainless steel hinge and shall be secured with lift and turn flush latches. The panel shall have key operated latches preventing unauthorized access. The emergency kill switch, ventilator light switch, convenience outlet and equipment status lights shall be clearly engraved on plastic laminated labeling which is mounted to the front of the access door.

The raceway shall be constructed in (1) compartment, which will house the terminal block connections and electrical receptacles and are accessible by hinged covers.

The raceway shall be fitted with neoprene bumper guards the full length and mounting holes at the bottom of the unit for securing the safety restraining cables. All circuit breakers shall be located under splash proof hinged access doors in the disconnect panel to protect them from the kitchen environment. All branch circuit breakers shall be sized according to equipment load and shall be clearly labeled to identify volts, phase and amps. A corresponding status light shall be located in the disconnect panel for each circuit breaker.

At the bottom of the raceway receptacle connection plates shall be located which are individually grounded to the system mainframe. Each connection plate shall be interchangeable and shall be furnished with a moisture resistant cover and grounding type receptacle having a specific NEMA polarized configuration.

Field joints at the disconnect panel and raceway shall be provided with quick disconnect snap plug-in and terminal block for easy reconnection of circuit breaker and receptacle wiring. Provide correctional design package to secure each control point and provide non-tamper type fasteners.

Cord/plug sets with strain relief devices shall be furnished for all appliances with exception of appliances equipped with cord/plug sets as standard equipment. Appliances requiring more than 60 amps shall be fitted with conduit connection furnished by the UDS manufacturer unless otherwise noted.

Connection points for the surface fire protection shall be provided for fuel/fire shut down of the electrical system as required by NFPA No. 96 needing only 120 volt wiring connection by the EC to the fire extinguishing system micro switch.

The entire area below the riser on the kettle side of the UDS system shall be water tight to allow for wash down conditions. Access panels shall be provided on the opposite side of the unit from the kettle.

The utility distribution system, of the same manufacturer as Items 52, 129 as shown on Drawings. Electrical system to be hard wire type 120/208/3, 100 amp, 5-wire, with ground fault and shunt trip protection, and shall provide all services for Items 53, 54, 55, 56, 58, 60, 65, 66, 67 and 69

with future electrical, gas, water and steam requirements. Include ventilator light switches, hood control and one utility outlet. Provide main power disconnect. Include the following:

- A. Mounting for on/off light and fan switches for Item 52.
- B. Pre-piped 2 1/2" gas line, 1" hot water line, 1 " cold water line, each water line with a reduced pressure back flow preventer, 2 1/2" direct steam, 1 1/2" condensate return, fire fuel shut-off and 2" drain connection to the floor.
- C. S/S primary and secondary risers to and thru the exhaust hood for the passage of water, gas and electrical services for above.
- D. Interwiring between this Item and Items 52 and 92.
- E. All required field joints and connection for all equipment shown on the Drawings. Final assembly of plumbing and electrical field connections by PC and EC.
- F. All required cordsets and flexible water and gas lines with restraining cables. Flexible steam, water and gas lines shall not be permitted to touch the floor while at resting position.
- G. Micro switch and shunt trip breaker for interconnection with fire suppression system, Item 92.
- H. Seal the risers to the floor with clear silicone. Provide water tight, seamless panels behind the kettles and braising pans for wash and spray down conditions. Access for service shall be made from the combination oven side of the UDS.
- I. One Everpure Model EV9437-10 fully installed, connected - integral to UDS system. Provide two additional replacement sets of cartridges and mount in the S/S riser as shown on Sheet FS 8.3. Provide 12 gauge protective cover for water filter system.
- J. DFSEC shall provide 18 ga. S/S trim to cover all utility connections between this item and connected items. Provide a shop drawing and detail section of the proposed trim cover after the installation of the utility connection to provide a complete cover the passage of the utility requirements for associated items.
- K. Coordination of kettle support in-wall carrier to be integrated into this item.
- L. Ship Items 56, 58 and 60 to factory for this item to allow for fully fabrication, assembly and related coordination.
- M. T & S Model B-2339 double faucet with a Model B-7245-06 50' hose, 3/4" I.D. with front trigger water gun. Include S/S hose reel for reinforced mounting on the UDS.
- N. Provisions for the installation of Item 56, 58 and 60 on and reinforced angle iron support frame. Ship the hand to the raceway manufacturer to allow for the installation and connection at the raceway factory.
- O. FSEC / fabricator shall coordinate the necessary vent piping through the riser.
- P. Four gallons of water wash system solution for start-up and testing.

The manufacturer for this item and Items 52, 61 and 129 shall be the same and provided as part of a unified submittal package.

ITEM 62 LANDING TABLE

Existing, relocated by FSEC.

ITEM 63 MOBILE PAN SHELVING

Lot required

InterMetro or approved equal Amco, Eagle, Focus or Nexel model

Provide the following:

- A. Ten Model A2148NK3 shelves.
- B. Eight Model 63UPK3 posts.
- C. Four Model 5M swivel casters.
- D. Four Model 5MB locking swivel casters.

ITEM 64 OPEN NUMBER

ITEM 65 FUTURE EQUIPMENT, OPEN NUMBER

ITEM 66 CONVECTION OVENS

One set of two ovens required

Blodgett or approved equal Southbend or Vulcan model

One Model DFG-100 Xcel, double, double stacked convection ovens with the following accessories:

- A. One set of locking low profile swivel casters.
- B. One Gaylord gas hose. Furnish with Item 61 to PC for final installation. Provide POSI SET wheel guides for the back wheels.
- C. S/S sides.
- D. Standard controls on the bottom oven.
- E. Stacking kit including gas manifold.
- F. S/S back.
- G. Dependent doors with windows.

ITEM 67 CHARBROILER WITH STAND

One required

South Bend or approved equal Montague or Vulcan model

One Model HDC-36 gas fired char broiler with the following accessories:

- A. S/S stand with locking casters.
- B. Gaylord gas hose as provided as part of Item 61.
- C. Work ledge.

ITEM 68 OPEN NUMBER

ITEM 69 COMBINATION OVENS

Existing, relocated by FSEC.

ITEM 70 OPEN NUMBER

ITEM 71 ISLAND WORKTABLE WITH SINKS

One required

Fabricate

One 48" wide x 11'- 0" long x 34" high worktable with the following accessories:

- A. Two 20" x 20" x 10" deep sinks.
- B. Two 2" rotary lever drains with rear overflow. All rotary lever drains shall include rear overflows.
- C. Full length 14 ga. S/S undershelf shall be support by full perimeter 1 5/8" round S/S pipe welded to the legs. The shelf shall be further reinforced with full perimeter and cross angle steel reinforcement. This reinforcement shall apply to all exposed undershelves on custom fabricated equipment for this project.
- D. Flanged feet.
- E. Two 115/1 duplex receptacles mounted below top with S/S bracket. Receptacles to be in cast aluminum or S/S boxes and provided with a S/S cover plate. The tables shall be fully wired by the fabricator to a J-box located under the undershelf. All wiring shall be

concealed. This wiring requirement applies to all custom fabricated worktables for this project.

- F. One 12" wide x 8'- 0" table overshelf as shown on the Drawings. Extend the support posts for the undershelf through the table top and weld to the crossrails for anchoring and securing the posts.
- G. One drawer.
- H. One T & S Model B-0201 deck-mounted faucet with aerator or approved equal Chicago or Component Hardware model. The alternate faucets manufacturers apply to all faucets, pre-rinse spray and vacuum breaker assembly for the project, although the manufacturer must be consistent through the project.

ITEM 72 MOBILE PAN SHELVING

Lot required

InterMetro or approved equal Amco, Eagle, Focus or Nexel model

Provide the following:

- A. Five Model A2136NK3 shelves.
- B. Four Model 63UPK3 posts.
- C. Two Model 5M swivel casters.
- D. Two Model 5MB locking swivel casters.

ITEM 73-84 OPEN NUMBERS

ITEM 85 WORKTABLE WITH SINKS

One required

Fabricate

One 30" wide x 12'- 10" long x 34" custom fabricated S/S worktable with sinks as shown on the Drawings with the following accessories:

- A. 10" high backsplash. Provide finished rear splashes at windows.
- B. Two 24" x 24" x 10" deep sinks with one piece front panel.
- C. Pre-cut holes for faucet.
- D. Partial length undershelves.
- E. Legs, feet and crossrails as shown on the Drawings.
- F. One drawer.

ITEM 86 WALL SHELVES

Two required

Fabricate

One 12" wide x 5'- 6" and one 12" wide x 4'- 0" long splash mounted shelves.

ITEM 87 SPRAY AND FILL ASSEMBLY

One required

T&S Brass or approved equal Chicago model

One Model B-0131-B "rigid mast" pre-rinse spray with One Model B-0156 Add-a-Faucet with aerator.

ITEM 88 DISPOSER

One required

In-Sink-Erator or approved equal Salvajor model

One Model SS-150-7-AS-101 complete disposer package with the following:

- A. Syphon breaker.
- B. Solenoid valve.
- C. Flow control valve.
- D. Short body.
- E. One T & S Model B-0455 vacuum breaker assembly.
- F. 208/3.

ITEM 89 HIGH CAPACITY MICROWAVE OVEN

Existing, relocated by FSEC.

ITEM 90 OPEN NUMBER**ITEM 91 MOBILE WORKTABLE**

One required

Fabricate

One 30" wide x 6'- 0" long x 34" high custom fabricated S/S worktable as shown on the Drawings with the following accessories:

- A. Full undershelf.
- B. 4" high backsplash.
- C. One drawer.
- D. Locking casters.

ITEM 92 FIRE SUPPRESSION SYSTEM

One required

Ansul or approved equal Range Guard model

One Model R-102-3 (system size as determined by protected equipment) fire suppression system with automatic and manual activation, along with means for simultaneous automatic shutting down of protected cooking equipment upon activation of said system to be included. System shall be designed to provide plenum and duct collar protection only. All exposed piping to be stainless steel or chrome plated. Fusible link detection system shall be built into ventilator sections by ventilator manufacturer. All exposed fusible links are to be recessed into top of hoods with no visible conduit. Provision shall be made for manual actuation by readily accessible and plainly marked remote manual release station in each cooking area, located no less than 60" and no more than 78" above floor. System to be sized in accordance with most recent U. L. 300 Test Standards. System shall be furnished and installed by authorized Ansul distributor in accordance with manufacturer's instructions and in accordance with U. L. listings and shall conform to NFPA Pamphlet 96 and local and/or state codes and standards. This shall include mounting of system units, remote manual releases, nozzles, actuating devices and running of all pipe and control tubing appurtenant to systems.

Exhaust system shall be protected against fire by installation of automatic fire extinguishing system. Unit shall be stored pressure type, of sufficient capacity as determined by published standards to provide high concentration of liquid agent in plenum areas and duct collars. Liquid agent to be stored in containers equipped with pressure gauge to verify operational readiness. Nozzles located in plenum and ductwork shall be capable of functioning with heavy accumulation of grease.

Up to 3" mechanical gas shut-off valve shall be furnished by the ventilator manufacturer. The Electrical Contractor shall be responsible to interconnect gas valve to fire suppression system in accordance with Ansul's recommendations and O & M Manual. Valve shall be located as close to the system as possible. Valve shall be 120/60/1, normally closed.

Micro switches for electrical equipment shut off and/or actuation of fire alarm system shall be furnished as part of the fire protection system by the Kitchen Equipment Contractor. The Electrical Contractor shall furnish and install shunt trip breakers for electrically operated cooking equipment as required to interface with micro switches furnished by the authorized

distributor of the fire protection system. The Electrical Contractor is to interface with the building alarm system and/or the fire command station and the micro switches as specified by others. The authorized fire protection system installer is to verify the quantity of micro switches required and furnish same.

All access openings, holes, sleeves, chases, etc. in building structure necessary to permit piping and control tubing to be run between system unit, ventilator, and ductwork are to be provided by the General Contractor.

Provision shall be made to shut off the gas and electric supply to all cooking equipment upon actuation of the system.

System to be U. L. listed. Ansulex storage container to be I. C. C. approved. Layout to be approved prior to installation by authority having jurisdiction. Provide all required submittal drawings for approval of system prior to start-up of hood systems.

The Building Alarm System Contractor is to furnish and install control relay to detect operation of the system by connection to the Micro switches supplied by the Fire Protection System Contractor. The Electrical Contractor is to furnish and install the necessary wiring required for the systems as specified.

Fire Protection System Installer is to provide all necessary micro switches for interfacing with gas valve and/or shunt trip breakers as installed by the Plumbing Contractor and Electrical Contractor, respectively, to shut down all cooking equipment in the event of a fire.

Include the following accessories:

- A. S/S cabinet to enclose complete system for protection of cooking equipment, exhaust ducts and plenum. Provide chrome piping for all exposed fire suppression piping. This applies to all fire suppression piping for this project.
- B. Coordination the location of the remote pull located in path of egress where indicated on Foodservice Plan.
- C. FSEC shall furnish gas shut off valve to PC for installation. Verify size required.
- D. EC to provide shunt trip relays for all electrical connections.
- E. Review the requirements of Section 11 40 00, Article 1.6.D for the Guaranteed Service Period.

ITEM 93 MOBILE RACK LOWERATORS

Existing, relocated by FSEC.

ITEM 94 WALK-IN COOLER

Existing, as is. Coordinate the installation of the replacement refrigeration system, Item 42.

ITEM 95 MOBILE PAN RACKS AND CARTS

Existing, relocated by FSEC.

ITEM 96 COOLER DUNNAGE RACK

Existing, relocated by FSEC.

ITEM 97 MOBILE COOLER SHELVING

Lot required

InterMetro or approved equal Amco, Eagle, Focus or Nexel model

Provide the following:

- A. Fifteen Model A2448NK3 shelves.
- B. Twenty-five Model A2460NK3 shelves.
- C. Thirty-two Model 63UPK3 posts.
- D. Sixteen Model 5M swivel casters.
- E. Sixteen Model 5MB locking swivel casters.

ITEM 98 OPEN NUMBER

ITEM 99 BLAST CHILLER

One required

Piper Products or approved equal Irinox model

One Model RCR C20 T roll-in blast chiller with the following accessories:

- A. Remote refrigeration system as part of Item 42 installed by a factory authorized refrigeration contractor with an estimated 100 foot line run in the location shown on the Drawings.
- B. UV sterilization system.
- C. Printer kit.
- D. As part of this item the FSEC shall pump down the refrigeration system for the existing blast and remove per Article 3.3.
- E. Insulated floor with entry ramp.

ITEM 100 BLAST CHILLERS

Existing blast chiller cabinet and remote refrigeration system, relocated by FSEC.

ITEM 101 OPEN NUMBER

ITEM 102 ROLL-THRU REFRIGERATOR

One required

Continental "Designer Line" or approved equal Traulsen or Utility model

One Model DL2RI-SS-RT roll-through refrigerator with the following accessories:

- A. Stainless steel front, sides and doors.
- B. S/S interior.
- C. 115v/60/1, cord and plugs, standard.
- D. Universal pan slides on adjustable standards.
- E. Finished back panel including louver rail.
- F. Floor lock.
- G. Removable / washable condenser grease filter.

ITEM 103 ROLL-IN PAN RACKS

Existing, relocated by FSEC.

ITEM 104 ROLL-THRU REFRIGERATOR

One required

Continental "Designer Line" or approved equal Traulsen or Utility model

One Model DL2RI-SS-RT roll-through refrigerator with the following accessories:

- A. Stainless steel front, sides and doors.
- B. S/S interior.
- C. 115v/60/1, cord and plugs, standard.
- D. Universal pan slides on adjustable standards.
- E. Finished back panel including louver rail.
- F. Floor lock.

G. Removable / washable condenser grease filter.

ITEM 105 ROLL-THRU REFRIGERATOR

One required

Continental "Designer Line" or approved equal Traulsen or Utility model
One Model DL2RI-SS-RT roll-through refrigerator with the following accessories:

- A. Stainless steel front, sides and doors.
- B. S/S interior.
- C. 115v/60/1, cord and plugs, standard.
- D. Universal pan slides on adjustable standards.
- E. Finished back panel including louver rail.
- F. Floor lock.
- G. Removable / washable condenser grease filter.

ITEM 106 ROLL-THRU FREEZER

One required

Continental "Designer Line" or approved equal Traulsen or Utility model
One Model DL1FI-SS-RT roll-thru freezer with the following accessories:

- A. Stainless steel front, sides and doors.
- B. S/S interior.
- C. 115v/60/1, cord and plugs, standard.
- D. Universal pan slides on adjustable standards.
- E. Reinforced floor.
- F. Finished back panel including louver rail.
- G. Floor lock.
- H. Removable / washable condenser grease filter.

ITEM 107 SPRAY AND FILL ASSEMBLY

One required

T&S Brass or approved equal Chicago model

One Model B-0131-B "rigid mast" pre-rinse spray with One Model B-0156 Add-a-Faucet with aerator.

ITEM 108 DISPOSER

One required

In-Sink-Erator or approved equal Salvajor model

One Model SS-150-AS-101 complete disposer package with the following:

- A. Syphon breaker.
- B. Solenoid valve.
- C. Flow control valve.
- D. Short body.
- E. One T & S Model B-0455 vacuum breaker assembly.
- F. 208/3.

ITEM 109 MOBILE WORKTABLE

One required

Fabricate

One 30" wide x 5'- 0" long x 34" high custom fabricated S/S worktable as shown on the Drawings with the following accessories:

- A. Full undershelf.
- B. 10" high backsplash.
- C. One drawer.
- D. Locking casters.

ITEM 110 MOBILE WORKTABLE

One required

Fabricate

One 30" wide x 5'- 0" long x 34" high custom fabricated S/S worktable as shown on the Drawings with the following accessories:

- A. Full undershelf.
- B. 10" high backsplash.
- C. One drawer.
- D. Locking casters.

ITEM 111 MOBILE SHELVING

Lot required

InterMetro or approved equal Amco, Eagle, Focus or Nexel model

Provide the following:

- A. Five Model A2136NK3 shelves.
- B. Four Model 63UPK3 posts.
- C. Two Model 5M swivel casters.
- D. Two Model 5MB locking swivel casters.

ITEM 112 MOBILE INGREDIENT BINS

Existing, relocated by FSEC.

ITEM 113 WORKTABLE WITH SINKS

One required

Fabricate

One 30" wide x 11'- 6" long x 34" custom fabricated S/S worktable with sinks as shown on the Drawings with the following accessories:

- A. 10" high backsplash.
- B. Two 20" x 21" x 10" deep sinks with one piece front panel.
- C. Pre-cut holes for faucet.
- D. Partial length undershelves.
- E. Legs, feet and crossrails as shown on the Drawings.

ITEM 114 WALL SHELVES

Two required

Fabricate

One 12" wide x 5'- 0" and one 12" wide x 42" long wall mounted shelves.

ITEM 115 ELECTRIC CAN OPENER

Existing, relocated by FSEC.

ITEM 116 CARDBOARD CART

Existing, relocated by FSEC.

ITEM 117 COUNTERTOP SCALE

Existing, relocated by FSEC.

ITEM 118 WALK-IN COOLER

Existing, as is. New refrigeration part of Item 42.

ITEM 119 MOBILE COOLER SHELVING

Lot required

InterMetro or approved equal Amco, Eagle, Focus or Nexel model

Provide the following:

- A. Five Model A1842NK3 shelves.
- B. Forty-five Model A2448NK3 shelves.
- C. Forty Model 63UPK3 posts.
- D. Twenty Model 5M swivel casters.

E. Twenty Model 5MB locking swivel casters.

ITEM 120 DRY STORAGE DUNNAGE RACK

Existing, relocated by FSEC.

ITEM 121 MOBILE DRY STORAGE SHELVING

Lot required

InterMetro or approved equal Amco, Eagle, Focus or Nexel model

Provide the following:

- A. Twenty-five Model A2448NK3 shelves.
- B. Forty-five Model A2460NK3 shelves.
- C. Fifty-six Model 63UPK3 posts.
- D. Twenty-eight Model 5M swivel casters.
- E. Twenty-eight Model 5MB locking swivel casters.

ITEM 122 ICE MAKER / DISPENSER

Existing, relocated by FSEC.

ITEM 123 ROOM SERVICE ORDER PRINTER WITH S/S WALL BRACKET

Existing, relocated by FSEC.

ITEM 124 ROTARY TOASTER

Existing, relocated by FSEC.

ITEM 125 PASTA COOLER

Existing, relocated by FSEC.

ITEM 126 ICE CREAM FREEZER DRAWERS

Existing, relocated by FSEC.

ITEM 127 REACH-IN HEATED CABINET

Existing, relocated by FSEC. (NOTE: This will required two moves)

ITEM 128 REACH-IN REFRIGERATOR

One required

Continental "Designer Line" or approved equal Traulsen or Utility model

One Model DL1RE-SS-HD reach-in refrigerator with the following accessories:

- A. Stainless steel front, sides and doors.
- B. S/S interior.
- C. 5" locking casters.
- D. 115v/60/1, cord and plugs, standard.
- E. Universal pan slides on adjustable standards.
- F. Half doors hinged as shown on the Drawings.
- G. Reinforced floor.
- H. Finished back panel including louver rail.
- I. Floor lock.
- J. Removable / washable condenser grease filter.

ITEM 129 EXHAUST HOOD

One required

Gaylord or approved equal Avtec, Caddy or Halton model

One Model ELXC-GBD-AS-60-PBW14, 24' 0" wide x 5' 0" deep x 30" high S/S exhaust hood with supply air plenum mounted 6'-8" above finished floor.

Ventilator shall be a high velocity centrifugal grease extractor constructed entirely of 304SS, with a minimum of 16 Ga., Type 304 S/S construction includes the full length hanging angles, exhaust connections, supply connections, and standoff supports. Coordinate the configuration and

routing of the supply and exhaust duct work and supply adequate support and mounting devices to allow for factory approved support system for the hood. This applies to all hoods for this project. The ventilator shall be listed in accordance UL and NSF standards, and shall comply with all requirements of NFPA-96, UMC, BOCA, IMC, and SBCCI. Access for maintenance and service shall be done without access panels through the roof of the ventilator or at the duct shaft enclosure at the exhaust duct collar. Each ventilator shall be provided with "extractor inserts not to exceed 6.5lbs" with a grease extraction efficiency of 90% when operated at design conditions. Extractors shall be easily removable, for periodic cleaning, from the floor area immediately in front of the equipment by utilizing an extractor removal tool as provided. The grease-collecting gutter shall be sloped to one end to a removable collecting container concealed by an apron, which extends the full length of the hood. The ventilator shall include matching enclosure panels to finished ceiling for this hood and all hoods for this project. Prepipe shall include UL recessed detection boxes recessed in the roof of the canopy, duct and plenum piping with nozzles, and manifold on top of hood with UL hood penetration fittings install at the factory for surface protection. The ventilator shall operate at air quantities as shown on the equipment schedule and on the plans, provide adjustment dampers as required. This applies to all hoods for this project.

Provide 18 ga. #4 finish S/S panels below the hood from the corner of the wall adjacent to door to the left of the hood covering the entire wall behind the hood and around the right end of the wall, to include the entire wall, approximately 55' 0" in length. The paneling shall extend from the top of the flooring base material to the bottom edge of the hood at the wall. Joints between the panels shall be covered with Component Hardware Model J64-1450 "H" strips. Exposed edges of the panels shall be ground and polished smooth. Attach the exposed edges with S/S flat head screws. Seal the panels with clear silicone. All panels shall be securely attached with a generous amount of clear silicone on the full perimeter of each panel (blind caulking) and on the rear surfaces in order to achieve a tight, flat, bonding of the panels to the walls. Trim between the top of the hood and the finished ceiling with matching S/S, this applies to all hoods for this project.

The ventilator shall be factory pre-wired to a single connection point. Ventilators built in multiple sections shall be pre wired at the factory with coiled conduit sections suitable for re-connection in the field during installation by the electrical contractor. The ventilator shall be equipped with light fixtures as indicated on the plans. The ventilator shall be UL Listed under the category "Exhaust Hood with Exhaust Damper" and listed by NSF. The ventilator shall comply with all requirements of NFPA-96, UMC, IMC, BOCA and SBCCI model codes.

EC to provide interwiring for fan and damper interlock. This applies to this item and Item 52.

ITEM 130 SANDWICH TOP REFRIGERATOR

One required

Continental "Designer Line" or approved equal Traulsen or Utility model

One Model DL48-12-FB cold top refrigerator with the following accessories:

- A. Stainless steel front, sides, back and doors.
- B. S/S interior.
- C. 5" locking casters.
- D. 115v/60/1, cord and plugs, standard.

- E. Cutting board with replacement cutting board.
- F. Door hinged as shown on the Drawings.
- G. Electric condensate evaporator.
- H. Partial width, 36" wide, double overshef, reinforced with inverted hat channel.

ITEM 131 ELECTRIC RANGE WITH OVEN

- One unit of two ranges required
Lang or approved equal Vulcan model
Two Model 36S-14 12" wide sectional ranges configured as follows for each:
- A. 6-heat level switches, one for each French plate.
 - B. Two 8" diameter French plates for each section.
 - C. Join the two unit for single, composite unit.
 - D. Locking casters.
 - E. Factory installed cordsets.

ITEM 132 UTILITY CART

- One required
Lakeside or approved equal Piper model
One Model 522, NSF approved mobile cart.

ITEM 133 FOOD WELL WARMER

- One required
Wells or approved equal APW or Star model
One Model HWSMP-120 hot food well.

ITEM 134 ELECTRIC GRIDDLE

- Existing, relocated by FSEC.

ITEM 135 REFRIGERATED GRILL STAND

- One required
Continental or approved equal Traulsen or Utility model
One Model DL48GF-SS 50³/₄" wide low profile refrigerated equipment stand with the following accessories:
- A. Low profile locking casters.
 - B. Provide a 14 ga. S/S reinforced top with raised perimeter edge.
 - C. Digital thermometer.

ITEM 136 ELECTRIC CHAR-BROILER

- One required
Wells or approved equal Lang or Vulcan
One Model B-50 electric char-broiler installed on a heavy -duty stand.

ITEM 137 SANDWICH TOP REFRIGERATOR

- One required
Continental "Designer Line" or approved equal Traulsen or Utility model
One Model DL27-8FB cold top refrigerator with the following accessories:
- A. Stainless steel front, sides, back and doors.
 - B. S/S interior.
 - C. 5" locking casters.
 - D. 115v/60/1, cord and plugs, standard.
 - E. Cutting board with replacement cutting board.
 - F. Door hinged as shown on the Drawings.
 - G. Electric condensate evaporator.
 - H. Full width, double overshef, reinforced with inverted hat channel.

ITEM 138 FAST BAKE OVEN WITH STAND

Existing, relocated by FSEC.

ITEM 139 MOBILE WORKTABLE

One required

Fabricate

One 30" wide x 5'- 0" long x 34" high custom fabricated S/S worktable as shown on the Drawings with the following accessories:

- A. Full undershelf.
- B. 10" high backsplash.
- C. One drawer.
- D. Locking casters.

ITEM 140 REACH-IN FREEZER

One required

Continental "Designer Line" or approved equal Traulsen or Utility model

One Model DL1FE-SS-HD reach-in freezer with the following accessories:

- A. Stainless steel front, sides and doors.
- B. S/S interior.
- C. 5" locking casters.
- D. 115v/60/1, cord and plugs, standard.
- E. Universal pan slides on adjustable standards.
- F. Half doors hinged as shown on the Drawings.
- G. Reinforced floor.
- H. Finished back panel including louver rail.
- I. Floor lock.
- J. Removable / washable condenser grease filter.

ITEM 141 FIRE SUPPRESSION SYSTEM

One required

Ansul or approved equal Range Guard model

One Model R-102-3 (system size as determined by protected equipment) fire suppression system with automatic and manual activation, along with means for simultaneous automatic shutting down of protected cooking equipment upon activation of said system to be included. System shall be designed to provide plenum and duct collar protection only. All exposed piping to be stainless steel or chrome plated. Fusible link detection system shall be built into ventilator sections by ventilator manufacturer. All exposed fusible links are to be recessed into top of hoods with no visible conduit. Provision shall be made for manual actuation by readily accessible and plainly marked remote manual release station in each cooking area, located no less than 54" and no more than 78" above floor. System to be sized in accordance with most recent U. L. 300 Test Standards. System shall be furnished and installed by authorized Ansul distributor in accordance with manufacturer's instructions and in accordance with U. L. listings and shall conform to NFPA Pamphlet 96 and local and/or state codes and standards. This shall include mounting of system units, remote manual releases, nozzles, actuating devices and running of all pipe and control tubing appurtenant to systems.

Exhaust system shall be protected against fire by installation of automatic fire extinguishing system. Unit shall be stored pressure type, of sufficient capacity as determined by published standards to provide high concentration of liquid agent in plenum areas and duct collars. Liquid agent to be stored in containers equipped with pressure gauge to verify operational readiness. Nozzles located in plenum and ductwork shall be capable of functioning with heavy accumulation of grease.

Up to 2" mechanical gas shut-off valve shall be furnished by the ventilator manufacturer. The Electrical Contractor shall be responsible to interconnect gas valve to fire suppression system in accordance with Ansul's recommendations and O & M Manual. Valve shall be located as close to the system as possible. Valve shall be 120/60/1, normally closed.

Micro switches for electrical equipment shut off and/or actuation of fire alarm system shall be furnished as part of the fire protection system by the Kitchen Equipment Contractor. The Electrical Contractor shall furnish and install shunt trip breakers for electrically operated cooking equipment as required to interface with micro switches furnished by the authorized distributor of the fire protection system. The Electrical Contractor is to interface with the building alarm system and/or the fire command station and the micro switches as specified by others. The authorized fire protection system installer is to verify the quantity of micro switches required and furnish same.

All access openings, holes, sleeves, chases, etc. in building structure necessary to permit piping and control tubing to be run between system unit, ventilator, and ductwork are to be provided by the General Contractor.

Provision shall be made to shut off the gas and electric supply to all cooking equipment upon actuation of the system.

System to be U. L. listed. Ansulex storage container to be I. C. C. approved. Layout to be approved prior to installation by authority having jurisdiction. Provide all required submittal drawings for approval of system prior to start-up of hood systems.

The Building Alarm System Contractor is to furnish and install control relay to detect operation of the system by connection to the Micro switches supplied by the Fire Protection System Contractor. The Electrical Contractor is to furnish and install the necessary wiring required for the systems as specified.

Fire Protection System Installer is to provide all necessary micro switches for interfacing with gas valve and/or shunt trip breakers as installed by the Plumbing Contractor and Electrical Contractor, respectively, to shut down all cooking equipment in the event of a fire.

Include the following accessories:

- A. S/S cabinet to enclose complete system for protection of cooking equipment, exhaust ducts and plenum. Provide chrome piping for all exposed fire suppression piping. This applies to all fire suppression piping for this project.
- B. Coordination the location of the remote pull located in path of egress where indicated on Foodservice Plan.
- C. FSEC shall furnish gas shut off valve to PC for installation. Verify size required.
- D. EC to provide shunt trip relays for all electrical connections.
- E. Review the requirements of Section 11 40 00, Article 1.6.D for the Guaranteed Service Period.

ITEM 142 EXISTING SERVING LINE

As part of Phase One, the existing serving line will be relocated to the location shown on FS-6 and labeled as Item 142T. The FSEC shall relocate

the line during non-operating hours, overnight to allow no loss of use. The FSEC is to relocate back to current position after Phase II is completed.

ITEM 143 PARTIAL WALL WITH TRAY SLIDE

Existing, as is.

ITEM 144 EXHAUST HOOD WASH CONTROL CABINET

One required

Gaylord or approved equal Avtec, Caddy or Halton model

One Model GPC-7000-S4-1.00, CC-100 water wash control cabinet.

ITEM 145 TABLE SET-UP COUNTER WITH UPPER CABINET

One required

Fabricate

One custom millwork base and wall cabinet as shown on the Drawings with the following accessories:

- A. Millwork, substrate and laminate as shown on the Millwork schedule.
- B. Color as selected by the Architect.
- C. FSEC shall coordinate the submittals to match the design, profile and details of the existing partial height tray slide die wall for Item 143.

ITEM 146 SILVERWARE AND NAPKIN DISPENSERS

Existing, relocated by FSEC.

ITEM 147 FULL HEIGHT MILLWORK STORAGE CABINET

One required

Fabricate

One custom millwork base and wall cabinet with the following accessories:

- A. Millwork, substrate and laminate as shown on the Millwork schedule.
- B. Color as selected by the Architect.

ITEM 148 DISH / PLATE DOLLIES

Existing, relocated by FSEC.

ITEM 149 BEVERAGE COUNTER

One required

Fabricate

One custom millwork base and wall cabinet with the following accessories:

- A. Millwork, substrate and laminate as shown on the Millwork schedule.
- B. Color as selected by the Architect.

ITEM 150 DROP-IN CUP AND GLASS RACK DISPENSERS

Existing, relocated by FSEC.

ITEM 151 ICE AND SODA DISPENSER

Provided by the Soda Supplier.

ITEM 152 DROP-IN ICE AND WATER STATION

Existing, relocated by FSEC.

ITEM 153 JUICE DISPENSER

Provided by Juice Supplier.

ITEM 154 BEVERAGE CONDIMENT ORGANIZER

Existing, relocated by FSEC.

ITEM 155 COFFEE BREWER

Existing, relocated by FSEC.

ITEM 156 ICE MAKER WITH BIN

One required

Manitowoc or approved equal Hoshizaki or Ice O Matic model

One Model ID-0452A air-cooled 400# capacity ice maker installed on a B-570 S/S bin with the following accessories:

- A. One Model B-570 S/S ice bin.
- B. One Arctic Pure filtration system.
- C. AuCS SO - automatic cleaning system

ITEM 157 SODA SYRUP RACK / SHELVING

Provided by Soda Supplier.

ITEM 158T ROLL-IN REFRIGERATOR

Existing, relocated by FSEC.

ITEM 159T ROLL-IN RACKS

Existing, relocated by FSEC.

ITEM 160T REACH-IN REFRIGERATOR

Existing, relocated by FSEC.

ITEM 161T REACH-IN FREEZER

Existing, relocated by FSEC.

ITEM 162T OPEN NUMBER

**062412

END OF SECTION