SECTION 114000

FOODSERVICE EQUIPMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Foodservice equipment.

1.2 SCOPE OF WORK

A. Furnish all labor, materials and services necessary for the procurement and installation of the equipment included in this section.

B. Supervise and provide required instructions for work to be performed by other contractors in connection with requirements for all equipment included in this section.

C. Specifications and drawings have been prepared to form the basis for coordination with the other trades on this Project, procurement, erection, start-up and adjustment of all equipment in this section. Plans and specifications are to be considered as mutually required by both. Work to be accomplished as called for in specifications and shown on drawings, so that all items of equipment are completely functional for purpose for which they were designed. When/if there is any discrepancy between drawings and specifications, bidders should seek clarification of any discrepancies from the Consultant prior to bidding.

D. Should the drawings disagree between themselves, or the specifications with the drawings, the better quality, and more stringent, and greater quantity of work or materials is to be completed without any additional costs to the Owner.

E. Secure and pay fees for all permits and licenses as required by all authorities having jurisdiction. Give all notices and comply with all laws, ordinances, rules, regulations and contract requirements bearing on the work.

1.3 RELATED DIVISIONS/SECTIONS

A. Refer to General Conditions, Supplementary Conditions, and applicable provisions of Division 1 for additional instructions.

B. Refer to Interior Design Divisions for applicable provisions and sections regarding décor finishes, applications, details, and special instructions relating to items specified in this Section. Applicable to Projects with items specified in this Section, with décor finishes and/or construction.

C. Refer to Mechanical/Plumbing Divisions for applicable provisions and sections regarding mechanical services, including, but not limited to: floor sinks and floor drains, water gas and steam rough-ins, grease traps, steam traps, drain traps, atmospheric vents, valves, pipes and pipe fittings, ductwork, and other materials necessary to complete final connections to individual items as specified in the Section. Not work of this Section. Also included:

1. Piping and Insulation for fryer oil systems.
2. Piping for remote pulping systems.
3. All hood or ventilatory duct work and fans upstream from the connection position.

D. Refer to Electrical Divisions for applicable provisions and sections regarding electrical services, including, but not limited to, rough-ins, standard voltage and low-voltage wiring, conduit, drop-cords, ceiling-mounted cord reel assemblies, disconnects and other materials necessary to complete final connections to individual items as specified in this Section. Not work of this Section. Also includes:

1. Installation of light fixtures furnished loose at cold storage rooms.
2. Connection of cold storage room temperature alarm system to the building security system.
3. Connection of hood fire suppression system to the building security system.

E. Work included in other Divisions - Provision of all walls, floor, and/or ceiling/roof openings, and sealing thereof, as necessary for installation of items included in this section. Not work of this Section. Also includes:

1. Slab depressions reinforced concrete wearing bed and interior finished floor with coved base at prefabricated cold storage assemblies.
2. Concrete or masonry platforms with finished top and coved base at perimeter, for raised setting of foodservice equipment: Divisions 03/09.
3. Slab depressions to receive stainless steel drain trench liner/grate assemblies provided under this Section.
4. Wall backing to support all wall mounted equipment.
5. Conduit and piping sleeves for soda, beer/liquor, refrigeration, CO2 and drain lines through building ceilings and floors.

F. Seismic Restraint of Equipment - Section XX XX XX, Seismic Restraint Requirements for Non-structural Components, as required by location.

1.4 DEFINITIONS

A. Furnish - Supply and deliver to Project Site, ready for unloading, unpacking, assembly, installation, and similar operations.

B. Install (set in place) - Operations at Project Site including actual unloading, unpacking, assembly, erecting, placing, anchoring, applying, finishing, curing, protecting, cleaning and similar operations, ready for final utility connections by other Divisions as appropriate.
C. Provide - Furnish and install complete, ready for intended use, including any necessary initial training.
D. Contractor - Refers to the Kitchen Equipment (Sub) Contractor in this Section. References to any other Contractor or Division will be specific, such as General Contractor, Plumbing (Sub) Contractor/Division, Electrical (Sub) Contractor / Division, Architect designated, etc.

1.5 LAWS, ORDINANCES, REGULATIONS AND STANDARDS

A. Comply with the following in their current published form.

1. Air Conditioning and Refrigeration Institute (A.R.I.): applicable regulations and references of the latest edition of standards for remote refrigeration system(s), components, and installation.
2. American Gas Association (A.G.A.): standards for gas heated equipment and provide equipment with the A.G.A. seal. Automatic safety pilots to be provided on all equipment, where available.
3. American National Standards Institute (A.N.S.I.): Z21-Series for gas-burning equipment. Provide labels indicating name of testing agency.
4. American National Standards Institute (A.N.S.I.): B57.1 for compressed gas cylinder connections, and with applicable standards of the Compressed Gas Association for compressed gas piping.
5. American National Standards Institute (A.N.S.I.): A40.4 and A40.6 for water connection air gaps and vacuum breakers. American Society of Heating, Refrigeration and Air Conditioning Engineers (A.S.H.R.A.E.): applicable regulations and references of the latest edition of standards for remote refrigeration system(s), components and installation.
6. American Society of Mechanical Engineers (A.S.M.E.): Boiler Code requirements for steam generating and steam heated equipment and provide A.S.M.E. inspection stamp and registration with National Board.
7. American Society for Testing and Materials (A.S.T.M.): C1036 for flat glass.
8. American Society for Testing and Materials (A.S.T.M.): C1048 for heat-treated flat glass - Kind HS, Kind FT coated and uncoated glass.
9. American Society for Testing and Materials (A.S.T.M.): F232-03 for pre-rinse spray units, and in compliance with Energy Policy Act of 2005 (EPAct).
10. American Welding Society (A.W.S.): D1.1 structural welding code.
11. Energy Policy Act of 2005 (EPAct 20005): water savings pre-rinse spray valves.

12. National Electric Code (N.E.C.): N.F.P.A. Volume 5 for electrical wiring and devices included with foodservice equipment, A.N.S.I. C2 and C73, and applicable NE.M.A. and N.E.C.A. standards.
13. National Electrical Manufacturers Association (N.E.M.A.): LD3 for high-pressure decorative laminates.
14. National Fire Protection Association (N.F.P.A.): applicable sections for exhaust hoods, ventilators, duct and fam materials, hoods fire suppression systems, wheel placement systems, construction, and installation; in addition to local codes and standards.
15. National Sanitation Foundation (NSF): latest Standards and Revisions, and as accredited by ANSI, IAS, NELAC, ISO, OSHA and SCC. Provide NSF Seal of Approval on all standard manufactured items included in this Project and listed in any NSF Certified Food Equipment Products Category, and on all items of custom fabricated work included in this Project. (UL Sanitation approval and seal accepted if acceptable to local code jurisdictions.
16. Sheet Metal and Air Conditioning Contractor's National Association (S.M.A.C.N.A.): latest edition of guidelines for seismic restraint of kitchen equipment, as applicable to project location. All seismic requirements shall be shown on all submittals. Submit requested information to the agencies and authorities having jurisdiction.
17. Underwriters Laboratories (U>L>): as applicable for electrical components and assemblies. Provide either U.L. labeled products or, where no labeling service is available, "recognized markings" to indicate listing in the U.L. "Recognized Component Index". (Canadian Standards Association or alternate testing lab's seals accepted if acceptable to local code jurisdictions.)
18. UL300 Standard: for wet chemical fire suppression systems for exhaust hoods/ventilators.
19. American with Disabilities Act (ADA): as applicable to this Project.
20. Refrigeration Service Engineers Society (R.S.E.S.): applicable regulations and references for the latest edition of standards for remote refrigeration system(s), components, and installation.
21. All refrigerants used for any purpose is to comply with the current Corp of Engineer requirement, and subsequent revisions and amendments. No CFC or HCFC refrigerants will be permitted on this Project.
22. All refrigeration components installation, repairs, and/or associated work on any refrigeration system, is to be performed by a Certified Refrigeration Mechanic thoroughly familiar with this type of commercial foodservice installation. ETL and other national and international recognized Testing and Listing Agency labels and certifications are acceptable in lieu of Listing Agencies indicated in these documents, if acceptable to the local code jurisdictions.
23. All applicable local codes, standards, and regulations.
24. All special local codes, standard, and regulations: such as (examples only) California Energy Commissions Regulations, Dade County requirements for walk-in cooler(s) and/or freezer(s).
25. For detention facilities projects (as applicable): applicable Correctional Standards. Verify the level of security and

construction required with the Architect and provide all items in compliance.

B. The Contract Documents shall prevail whenever they require larger sized or higher standards than are required by regulations.
C. The above regulations shall govern whenever the Contract Documents require something that is deemed to violate the above regulations.

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

E. Rulings and interpretations of the enforcing agencies shall be considered a part of the regulations.

1.6 CONTRACTOR'S QUALIFICATIONS

A. In addition to requirements of Related Sections 1.2.A

1. Five (5) years minimum continuous operation under the same company name and ownership.
2. Financial stability and ability to complete this Project.
3. Comparable size and scope projects completed in the last five (5) years.
4. Contractor to provide letter that states they can purchase, distribute, and install all items specified.

B. Any sub-contractor or fabricator employed by Contractor:

1. Is to comply with the same qualifications.
2. Their name, address, and a summary of their experience and qualifications is to be submitted with the bid proposal.
3. Fabrication sub-contractor shall be NSF, NEC, and UL approved at a minimum for fabrication of all items detailed within this specification and attending drawing set. Moreover, fabrication shop shall have the means and expertise to fully engineer and fabricate all counters, tables, natural and man-made stone counter tops, food shields, etc. all in one manufacturing facility where specified as part of this document set.

1.7 BIDDING AND SUBSTITUTIONS

A. Unless otherwise instructed by Division 1 bidding instructions, the Bidder shall provide pricing on primary manufacturer and model specified. These Contract Documents were designed and engineered using the primary manufacturer and model and are intended to be the Basis of Bid. Provide itemized prices for each item, along with cited accessories with separate total prices for delivery and installation. All city, state, occupational and government taxes which are included in a grand total package bid proposal. Bids shall be valid for thirty (30) days after bid deadline date and shall

indicate same. Failure to comply with the above may be case for rejection of the bid.

B. Unless otherwise noted, substitutions may be submitted for consideration, but must be itemized at the end of the bid proposal.

C. Substitutions must be approved in writhing by the Architect and/or Owner, prior to utilization in this Contract. A copy of the approval must be included with any submittals by Contractor.

D. Contractor shall provide all design/engineering services required to adjust in space, systems, utilities, etc. and pay all additional costs of utilities, construction or professional services that may be incurred due to the acceptance of any substitution.

E. Application for Substitution of Specified Food Service Equipment. This form shall be submitted in support of each suggestion of request to substitute an alternate manufacturer and/or model of equipment that is not included in the Division 114000 (Food Service Equipment) specifications.

F. Products not available for substitution. Products and specific manufacturers have been carefully chosen to support the Air Force’s 2.0 Program and are not available for substitution.

APPLICATION FOR SUBSTITUTION OF SPECIFIED FOOD SERVICE EQUIPMENT

The decision to accept an unnamed alternate will be based exclusively on the information provided hereon and the Owner’s or their designee’s research and verifications of claims, which shall include sharing the information with manufacturer(s) of the originally specified equipment. Accordingly, any proprietary information regarding the proposed substitution should be so identified and submitted as an addendum to this form.

By submitting this application, the contractor guarantees the information is correct and accepts total responsibility for all additional costs that may directly or indirectly result from acceptance of the proposed substitution. It is the interest of the Contractor to declare in this form all benefits they will accrue to the Owner. Include the proposed manufacturer’s data sheets, drawings and any other supporting information.

The original specifications describe the minimum standards of the equipment – proposed substitutions that do not meet or exceed this minimum standard or otherwise benefit the Owner will not be considered except in the case of an originally specified item that is no longer available. The Owner of their designee will be the sole authority regarding identifying specific features, capacities, etc. that are operationally critical. Acceptance of a proposed substitution does not relieve the Contractor of responsibility for all direct or indirect costs associated with the substitution.

1. Date Submitted: _____

2. Item Number: _____ Description: _____Quantity: _____

3. Specified Manufacturer: _____Specified Model Number: _____

4. Proposed Manufacturer: _____ Proposed Model Number: _____

5. Does the proposed equipment incorporate all features and options expressed or implied by the specifications, including features and options that are provided as standard by the specified item?

☐ Yes ☐ No – describe (attach additional sheets as required):_____

_____

6. Compare Utilities (attach additional sheets as required:

Specified: HW _____ CW _____ Gas (BTU) _____ Steam (BHP) _____ Electrical _____

Exhaust (cfm) _____ Duct size _____ Supply (cfm) _____ Duct size _____

Proposed: HW _____ CW _____ Gas (BTU) _____ Steam (BHP) _____ Electrical _____

Exhaust (cfm) _____ Duct size _____ Supply (cfm) _____ Duct size _____

7. Compare Dimension:

Specified: Left to Right _____ Front to Rear _____ Height _____

8. Does the proposed substitution require changes to the work to be provided by other trades?

☐ No ☐ Yes – describe (attach additional sheets as required): _____

9. Does the proposed substitution require changes or create any issues regarding adjacent or associated equipment (for instance: door swing interference; service access; air circulation)?

☐ No ☐ Yes – describe (attach additional sheets as required): _____

_____

10. What benefits will the Owner realize as a result of this substitution (for instance: capital expense; energy savings, flexibility)? Provide specific information.

☐ There are no benefits to the Owner.

☐ The following will benefit the Owner – (attach additional sheets as required):

_____
_____
_____
_____

11. Are there any other considerations that should be evaluated?

_____
_____
_____

12. Signature of Contractor's Representative:

_____

Printed name of Contractor's Representative:

_____

Certain Products and manufacturers have been tested and specifically chosen to support the Air Force FTI program are not available for substitution. Below are listed the manufacturer not available for substitution:

BSI	Sneeze Guards – XGuard
Turbo Chef	Double Batch Oven model HHD-9500 and High-Speed Oven
Traulsen	Up right and undercounter refrigeration
Structural Concepts	Cold grab n Go Cases
Rational/Alto Shaam	Combi ovens
Nu-Vu	Proofer/baking ovens
Hobart	Dishwasher, food prep equipment
Price Castle	Upright toaster
Cook Tec	Induction cookers
Vulcan	Cooking equipment
Hatco	Heated grab n go displays, toaster
Duke	Heated/holding bins
Nichols/Savannah	Fabrication and counters

Any substitutions must be submitted and approved ten (10) days prior to close of bids.

1.8 APPROVED SUBSTITUTIONS AND LISTED ALTERNATES

A. Substitutions approved as noted in Article 1.7, and/or any Listed Alternate manufacturers included in the Itemized Specifications Article 3.12, or added by Addendum, may be utilized, in lieu of the primary specified manufacturer with the following conditions:

1. These Contract Documents are designed and engineered using the primary specified manufacturer and model and are intended to be the Basis of Design and Bid. Contractor assumes complete responsibility for any deviations required due to utilization of a substitution/alternate manufacturer or model; including, but not limited to, fitting alternates into available space, providing directions for required changes, and assuming any associated cost for utility, building, architectural, or engineering changes.
2. Contractor is responsible for supplying the model which is as close as possible to the primary specified model in regard to general function, features, options, sizes, accessories, utility requirements, finish, operation, internal system engineering and listing approvals. If it is determined by the owner or their appointed representative at any time during the construction and installation process, and prior to the final acceptance of the Project, that the substitution/alternate model submitted is not equivalent to the primary specified model, the Contractor will assume all associated cost and implications required to replace the model submitted, with the correct model.
3. The bid proposal is to clearly state any proposed substitutions/alternates that are being offered for review, by including the manufacturer and model number, along with a current data sheet for each substitution/alternate, with any and all deviations between the primary specified manufacturer and the substitution/alternate manufacturer clearly defined. Technical brochures from manufacturers may not be acceptable as adequate information required for comparison. Complex alternates such as utility distribution systems, exhaust hoods, ventilators, refrigeration systems, etc. shall include a shop drawing specific to this Project.
4. Inclusion of an alternate manufacturer in Itemized Specifications Article 3.12 is not intended to indicate that there is an equal alternate unit to match every primary specified unit. It is the responsibility of the Contractor to ensure that the alternate unit submitted matches or exceeds the primary specified unit and meets the conditions as stated above.
5. Manufacturers not approved as substitutions or included as a Listed Alternates will not be permitted.

1.9 DISCREPANCIES

A. Where discrepancies are discovered between the drawings and the specifications, regarding quality or quantity, the higher quality or the greater quantity is to be included in the Bid Proposal.

B. Contractor to notify the Architect, in writing, of any discrepancies discovered, and await written clarification prior to proceeding with the items or areas in question.

C. Contractor is responsible for verifying and coordinating all items provided in this Section with the drawings, specifications, manufacturer's requirements, submittals, actual site conditions, adjacent items, and associated (Sub-) Contractors to assure that there are no discrepancies or conflicts. This is to include, but not be limited to, quantities, dimensions, clearances required, direction of operation, door swings, utilities, fabrication details and methods, installation requirements, etc.

1.10 SUBMITTALS

A. Provide one (1) digital (PDF) of all Submittals for review by the Design Team. After review process this set will be returned for copying and distribution.

B. Substitutions must be approved in writing by the Architect and/or Owner prior to utilization in this contract. Substitutions must be submitted and approved ten (10) days prior to Bid. A copy of the approval must be included with any submittals.

C. Contractor to review all submittals for compliance with the Contract Documents prior to submitting to the Design Team for review and is responsible for the accuracy of the information within their submittals.

D. Contractor's use of any Design Team's digital contract drawings for basis of producing their submittal drawings is with the following conditions and understanding:

1. Contractor shall assume complete liability and responsibility for accuracy, and for conformance and verification with the latest Architectural and Engineering drawings, actual field conditions, and all equipment provided.
2. Contractor further assumes responsibility for coordination of their submittals with those of other Contractors and Sub-Contractors, as required.
3. Submittals shall contain Contractor's notes, symbols, details, title block and information.

E. Equipment Plan and Rough-In Drawings

1. Submit ¼" (1:50) scale drawings in PDF format. These drawings are to include complete information on the work included in this Contract, with references to equipment as provided by others, and are to provide sufficient information for associated trades, contractors, and/or sub-contractors to complete their division of work associated with food service equipment included in this Contract. Include any additional information pertinent to the installation of this equipment.
2. Special Conditions Drawings, dimensioned, sizing and locating the following conditions:
   a. Slab depressions, cores, sleeves or block-outs (cold storage assemblies, drain trenches, piping, etc.).
   b. Concrete or masonry platforms.
   c. Pipe sleeves or roof jacks.
   d. Wall openings or block-outs for pass-through equipment, recessed control panels, in-wall fire-protection system components, etc.
   e. Blocking grounds or anchor plates required in walls for equipment support/attachment.
   f. Above-ceiling hanger assemblies for support of exhaust hoods, utensil racks, etc.
   g. Access panels in walls or ceiling for service of equipment.
   h. Ceiling pockets or recesses for unusually high equipment.
   i. In-wall carriers for wall-hung or cantilevered equipment.
   j. Ventilation for exhaust hoods, condensate hoods, ice machines, compressors.
   k. Beverage conduit and sleeves.
   l. Any other additional information pertinent to the installation of this equipment, including seismic bracing.

3. Electrical Rough-in Drawings dimensioned and providing the following information, but not limited to:

   a. Electrical utility schedule.
   b. Locations of rough-ins.
   c. Locations of control panels.
   d. Interwiring of walk-in freezer compressors to compressor rack control panel for defrost cycle.
   e. Interwiring of control panels to equipment.

4. Plumbing Rough-In Drawings dimensioned, and providing the following information, but not limited to:
   a. Plumbing utility schedule.
   b. Locations of rough-ins.
   c. Interconnection water filters assemblies to ice machine, beverage equipment, combi-ovens, steamers, etc.

F. Shop Drawings
1. Submit shop drawings for items of custom fabrication included in this contract in PDF format. Shop drawings are to be submitted a ¾" (1:20) and/or 1-1/2" (1:10) scale and are to show dimensions, materials of construction, installation and relation of adjoining work requiring cutting or close fitting. Shop drawings are to also

indicate reinforcements, anchorage and related work required for the complete installation of fixtures.

2. Submit shop drawings for any equipment requiring field assembly, including but not limited to, Waldorf cooking assemblies, pulper/extractor assemblies, remote refrigeration systems, walk-in coolers and/or freezers, exhaust hoods/ventilators, fire suppression system, utility distribution systems, pot/utility/cart/tray/ware washing assemblies/machines, conveyors, floor troughs, seismic anchoring details (as required) and fresh oil supply/waste oil recovery systems in PDF format.
3. Before proceeding with the fabrication or manufacture of any item, Contractor is responsible for verifying and coordinating all dimensions and details, with site dimensions, conditions, and adjacent equipment.
4. The Contractor is to clearly identify on drawings all differences between the bid documents and what is being provided. If any electrical, plumbing, gas or steam requirements are different than what the bid documents show, the Contractor will make a note on the drawings, identifying what is different.
5. Provide calculations and details for the support and anchorage of all kitchen equipment that is to be permanently fastened to the building or utilities. Alternatively, show a note on the plans requiring that the kitchen equipment be supported and anchored per the SMACNA's "Guidelines for Seismic Restraints of Kitchen Equipment". Note the SMACNA Guideline page number that applies to each piece of equipment being anchored.

G. Product Data Submittal Manuals

1. Submit product data brochure(s) with a cover sheet, complete with detailed information on every item included in this section in PDF format. Detailed information is to include, but not be limited to, item number, description, quantity, model numbers, options and accessories provided, N.E.M.A. plug and receptacle configuration for applicable items, exact utility requirements, manufacturer's cut-sheets, reference to specific shop drawings, etc. Distribute one additional copy of installation and start-up instructions to the Installer. Every cover sheet and associated detailed submittal is to provide sufficient and complete information for the Design Team to verify that the Contractor understands the Contract requirements and is providing each item in compliance with the Contract documents. Cover sheets to also include associated items as listed on the Equipment Plan, but provided by others, and are to be noted as "Not in Section 114000 Contract Division".
2. Reproduction of any part of the Contract Specifications will not be acceptable as part or total of Contractor's Product Date Submittal Manuals. These Manuals are to be produces and assembled entirely by the Contractor, in numerical order according to Item numbers.
3. The cover sheet to clearly identify all differences between the bid documents and what is being provided. If any electrical, plumbing, gas or steam requirements are different than what the bid documents show, the Contractor will make a note on the cover sheet identifying what is different and why. If a model has been discontinued, the

Contractor will make a note on the cover sheet and offer a replacement model.

4. The cover sheet to clearly identify all differences between the bid documents and what is being provided. If any electrical, plumbing, gas or steam requirements are different than what the bid documents show, the contractor will make a note on the cover sheet and offer a replacement model.

H. Design Team's review of submittal drawings, shop details, product data brochures, and operation and maintenance manuals is for general conformance with the design concept and contract documents. Review markings or comments are not to be construed as relieving Contractor from compliance with the contract documents, or departures there from. Contractor remains responsible for details and accuracy, confirming and correlating all quantities and dimensions, selecting fabrication processes, techniques of assembly, and performing their work in a safe, satisfactory, code-compliant and professional manner.

I. Commencement of purchasing or fabrication by the Contractor of any item(s) included in this Contract, prior to receipt of reviewed Submittals from the Design Team, shall be at the Contractor's own risk, unless specifically instructed to do so in writing by the Owner, including the specific item numbers requested.

J. Food Service Equipment Contractor shall verify requirements and equipment sizes or other characteristics necessary to represent Owner/Purveyor items completely on the shop drawing submittals even though they may be listed as "NIC/Not in Contract" in the Equipment Schedule/Item Specification sections of this document.

1.11 OPERATION AND MAINTENANCE DATA MANUALS

A. Two (2) bound sets of manuals are to be furnished for items of standard manufacture on/or before the date of the first event to occur of the following: demo/start-up, start-up for intended use by the Owner/Operator, completion of Installation of kitchen equipment contract package, or final acceptance of installation by Owner. Manuals are to be in alphabetical order, according to manufacturer. Manufacturer's info is to include Tech Service's telephone number, email, and website address, where available.

B. Provide a complete list of local service agencies for included manufacturers, complete with address and telephone numbers. Also, provide email and website addresses, where available.

C. Provide electronic/digital media for maintenance, training, operation, etc., where available from the manufacturer.

D. Manual shall also include a leak testing report for each, and every remote refrigerated system included under this Foodservice Equipment

Section, as required in Article 2.6.A.6 Refrigeration Equipment of this Section.

1.12 AS BUILT/RECORD DOCUMENTS

A. Time is of the essence, and acceptance constitutes assurance that the Contractor can, and will, obtain materials, equipment, and manpower to permit installation of the items included in this Section, on schedule. Contractor is to coordinate their work with the progress schedule, as prepared and updated periodically by the General Contractor or Construction Manager.

B. Anticipated delays, not within the control of the Contractor, are to be noted in a written notification to the Architect immediately upon the Contractor’s realization that delays are imminent.

C. Failure of manufacturers to meet promised delivery dates will not grant relief to the Contractor for failure to meet schedules unless the Contractor can establish, in writing, that orders were received by the manufacturer with reasonable lead times.

D. Extra charges resulting from special handling or air shipment in order to meet the schedule will be paid by the Contractor if insufficient time was allowed in placing factory orders.

1.13 SCHEDULE

A. Time is of the essence and acceptance constitutes assurance that the Contractor can and will obtain materials, equipment, and manpower, to permit installation of the items included in this Section, on schedule. Contractor is to coordinate their work with the progress schedule, as prepared and updated periodically by the General Contractor or Construction Manager.

B. Anticipated delays, not withing the control of the Contractor, are to be noted in a written notification to the Architect, immediately upon the Contractor’s realization that delays are imminent.

C. Failure of manufacturers to meet promised delivery dates will not grant relief to the Contractor for failure to meet schedules, unless the Contractor can establish, in writing, that orders were received by the manufacturer, with reasonable lead times.

D. Extra charges resulting from special handling or air shipment in order to meet the schedule will be paid by the Contractor if sufficient time was allowed in placing factory orders.

1.14 WARRANTY

A. Unless otherwise noted in Related Divisions / Sections 1.2.A, items furnished are to be fully guaranteed against defects in workmanship, materials, and functionality for one (1) full year from the date of the first event to occur of the following: date of issue of Certificate of Occupancy (or the equivalent), start-up for intended use by the Owner/Operator, completion of installation of kitchen equipment contract package, or final acceptance of installation by Owner. Should a Temporary Certificate of Occupancy be issued for partial completion of work, the items furnished within that designated area are to be under warranty from the date of issue of that Certificate. Contractor or their service agent will make necessary repairs and replacements without charge to the Owner, and within a reasonable time.

B. Additional Refrigeration Warranty: In addition to the one-year warranty requirements, as stated above, provide start-up and parts and labor for the first year, plus additional four-year extended warranty on compressors. Extended warranty is for provision of replacement compressor, determined to be defective by a certified refrigeration mechanic. However, verification of defective compressor, installation of replacement compressor, recharging and repairs of system, will be the responsibility of the Owner. This includes all items with built-in or remote refrigeration systems.

C. Periodic routine maintenance, servicing, adjustments, cleaning, etc., as required by the manufacturers included in this Project, are the responsibility of the Owner.

D. Any and all parts or requirements for manufacturer's warranties to be in effect, whether noted in the itemized specifications, are to be provided or complied with by the Contractor. This is to include, but not be limited to: particular parts, accessories, or installation; installation supervision, start-up, and/or follow-up inspections required by factory trained, Certified, and/or authorized personnel. Factory training, Certification, and/or authorization is to be in effect at the time of bidding, installation, start-up, and warranty period of this Project.

E. Unless otherwise noted in Related Divisions, manufacturer's warranties which comply with the requirements of this Warranty Article 1.17, are to be provided in lieu of Contractor's own warranties, where available. Copies of the written warranties are to be included in the O & M Manuals.

PART 2 - PRODUCTS

2.1 EQUIPMENT

A. Refer to schedule on Foodservice Drawings and Section 3.12 Itemized Specifications for equipment included in this Section.

2.2 MATERIALS

A. Metals:

1. Stainless Steel AISI Type 201 or 301/304, hardest workable temper, and No. 4 directional polish. Unless otherwise noted or specified, or required by the manufacturer, 201 may be used wherever 302/304 is listed.
2. Galvanized Steel Sheet: ASTM A526, except ASTM A527 for extensive forming; ASTM A525, G90 zinc coating, chemical treatment.
   a. Where painted finish is indicated, provide mill phosphatized treatment in lieu of chemical treatment.
3. Steel Sheet: ASTM A569 hot-rolled carbon steel.
4. Galvanized Steel Pipe: ASTM A53 or ASTM A120, welded or seamless, schedule 40, galvanized.
5. Steel Structural Members: Hot rolled or cold formed, carbon steel unless stainless steel is indicated.
   a. Galvanized Finish (G.I.): ASTM A123 Hot-dipped zinc coating, applied after fabrication.
6. Aluminum: ASTM B209/B221 sheet, plate and extrusions (as indicated), alloy, temper and finish as determined by manufacturer/fabricator, except 0.40 mil natural anodized finish on exposed work, unless another finish is indicated.

B. Plastic Laminate: NEMA LD3, Type 2, 0.050” (1.27mm) thick except Type 3, 0.042” (1.07mm) for post-forming smooth (non-textured). Color and texture as selected by Architect/Interior Designer.

1. Comply with N.S.F. Standard No. 35.
2. Veneered with approved waterproof and heat proof cement. Rubber base adhesives are not acceptable.
3. Applied directly over close grained plywood, such as solid Mahogany or solid Birch, of select, smooth, sanded stock to ensure a smooth ripple-free laminated surface, or commercial grade furniture particle board, Cortron or equal.
4. Exposed faces and edges are to be faced with 1/16” (1.6mm) thick material. Corresponding backs are to be covered with approved backing and balancing sheet material.

C. Millwork: No unfinished millwork, plywood, no particle board or wood framing (including backs, undersides, and all surfaces concealed from view) will be permitted. All unfinished surfaces or openings cut through finished surfaces are to be sealed to be water resistant, with excess plastic laminate material, Cortron (Melamine) material, backing materials, sealers, primers, finish paint, etc., to blend with specified finish materials.

D. Hardwood Work Surfaces: Laminated edge grained hard maple (Acer saccharum), NHLA First Grade with knots, holes and other blemishes culled out, kiln dried at 8 percent or less moisture, waterproof glue, machined, sanded, and finished with N.S.F. approved oil-sealer.

E. Simulated/Engineered Stone

1. Single-Source Responsibility for Simulated/Engineered Stone: Obtain each color, grade, finish, type, and variety of material or stone from a supplier with resources to provide materials of consistent

quality in appearance and physical properties, including the capacity to cut and finish material without delaying the progress of the work.

2. Single-Source Responsibility for Other Materials: Obtain each type of solid surface material and simulated/engineered stone accessory, sealant, and other materials from one manufacturer for each product.
3. Installer Qualifications: Trained and approved by countertop manufacturer who has completed countertops similar in material, design, and extent to that indicated for project that has resulted in construction with a record of successful in-service performance.
4. The Contractor is responsible for verification of delivered stone materials for quantities, defects, or damage within ten (10) days after delivery. No compensation will be allowed to the contractor for materials and labor that may be required to replace materials after this time period.
5. Allowable Tolerances:
   a. Variation in component size +/- 1/8 inch in 8 feet.
   b. Maximum height of abrupt irregularities: 1/32 inch.
   c. Location of openings: +/- 1/8 inch from indicated location.
6. Do not deliver countertop materials until painting and similar operations that could damage engineered stone materials have been completed in installation areas. If engineered stone materials must be stored in other than installation areas, store in only areas where environmental conditions comply with requirements specified in "Project Conditions" Article.
7. Handle materials to prevent damage to finished surfaces. Provide protective coverings to prevent physical damage or staining following installation for duration of project.
8. Environmental Limitations: Do not deliver or install simulated stone materials until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
   a. Maintain ambient temperature between 50 and 95-degrees F for 48 hours before, during, and for minimum of 7 days after installation.
9. Field Measurements: Where simulated stone materials are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements of Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
   a. Locate concealed framing, blocking, and reinforcements that support simulated stonework by field measurements before being enclosed and indicate measurements on Shop Drawings.
10. Anchors: Select material, type, size and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.
11. Adhesive and sealant as recommended by engineered stone manufacturer.
12. Sink/bowl mounting hardware:

a. Manufacturer's approved bowl clips, brass inserts and fasteners for attachment of under mount sinks/bowls.

13. Fabrication
    a. Fabricate components to greatest extent practical to sizes and shaped indicated in accordance with approved shop drawings and manufacturer's printed instructions.
    b. Clean surfaces to remove loose and foreign matter that could impair adhesion.
    c. Remove ridges and projections. Fill voids and depressions with patching compound compatible with setting materials.
    d. Shop cut openings to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings.
    e. Rout and finish component edges with clean, sharp returns. Rout cutouts, radii and contours to template. Smooth edges. Repair or reject defective and inaccurate work.
    f. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trip for scribing and site cutting.
    g. Thickness: Provide thickness indicated, but not less than the following:
        i. Countertop: [3/4] [1-1/4] inch[es]
        ii. Back and End Splashes: ¾ inch, unless shown otherwise.

F. Stone

1. Single-Source Responsibility for Stone: Obtain each color, grade, finish, type, and variety of stone from a supplier with resources to provide materials of consistent quality in appearance and physical properties, including the capacity to cut and finish material without delaying the progress of work.
2. Single-Source Responsibility for Other Materials: Obtain each type of stone accessory, sealant, and other materials from on manufacturer for each product.
3. Installer Qualifications: Engage an experienced installer who have completed stone countertops similar in material, design, and extent to that indicated for project that has resulted in construction with a record of successful in-service performance.
4. The Contractor is responsible for verification of delivered stone materials for quantities, defects, or damage within ten (10) days after delivery. No compensation will be allowed the contractor for materials and labor that may be required to replace materials after this time period.
5. Allowable Tolerances:

    a. Variation in component size +/- 1/8 inch in 8 feet.
    b. Maximum height of abrupt irregularities: 1/32 inch.
    c. Location of openings: +/- 1/8 inch from indicated location.

6. Do not deliver countertop materials until painting and similar operations that could damage stone materials have been completed in installation areas. If stone materials must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.
7. Deliver materials to project site in undamaged condition.
8. Store and handle stone and related materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, breakage, chipping, or other causes.
   a. Do not use pinch or wrecking bars.
   b. Lift with wide-belt-type slings where possible. Do not use wire rope or ropes containing tar or other substances that might cause staining. If required to move stone, use wood rollers with cushions at end of wood slides.
   c. Store stone on wood skids or pallets covered with non-staining, waterproof membrane.
   d. Place and stack skids and stones to distribute weight evenly and to prevent breakage or cracking of stones.
   e. Protect stored stone from weather with waterproof, non-staining covers or enclosures, but allow air to circulate around stones.
   f. Store cementitious materials off the ground, under cover, and in dry location.

9. Environmental Limitations: Do not deliver or install stone materials until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
   a. Maintain ambient temperature between 50- and 95-degrees F for 48 hours before, during and for minimum 7 days after installation.
10. Field Measurements: Verify dimensions of construction to receive stone countertops by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the work.
   a. Established Dimensions: Where field measurements cannot be made without delaying the work, establish dimensions and proceed with fabricating countertops without field measurements. Provide allowance for trimming at site and coordinate construction to ensure actual dimensions correspond to established dimensions.
11. Comply with referenced standards and other requirements indicated applicable to each type of material required.
12. Provide matched slabs, coordinated for each type, variety, color, and quality of stone required.
13. The use of colored tints, dyes, or waxes applied to stone shall NOT be permitted.
14. Adhesives
   a. Stone seam adhesive, 2-part epoxy or polyester stone adhesive formulated specifically for bonding stone to stone, with an initial set time of not more than 2 hours at 70 deg F

b. Water-cleanable epoxy adhesives, ANSI A118.3, water cleanable, tile-setting epoxy adhesive.
c. Color to match stone or clear.
d. Use installation adhesives that have a VOC content 65 g/l or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24) or listed in VOC limit tables in Section 01 81 19 "Indoor Air Quality Requirements". Products furnished shall comply with whichever content requirement is more stringent.

15. Stone Sealants
a. Sealant for countertops, clear silicone sealant complying with requirements of Section 07 92 00 "Joint Sealants".
b. For sealants used inside of vapor barrier, provide sealants that have a VOC content of 250 g/l or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24) or listed in VOC limit tables in Section 01 81 18 "Indoor Air Quality Requirements". Products furnished shall comply with whichever is more stringent.

16. Stone sealers
a. Penetrating sealer: Penetrating sealer that protects the exposed faces of stone and grout from staining. Sealer shall be UV transparent, non-yellowing, VOC compliant, mold and mildew resistant and USDA approved as safe food handing surfaces. Material shall exceed ADA standards for slip resistance at traffic areas.
b. For sealers used inside of the vapor barrier, provide sealers that have a VOC content of 250 g/l or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24) or listed in VOC limit tables in Section 01 81 19 "Indoor Quality Requirements". Products furnished shall comply with whichever is the more stringent.

17. Only quartz is accepted no granite or marble are allowed unless in non-food areas.

18. Cutouts and holes for lavatory sinks and fittings
a. Undercounter lavatories: Make cutouts for undercounter lavatories in shop using template or pattern furnished by lavatory manufacturer. Form cutouts to smooth even curves with edges at right angles to the top. Ease juncture of cutout edges with tops and finish edges to match tops.

19. Fittings: Drill countertops in shop for plumbing fittings, undercounter soap dispensers and similar items.

G. Insulation

1. For low temperature applications, such as ice bins, cold pans or fabricated under counter freezers, use urethan rigid foam board or foamed in place, not less than 2" (50 MM) thick, except that vertical surface of cold pans and ice bins may be 1" (25MM) thick. Insulation to be bonded at joints to prevent condensation on exterior.
2. For refrigerated applications such as fabricated undercounter refrigerators use urethan rigid foam or foamed in place or Styrofoam rigid foam board 2" (50MM) thick bonded at joints. No fiberglass insulation will be permitted.

3. For heated type applications, such as plate warmers, use block type rock wool, minimum 1” (25MM) or Marinite I as noted in #4 below.
4. At corners subject to direct or indirect heat from heating and cooking equipment use 1” (25MM) thick BNZ Materials, Inc. (303-978-1199) Marinite I or equal to insulate between counter and heat source. In addition, provide a 1” (25MM) minimum air space between the heat source and the insulation.
5. All insulation is to be fully or enclosed in 16 gauge (1.6MM) stainless steel.

H. Joint Materials

1. Sealants: waterproof and mildew resistant silicone sealant with Shore A hardness of 30except for 45 if subject to traffic and minimum service temperature range of -60 to 400+F. Sealant to be NSF Standard #51 Listed, FDA and USDA approved for use in food zones. Surfaces cleaning and sealants installation to comply with applicable requirements of FDA, USDA and NSF Standards and accepted foodservice installation practices.
2. Backer rod: For 3/8” (9.5MM) or larger joints to be polyurethan rod stock larger than joint width.
3. Gaskets to be solid or hollow (but not cellular) neoprene or polyvinyl chloride, light grey with a minimum of 40 hardness, self-adhesive or prepared for either adhesive application or mechanical anchorage.

I. Paint and coatings

1. Provide the types of painting and coating materials which after drying or curing are suitable for use in conjunction with foodservice and which are durable, non-toxic, non-dusting, non-flaking, mildew resistant and comply with NSF Standards and governing regulation for foodservice.
2. Galvanize repair paint - MIL-P-21035.
3. Sound deadener: NSF listed sound deadening material such as latex sound deadener for internal surfaces or metal work and underside of metal counters and tables between work top and underbracing. Verify sound deadening requirements or restrictions with current local requirements.
4. Pretreatment: SSPC-PT2 or PT3 or FS TT-C490.
5. Primer coating for metals: FS TT-P-86, type suitable for baking where indicated.
6. Enamel for metal: Synthetic type FA TT-P-491, type suitable for baking where indicated.

2.3 FABRICATED PRODUCTS

A. Hardware (also refer to article 2.4 Fabrication of Metal Works in general and paragraphs O. Doors 1-3 and P. Drawer assemblies 1-6 specifically for additional requirements.

1. General: Manufacturer's standard but not less than ANSI 156.9 Type 2 (Institutional) satin finish stainless steel or dull chrome finish on brass, bronze, or steel.
2. Hinged door hardware: Stainless steel hinged doors to be mounted with heavy duty or equal NSF heavy duty hinges with Component Hardware Group Model No. P62-1010 pulls or equal, or full length pulls as per individual itemized specifications and shown on standard detail FSD1-24. Catches to be heavy-duty magnetic type except as otherwise indicated. Millwork cabinet hinged doors to be mounted with Blum 95 CLIP top thick door all metal hinges, nickel plated with 3-dimensional adjustment or equal, or as per individual itemized specifications.
3. Drawer hardware: Slides to be 200 lbs. (90 kilograms) minimum capacity per pair, 201 or 300 series stainless steel, full extension, side-mounting, self-closing type with stainless steel ball bearings and positive stops. Component Hardware Group Series S52 or equal. Pulls to be Component Hardware Group Model P62-1012 or equal, or full length pulls as per individual itemized specifications and shown on Standard Detail FSD1-24.
4. Sliding door hardware: Sliding doors to be mounted on large, quiet ball bearing rollers in 14 gauge (2MM) stainless steel guide pins and not channel tracks for doors.
5. All hardware to be with manufacturers name and number so that broken or worn parts may be replaced.

B. Casters

1. Type and size as recommended by caster manufacturer, NSF approved for type and weight of equipment supported, normally 5" (127MM) diameter heavy duty, ball bearing, solid or disc wheel with non-marking grease proof rubber, neoprene or polyurethane tires, unless otherwise specified. Minimum width of tread to be 1-3/16" (30MM). Minimum capacity per caster or be 250 lbs. (113 KG) unless otherwise noted in itemized specifications.
2. Solid material wheels to be provided with stainless steel rotating wheel guard.
3. To be sanitary, have sealed wheel and swivel bearings and polished plated finish per NSF.
4. Unless otherwise indicated, equip each item with two (2) swivel type casters and two (2) fixed casters with footbrakes on two (2) casters.
5. Unless item is equipped with another form of all all-round protective bumper, provide circular rotating bumper above each caster, 5" (127 MM) diameter tire or light grey synthetic rubber (hollow or closed cell) on cadmium-plated disc.

C. Plumbing fittings, trim and accessories

1. General: Where exposed or semi-exposed, provide bright chrome plated brass or polished stainless-steel units. Provide copper or brass where not exposed.
2. Vacuum breakers: provide with foodservice equipment as listed in the itemized specifications.

3. Water outlets: at sinks and at other locations where water is supplied (by manual or remote control) furnish commercial quality faucets, valves, dispenser or fill devices of type and size indicated and as required to operate as indicated.
4. Waste fittings: except as otherwise indicated, furnish 2” (50 MM) remote-lever ball valve type waste valve and 3-1/2” (89MM) flat strainer.
5. Also refer to article 2.4K for additional information.

D. Electrical materials

1. General: provide standard materials, devices and components as recommended by the manufacturer or fabricator, selected and installed in accordance with NEMA standards and recommendations and as required for safe and efficient use and operation of the foodservice equipment without sanitation problems.
2. Components to bear UL label or be approved by the prevailing authority.

3. Custom fabricated refrigeration/freezer to be provided with vapor type might, receptacles, shatterproof lamps and automatic switches. Wiring to be concealed.
4. Where light fixtures are specified or detailed as part of the counters, cases and fixtures. Light fixtures with lamps to be furnished and installed. Warm white lamps to be provided unless otherwise specified. If fluorescent light fixtures are specified, ballast and tubes to be provided. Shields to be provided for all light fixtures.
5. Convenience and power outlets: make cutouts and install appropriate boxes or outlets in fabricated fixtures, complete with wiring, conduit, outlet and stainless-steel cover plate. Outlets and plugs to conform NEMA standards. Electrical outlets and devices to be first quality “Specification Grade”. GFCI outlets to be furnished where adjacent to sink compartments as per the National Electrical Code.
6. Plugs and cords: where cords and plugs are provided, they are to comply with National Electrical Manufacturers Association (NEMA) requirements. Indicate NEMA configuration for each applicable item.
7. Power characteristics: refer to Electrical Divisions specifications for project power characteristics. Also refer to individual equipment requirements for loads and ratings.
8. All electrical components (J-boxes, conduit, outlets, switches, cover plates, light fixtures, panels, etc) built into or on any equipment provided by the KEC, other than standard buy-out factory manufactured equipment with vapor or watertight electrical components wherever available.

2.4 FABRICATION OF METALWORK

A. General fabrication requirements

1. Remove burrs from sheared edges of metalwork, ease the corners and smooth to eliminate cutting hazard. Bend sheets of metal, at not less than the minimum radius required to avoid grain separation in the metal. Maintain flat smooth surfaces without damage to finish.
2. Reinforce metal at locations of hardware, anchorages and accessory attachments wherever metal is less than 14 gauge (2MM) or requires mortised application. Conceal reinforcements to the greatest extent possible. Weld in place on concealed faces.
3. Exposed screws or bolt heads, rivets and butt joints made by riveting straps under seams and then filled with soldier will not be accepted. Where fasteners are permitted, provide Phillips's head, flat or oval head machine screws. Cap threads with acorn nuts, unless fully concealed in inaccessible construction and provide nuts and lock washers unless metal for tapping is at least 12 gauge (2.5MM), match fastener head finish with finish of metal fastened.
4. Where components of fabricated metal work are indicated to be galvanized and involve welding or machining of metal heavier than 16 gauge (1.6MM) complete the fabrication and provide hot-dip galvanizing of each component after fabrication to the greatest extent possible (depending upon available dip-tank sizes) comply with ASTM A123.
5. Welding and soldering
   a. Materials 18 gauge (1.3MM) or heavier to be welded.
   b. Seams and joints to be shop welded or soldered as the nature of the material may require.
   c. Welds to be ground and polished to match original finish
   d. Where galvanizing has been burned off the weld is to be cleaned and touched up with high grade aluminum paint.

B. Metal and Gauges

1. Except as otherwise indicated, fabricate exposed metalwork of stainless steel and fabricate the following components from gauge of metal indicated and other components from not less than 20 gauge (1MM) metal:
   a. Table and counter tops: 14 gauge (2MM)
   b. Sinks and drain boards: 14 gauge (2MM)
   c. Shelves: 16 gauge (1.6MM)
   d. Front drawer and door panels 18 gauge (1.3MM) double pan type
   e. Single pan doors and drawer fronts: 16 gauge (1.6MM)
   f. Enclosed base cabinets: 18 gauge (1.3MM)
   g. Enclosed wall cabinets: 18 gauge (1.3MM)
   h. Exhaust hoods and ventilators: 18 gauge (1.3MM)
   i. Pan-type insets and trays: 16 gauge (1.6MM)
   j. Removable covers and panels 18 gauge (1.3MM)
   k. Skirts and enclosure panels: 18 gauge (1.3MM)
   l. Closure/trim strips over 4" (102MM) 18 gauge (1.3MM)
   m. Hardware reinforcement: 12 gauge (2.5MM)
   n. Gusset plates: 10 gauge (3.4MM)

C. Work Surface Fabrication

1. Fabricate metal work surfaces by forming and welding to provide seamless construction using welding rods matching sheet metal, grinding, and polishing. Where necessary for disassembly, provide waterproof gasketed draw-type joints. With concealed bolting.
2. Reinforce work surfaces 30" (762MM) on center both ways with galvanized or stainless steel concealed structural members. Reinforce edges which are not self-reinforced by formed edges.

D. Metal Top Construction

1. Metal tops to be one piece welded construction including field joints. Secure to a full perimeter galvanized steel channel frame cross braced not farther than 30" (762MM) on center. Fasten top with stud bolts or tack weld. If hat sections are used in lieu of channels, close ends.

2. Properly designed draw fastening, trim strip, or commercial joint material to suit requirement is to be used, only if specified.

E. Structural Framing

1. Except as otherwise indicated, provide framing of minimum 1" (25mm) pipe-size round pipe or tube members, with mitered and welded joints and gusset plates, ground smooth. Provide 14 gauge (2mm) stainless steel tube for exposed framing, and galvanized steel pipe for concealed framing.
2. Where indicated, flange rear and end edges up to form splashes integrally with top, with vertical and horizontal corners coved of not less than ¼" (6mm) radius, die formed. Turn back splashes 1" (25mm) to wall across top and ends with rounded edge on break, unless otherwise specified.
3. For die-crimped edges, use inverted "V" ½" (13mm) deep inside and 2" (50mm) deep on outside, unless otherwise shown. For straight down flanges, make 1-3-4" (45mm) deep on outside. For bullnose edges, roll down 1-3/4 (45mm).
4. Edges: die-formed, integral with top. For rounded corners, form to 1" (25mm) radius, weld, and polish to original finish.

F. Field Joints: For any field joint required because of size of fixture, butt-joint, reinforce on underside with angles of same material, bolt together with non-corrosive bolts and nuts, field weld, grind and polish.

G. Pipe Bases: Construct pipe bases of 1-5/8" (41mm) diameter 18 gauge (1.3mm) stainless steel tubing. Fit legs with polished stainless steel sanitary adjustable bullet feet to provide for adjustment of approximately 1-1/2" (37mm), without exposing threads. Space legs to provide ample support for tops, precluding any possibility of buckling or sagging and in no case more than 6'-0" (1829mm) centers.

H. Legs and Cross rails

1. Equipment legs and cross rails to be 1-5/8" (41mm), 16 gauge (1.6mm) stainless steel tubing.
2. Welds at cross rails to be continuous and ground smooth. Tack welds will not be acceptable.
3. Bottom of legs to be swedged inward and fitted with a stainless steel bullet-type foot with not less than 2" (50mm) adjustment.
4. Free standing legs to be pegged to floor with ¼" (6mm) stainless steel rod or provided with bolt down type flanged feet anchored to the floor, depending on expected severity of use and/or abuse.
5. Components
    a. Steel Gusset: Stainless steel exterior to fit 1-5/8" (41mm) tubing, with Allen screw for fastening and adjustment. Not less than 3" (76mm) diameter at top and 3-3/4" (95mm) long. Outer shell 16 gauge (1.6mm) stainless steel, reinforced with 12 gauge (2.5mm) mild steel insert welded interior shell, or approved equal.
    b. Stainless Steel Low Counter Legs: Stainless steel exterior 5-3/4" (146mm) minimum, 7" (178mm) maximum length with stainless steel 3-1/2" (89mm) square plate with four counter-sunk holes, welded to top for fastening.
    c. Stainless Steel Adjustable Foot: Stainless steel 1-1/2" (37mm) diameter tapered at bottom to 1" (25mm) diameter, fitted with threaded cold rolled rod for minimum 1-1/2" (37mm) diameter, fitted with threaded cold rolled rod for minimum 1-1/2" (37mm) diameter x ¾" (19mm) threaded bushing plug welded to legs, or approved equal. Push-in foot not acceptable.
6. Legs to be fastened to equipment with gussets as follows:
    a. Sinks: Reinforced with bushings and set screw.
    b. Metal Top Tables and Dish Tables: Welded to galvanized steel channels, 14 gauge (2mm) or heavier, anchored to top with screws through slotted holes.
    c. Wood Top Tables: Welded to stainless steel channels, 14 gauge (2mm) or heavier, anchored to top with screws through slotted holes.

I. Shelves

1. Construct solid shelves under pipe base tables of 16 gauge (1.6mm) stainless steel, with 1-1/2" (37mm) turned down and under edges on exposed sides, and 2" (50mm) turn up against walls or equipment. Fully weld to pipe legs.
2. In fixtures with enclosed bases, turn up shelves on back and sides with ¼" (6mm) (minimum) radius and feather slightly to ensure a tight fit to enclosure panels.

J. Sinks

1. Construct sinks of 14 gauge (2mm) stainless steel with No. 4 finish inside and outside.
2. Form back, bottom and front of one piece, with ends and partitions welded into place. Partitions: double thickness, 2" (51mm) minimum

space between walls. Multiple compartments to be continuous on the exterior, without applied facing strips or panels.

3. Cove interior vertical and horizontal corners of each tub not less than ¼" (6mm) radius, die formed. Outer ends of drainboards to have roll rim risers not less than 3" (76mm) high.
4. Drill faucet holes in splashes 2-1/2" (63.5mm) below top edge. Verify center spacing with faucet specified.
5. Sink insets to be deep drawn of 16 gauge (1.6mm), or heavier, polished stainless steel. Weld into sink drainboards with 1-1/2" (37mm) x 1-1/2" (37mm) x 14 gauge (2mm) stainless steel angle brackets, securely welded to sinks and galvanized cross angles spot welded to underside of drainboards to form an integral part of the installation.
6. The bottom of each compartment is to be creased such as to ensure complete drainage to waste opening. Slope bottom of sink bowls toward outlet.

K. Drains and Wastes and Faucets

1. Furnish and install Fisher model 28940, or equal, ball valve type rotary drain assembly with flat strainer and connected overflow assembly, with chrome finish, in die-drawn inset type sinks and Bain Marie sinks.
2. Other custom fabricated sinks to be furnished with Fisher model 28932, or equal, ball value type rotary drain assembly, with flat strainer and chrome finish. Waste connection to have 2" (50mm) external thread size, with 1-1/2" (37mm) internal thread size.
3. Rotary Handle: Of sufficient length to extend to front edge of sink. No riveting, screws or soldering permitted to fit drains to sinks, with all parts of drains easily removable for servicing and replacement.
4. All faucets furnished with equipment included in this Section to be lead free and comply with N.S.F. Standard #61, Section #9, such as manufactured by Fisher, Chicago, or T&S.
5. Faucets and pre-rinse spray assemblies furnished with equipment included in this Section are to have a maximum GPM flow rate in compliance with the Energy Policy Act of 2005 (EPAct) and later updates, or local requirements, whichever is lower. EPAct/local requirements are to be applicable to all faucets and pre-rinses, except for pre-rinse type assemblies used at glass icing/fill stations, fill hose/faucet assemblies at high water usage cooking equipment such as kettles, tilt fry pans, etc., and fill faucets at high volume/usage sinks such as pot and prep sinks, etc. are to have flow rates of approximately 5 gpm flow minimum.
6. All flex hose type faucet assemblies, such as pre-rinses, kettle fill hoses, etc., to have an inline pressure type back flow preventer in the hose assembly, as required by local codes.
7. All equipment provided by this Contractor, which discharges liquid waste exceeding 140°F (60°C), is to be provided with a cold water drain tempering assembly per local codes.

L. Workmanship

1. Best quality in the trade. Field-verify dimensions before fabricating, conform all items to dimensions of building; neatly fit around pipes, offsets and other obstructions.
2. Fabricate only in accordance with approved shop drawings, showing pipes, obstructions to be built around, and location of utilities and services.

M. Casework

1. Enclosure: except as otherwise indicated, provide each unit of casework (base, wall, overhead and free-standing) with a complete-enclosure metal cabinet, including fronts, backs, tops, bottoms, and sides.
2. Bases to be made of 18 gauge (1.3mm) stainless steel sheets reinforced by forming the metal.
3. Ends, partitions and shelves to be stainless steel.
4. Unexposed backs and structural members may be galvanized, unless otherwise noted.
5. Vertical ends and partitions to be single wall, with a 2" (50mm) face.
6. Sides and through partitions are flush with bottom rail, welded at intersections.
7. Shelves: Provide adjustable standards for positioning and support of shelves in casework, except bottom shelf of cabinet mounted on legs or as specified. Turn back of shelf units up 2" (50mm) and hem. Turn other edges down to form open channel. Reinforce shelf units to support 40 pounds per square foot (195 kgs/sq meter) loading, plus 100 percent impact loading.
8. Bottom front rail of bases set on masonry platform to be continuously closed and sealed to platform.

N. Doors

1. Metal doors to be double-cased stainless steel. Outer pans to be 18 gauge (1.3mm) stainless steel with corners welded, ground smooth and polished. Inner pan to be 20 gauge (1mm) stainless steel fitted tightly into outer pan with a sound deadening material such as Celotex or Styrofoam used as a core. The two pans to be tack welded together and joints solder filled. Doors to finish approximately ¾" (10mm) thick and be fitted with flush recessed type stainless steel door pulls, or full length pulls as per individual itemized specifications and shown on Standard Detail FSD1-24.
2. Wood doors to be fabricated as detailed.
3. Hinged doors to be mounted on heavy-duty N.S.F. approved hinges, or as noted on plans or specifications.

O. Drawer Assemblies

1. Assemblies to consist of removable drawer body mounted in a ball bearing slide assembly with fully enclosed housing.
2. Slide assembly consists of one pair of 200-pound (90 kilograms) capacity stainless steel roller bearing full extension slides, with

side and back enclosure panels, front spacer angle, two drawer carrier angles, secured to slides and stainless steel front.
3. Drawers intended for tools and general non-food products storage are to have 20" x 20" x 6" deep (508mm x 508mm x 152mm), 18 gauge (1.3mm) minimum stainless steel drawer pans.
4. Drawers intended to hold food products are to have 12" x 20" x 6" dee; (305mm x 508mm x 152mm) stainless steel food pans.
5. All drawer pans to be easily removable without tools or disassembly of any drawer assembly components.
6. Drawer fronts are double cased, ¾" (19mm) thick, with 18 gauge (1.3mm) stainless steel welded and polished front pan. Steel back pan is tightly fitted, and tack welded.
7. Provide drawers with replaceable soft neoprene bumpers or for refrigerated drawers, a full perimeter replaceable refrigerator gasket.

P. Closed Base: Where casework in indicated to be located on a raised-floor base, prepare casework for support without legs, and for anchorage and sealant application, as required for a completely enclosed and concealed base.

Q. Support from Floor: Equip floor supported mobile units with casters, and equip items indicated as roll-out units, with manufacturer's standard one-directional rollers. Otherwise, and except for closed-base units, provide pipe or tube legs, with adjustable bullet-design feet for floor supported items of fabricated metalwork. Provide 1-1/2" (37mm) adjustment of feet (concealed threading).

R. Shop Painting
1. Clean and prepare metal surfaces to be painted, remove rust and dirt. Apply treatment to zinc coated surfaces, which have not been mill phosphatized. Coat welded and abraded areas of zinc coated surfaces, with galvanize repair paint.
2. Apply 1.5 mil (dry film thickness metal primer coating, followed by 2, 1.0 mil (dry film thickness) metal enamel finish coatings.
3. Bake primer and finish coatings in accordance with paint manufacturer's instructions for a baked enamel finish.

S. Sound Deadening

1. Sound deaden underside of metal tops, drainboards, undershelves, cabinet interior shelves, etc., above the underbracing/reinforcing/framing only.

T. Comply with requirements in Section XX XX XX, Seismic Restraint Requirements for Non-Structural Components. Comply with applicable guidelines for seismic restraint of kitchen equipment contained in SMACNA's "Kitchen Ventilation Systems and Food Service Equipment Guidelines", Publication 1767, Appendix A.

1. Metal Butt joints, Equipment edges, and Backsplashes.
2. Anchored feet.

2.5 FABRICATION OF METALWORK

A. The following general requirement 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 precluding 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 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 or wood plugs used to cover head and 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. All substrate material shall be LEED certified and meet 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

1. Follow AWI Premium Grade Standards, factory assembled parts and prefinished, flush type fronts and over lapping ends. ¾" 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 slides and bottom. Scribe countertop and back splashes, secure countertops to base cabinet from underside, fully secure 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 ¾" 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. Reject plastic or plastic backing shall be carefully sanded to smooth finish, removing burns, nicks and cur marks. Plastic laminate joints shall be finished without any 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 to minimize seams.
3. Coved backsplashes shall be a minimum of 1/4". End splashes may have a square intersection with tabletops unless specified otherwise.
4. Plastic laminate shelves shall be laminated with horizontal grade laminate on the side and vertical grade at all edges.

D. Doors/hinged

1. Hinged doors shall be fabricated of ¾" marine grade plywood with hardwood full perimeter edge with plastic laminate on face and self-edging on exposed sides unless indicated otherwise in drawings and details. 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.
2. Utilize EPCO Model MC 4032.5 or as specified in item Specifications.
3. Door Locks shall be Component Hardware Model P30 Series, stainless faced, master keyed as specified.

E. Doors / Sliding

1. 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 shall be fabricated of ¾" nominal thick hardwood and shall be fabricated as a door. Each access panel shall be

provided with 2 (two) magnetic catches at the top and 2 (two) 3/16" positioning pins at the bottom.

G. Drawers

1. Drawers shall have dovetail construction, well glued and blocked. Fronts shall be not less than ¾" thick hardwood. Sides and back shall be ½" thick fabricated of birch, maple or sycamore except where extension slides are used, in which the side shall be 5/8" thick. Bottom shall be milled into front and sides.
2. Drawers shall be provided with suitable stops. Provide pulls as detailed or specified. The inside surfaces of all drawers shall receive one cost of penetrating primer and one coat of glass lacquer.

H. Painted Finishes

1. 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 paint or enamel finish shall receive one cross coat of lacquer type undercoat. The undercoat shall be appreciably different color from that of the finished coat and of proper ground color with relation to finish coat. After the undercoat has been dried the surface 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 and Wall Shelves

1. 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

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

2.6 FILTER EXHAUST HOODS FABRICATION

A. 18-gauge (1.3MM) type 201 or 304 stainless steel external welded construction in accordance with the latest edition of the NFPA no 96 and International Mechanical Code, including all applicable appendices. Exposed welds to be ground and polished. Exhaust hoods to be UL Listed as available for length specified.
B. Furnish type of fixture specified. Fixtures to be UL listed for cooking equipment exhaust hoods, NSF approved and with sealed safety lenses.
C. Furnish welded stainless steel formed duct collars at ceiling or wall connections. Verify size and location of duct connections required in this contract before fabrication.
D. Pre-piped liquid chemical or water fire suppressant system as specified, complying with applicable local and NFPA regulations. Wet chemical fire suppression systems to comply with UL 300 Standards.

Water fire suppression systems to comply with UL Category Subject 199E. Each pull station is to be clearly identified with a permanent type of label as to which exhaust hood(s) it is for. Each exhaust hood is to have a matching permanent type of label identifying which pull station activates its fire system.

E. All cooking equipment below exhaust hoods/ventilators on casters are to be provided with positive wheel placement systems for rear casters similar to Posi-Set units in compliance with NFPA-17A 5.6.4 and NFPA-96 12.1.2.3.

F. Water wash of ultraviolet control panel to be the same manufacturer as ventilator with time clock control for automatic operation. Provide stainless steel trim strips recessed control cabinet applications. Provide stainless steel chase for surface mounted control panel from top of panel to ceiling full width and depth of panel.

G. comply with applicable guidelines for seismic restraint of kitchen equipment contained in SMACNA's Kitchen ventilation Systems and Food Service Equipment Guidelines, Appendix A. (Note: Where applicable)

2.7 REFRIGERATION EQUIPMENT

A. General

1. Furnish either single or multiple compressor units as specified or recommended by the manufacturer for the sizes and variations between connected evaporator loads as indicated.
2. Furnish units of the capacities indicated arranged to respond to multiple evaporator thermostats and defrosting timers. Include coils, receivers, compressors, motor and motor starters, mounting bases, vibration isolation units, fans, dryers, valves, piping, insulation, gauges, winter control equipment and complete automatic control systems.
3. Refrigerant: Pre-charge units with type or types recommended by manufacturer for services indicated with quick disconnect type connections only where specified, ready to receive refrigerant piping runs to evaporators and (where remote) to condensers. All refrigerant and associated components to comply with the requirements of the Montreal Protocol Agreement. No CFC or HCFC refrigerants or associated components will be permitted on this project. HFC refrigerants and components are to be used. Contractor is responsible for coordinating these requirements with manufacturers.
4. Foodservice equipment items included in this section with remote refrigerated systems are to include interconnecting refrigeration lines, sizing, and insulation between components as per manufacturers installation instructions and as determined by this Contractors Certified Refrigeration Sub-Contractor, and only after a thorough examination of the site conditions and obstacles which might affect the routing. Routing should be as direct and short as possible and practical. Refer to additional requirements listed in this section 114000, 1.5 Laws, Ordinances and Standards.
5. The minimum outdoor operating ambient temperature for design of units is -10 degrees Fahrenheit (-23 Centigrade) or lower as

applicable for extreme low local conditions. The maximum indoor design temperature for operation of compressor units is 95 degrees Fahrenheit (35 Centigrade). The maximum outdoor ambient temperature is to be determined by contractor with prevailing conditions at mounting location of compressor such as sun exposure, limited ventilation, high fences/walls, roof color and materials, local climatic extremes, etc. but in no case is it to be less than 100 degrees Fahrenheit 937.8 Centigrade).

6. All refrigeration systems with remote condensing units and jobsite installed interconnecting refrigeration lines shall be tested to verify that there are no leaks. Leak testing shall be equal to or better than a professionally recognized 48-hour minimum pressure holding test. If any leaks are detected, they shall be repaired, and another leak test performed until there are zero leaks detected. A written report of the type test preformed, and a step-by-step record of the procedure and readings shall be submitted to the KEC for inclusion in the Operations and Maintenance Manuals.

B. Components

1. Coils for fabricated refrigerators to have vinyl plastic coatings, stainless steel housings and be installed in such a manner as to be replaceable.
2. Provide guards for all refrigeration/freezer fans with maximum ½" mesh.
3. Remote refrigeration system to be complete with thermostatic expansion valves at the evaporator.
4. Fabricated refrigerated compartments to be fitted with flush dial thermometers with chrome plated bezels. Thermometers to be adjustable and shall be calibrated after installation. Thermometers to have an accuracy or +/- 2 degrees Fahrenheit (1 Centigrade).
5. Hardware

    a. Refrigerator hardware for fabricated refrigerator compartments to be heavy duty components.
    b. Self-Closing
    c. Latches to be magnetic edge mount type, unless specified or detailed otherwise.

6. Doors and drawers for walk-in coolers/freezers and reach-in refrigerated compartments, both fabricated and standard to be fitted with cylinder locking type latches and provided with master keys.
7. Provide and install shut-off valves and service port for each compressor, manifold or header and refrigerated fixtures for multiplex and parallel installation to enable service personnel to service one (1) fixture while other fixture (s) connected to the same compressor can continue to operate. Isolation valves for individual fixtures based upon the sizes of the individual pieces.
8. Drawers for refrigerated fabricated compartments shall be complete with heated surround at closing perimeter.

C. Cold Pans: Ice pans, refrigerated pans and cabinets to be provide with breaker strips where adjoining top or cabinet face materials to prevent transfer of cold.

D. All mechanically cooled custom fabricated or standard buy-out refrigerators with openings in the top for cooling pans and/or all built-in or drop-in mechanically cooled cold pans are to comply with and be listed by NSF Standard #7. Contractor is to verify that the specified unit complies with this requirement.

E. Ventilation of refrigerated equipment

1. Adequate ventilation to be provided for custom fabricated equipment with integral refrigeration condensing units, both built-in and drop-in. if flow through ventilation. If flow through ventilation cannot be provided, provide flow direction partitions and an additional fan capable of cooling the condensing unit.
2. If, in the opinion of the contractor, additional room ventilation is required to ensure correct operating temperatures of standard buy-out, custom fabricated or remote refrigeration condensing units or compressor rack assemblies, they are to so state in a letter to the architect for evaluation and decision.

2.8 REMOTE REFRIGERATION SYSTEMS

A. All remote refrigeration systems shall be furnished with installed by one contractor unless otherwise specified. Provide all components necessary for a complete and operable system. System to be fully capable of satisfying the refrigeration requirements for each fixture as defined by the manufacturer of each fixture.
B. Compressor and condensing units

1. Units shall be factory assemblies complete with hermetic units below 1 HP, semi-hermetic units 1 HP and larger, air- or water-cooled condenser depending on building conditions and speciation's, high-low pressure controls, suction accumulator on low temperature system, sight glass, liquid line dryer, suction and discharge service valves, liquid receiver, motor started, defrost timer clock and contractors in accordance with Refrigeration Institute (ARI) Standards. The refrigerant for medium and low temperature fixtures to be CFC free and conform to the Montreal Protocol Agreement.
2. Capacities shall be based on the following:

    a. compartment temperature and evaporating temperature greater than 32oF (0oC) 18 - 20 hours operations.
    b. Compartment temperature greater than 32 degrees (0c) and evaporating temperature less than 32 degrees (oc) 16 hours operation.
    c. Compartment temperature and evaporating temperature less than 32 degrees (0c) 18 hours operation.

3. Condensing units shall be mounted on a steel base to affect a quite operation. All rotating parts to be carefully balanced for minimum vibration and lubricated with forced or splash oil system. Receiver shall be sized for a complete pump down of the system and shall be shell type with fusible plug.
4. Compressor units to be provided with suction and discharge back setting type service valves and standard machinery finish.
5. Motors shall be single speed, maximum 1750 RPM, compound wound ball bearings or sleeve bearing. Double squirrel cage motors with high starting torque set and low starting current to be used in a 3-phase application.
6. All machines to be equipped with quick acting type high-low pressure control switches having adjustable range and differential and high-pressure cut-out. Cut-out to be automatic reset type.
7. For air-cooled units the condenser shall be a standard manufactured part of the equipment. Condensing temperatures shall be based upon (100 degrees 38C) ambient air.
8. Other components and accessories such as suction filter and crank case heater shall be furnished when specified in the itemized specifications.

C. Motor starters-contactors

1. All single-phase motors shall be provided with mounted and internally wired contactors except where pre-wired units are furnished without contactors. Single phase compressors shall be provided with built-in thermal and electrical overload protection.
2. All three phase motors shall be provided with magnetic type starters with quick trip overload elements matched for motor amperage except where overload protection is built into the compressor motor and the manufacturer supplies a contactor instead of a starter. Overload heater element shall be sized according to manufacturer's recommendation. Compressor motor starters shall be definite purpose starters with manual reset.
3. Starters shall be installed upon surfaces free from excessive vibrations.
4. Where starters are required for installation in a motor control center, make and model of control center shall be verified, and starters provided to match.

D. Oil Separator

1. Provide oil separators except when compressor manufacturer requires otherwise, 34oF, (1oC) and below and install as near as possible to the compressor. The return line shall be connected to the top of the crank case above the oil level. Where compressor does not have connection for oil return from separator, connect to a tee in the suction line adjacent to the compressor. Exposed oil return line to be provided with shut-off valve of the pack-less stem type.

E. 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. Review and confirm access into building or housing requirements to roof top locations.
2. Racks shall be fabricated with structural steel of size and quantity to properly support the equipment to be installed on the rack. In special applications where building access in limited, construct rack framing with Dexion of Unistrut material.
3. Racks shall be all welded construction with welds ground smooth.
4. After completion of the fabrication the complete rack shall be cleaned, primed, and painted with top quality oil-based enamel.
5. Each rack shall be equipped with prewired duplex outlet.
6. Racks shall be prewired to circuit breaker panel and pre-plumbed to a header (when specified water cooled) requiring a single point electrical and plumbing connection.
7. Racks shall have UL or equivalent approval.
8. Special Conditions: For custom built racks for individual condensing units provide Dixon Angle Iron.
9. Comply with applicable guidelines for seismic restraint of kitchen equipment in SMACNA's "Kitchen Ventilation Systems and Food Service Equipment Guidelines" Appendix A. as required by location.

F. Coils and Cooling Units

1. Units shall be direct expansion type of size and design to effect required temperature humidity and to suit application intent.
2. Units shall be hung from ceiling with ½" nylon rods with plated steel nuts and washers. Rods shall extend through ceiling to bracing adequate for the suspended weight. Bracing shall be furnished as require. Penetrations shall be sealed and trimmed with escutcheon plates.
3. Units shall be installed tight to ceiling. All installations adjacent to walls shall be set out a minimum distance conforming to manufacturer's directions to ensure proper air circulation and performance.
4. Units with fan or blower and motor shall have thermal overload protection and be wired as indicated in "Refrigeration Schedule".
5. Defrost cycle shall be based on the following:

    a. Coils for 32oF (0oC) and lower shall have as electric defrost controlled by time clock mounted on compressor rack or at evaporators locations inter-wired by Division 26 - Electrical.
    b. Coils for 33-degree F (0.6C) and 34-degree F (1C) shall have an air defrost controlled by a time clock mounted on the compressor rack or at evaporators location inter-wired by Division 26 - Electrical.

6. Coils for temperature above 34F (1C) shall have an air defrost in off cycle controlled by proper sizing of the coil and compressor.
7. Location of the coils shall be coordinated with shelving and floor sink locations.
8. All coils for fabricated refrigerators and/or freezers shall be installed for accessibly and replacement

G. Penetration Sleeves and Plates

1. Service line penetrations of insulation to accommodate electrical conduit, refrigerant and drain shall be limited to a minimum with service stubbed through insulation locations predetermined by respective divisions.
2. Where service lines penetrate insulated walls, the opening shall be packed with caulking before trimming with escutcheon plate.
3. Where service lines penetrate building walls outside of foodservice areas, the opening shall be packed with “Perma-Gum” and foam caulking.
4. All exposed ends of sleeves, both inside and outside of compartments are to be trimmed with 24-gauge stainless steel escutcheon plates, furnished as blanks in which respective work divisions shall cut as required line holes and install.

H. Refrigerant Piping

1. copper tubing for refrigerant piping shall conform to ASTM standard specifications, serial designation B-88. 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 or soldered joints shall be used.
2. Tubing shall be cut only with tube cutter and sized with sizing tool.
3. Piping shall be exposed to view as required by standard safety code for mechanical refrigeration.
4. The liquid suction lines form condensing units to coil shall be sized and run as shown on the “Refrigeration Schedule” and Refrigeration Drawings.
5. Piping run within cold storage rooms shall be finished with aluminum paint.
6. For exposed areas accessible furred ceiling spaces and in walls 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 the contract. conduit shall have water evacuated and both ends completely sealed.
7. For piping run in conduit through inaccessible areas such as under slab or grade continuous one-piece soft copper tubing shall be used with no joints. In lieu of large piping in conduit, especially vertical runs, random lines may be used, carefully fabricated and assembled to ensure equal pressure drop.
8. Ends of lines shall be capped to prevent contamination and opened only at time of final connection.
9. Suction lines shall be sized for a maximum pressure drop from evaporator to compressor 2 lbs. (0.9kg). for high and medium temperature systems and 1 lb. (9.45 kg) for low temperature systems and shall allow gas velocities of not less than 750 FPM (3.8 M/sec) in horizontal runs and 1500 FPM (97.6 M/sec) in vertical risers. Liquid lines shall be sized for a maximum pressure drop of 3 lbs. (1.36kg) from receiver to evaporator.

10. Tubing runs shall be graded or pitched to prevent trapping of oil. Suction lines shall pitch ½”/10”-0 minimum.

I. Joints and Connections

1. Fittings shall be long radius wrought copper only as manufactured by Mueller Brass Company or equal.
2. Vertically run suction lines shall have one piece of manufactured oil “P” traps. Line to be sized for proper velocity for oil return to compressor.
3. 1/8” NPT by ¼ fl. Half union for all suction and discharge service valves with ¼ 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, remove power assembly, if necessary to prevent damage by excessive heat.
7. Copper joints shall be made with Handy & Harmon “Sil-Fos” brazing alloy, “Phoson15”, Silvaloy 15” or equal, melting point of 1185-1350 degrees F; (640 C - 732C) Silver content not less than 15%.
8. Copper to be brass joints shall be made with Handy & Harmon (Easy Flo 45” brazing alloy (Silvaloy 45”, Mueller 122” or equal, melting point of 1125-1145 F, (607C-618C) silver content not less than 45%.

J. 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’-)”.
2. Insulated copper piping shall be provided with approved type sleeves at hanger points.
3. All insulated copper piping shall be isolated 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 or a substantial pipe at case of 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.

K. Piping Sleeves

1. Coordinate sleeves provided by the General Contractor through walls which allow for fully insulated lines. Extend sleeves entirely through wall and dress each end with chromium plated wall plate neatly fitted against wall. Securely fastened and sealed in place. All sleeves through wall shall be of standard weight steel pipe.
2. piping lines and sleeves at wall or floor penetrations shall be caulked and made vermin-proof at all locations.

L. 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 compressors 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 ½" (15MM).
3. Cold Storage Room freezer drain lines extended through adjacent cooler compartments shall be insulated with ½" (15MM) minimum thickness or Armstrong Armaflex AP foamed plastic insulation to prevent condensation. Carefully seal end of insulation tight against cooler wall surface.
4. Piping for cooling water services or refrigerant piping exposed to freezing ambient temperatures shall be insulated with ½" (15MM) minimum thickness of Armstrong Armaflex AP foamed plastic insulation. Paint exterior installation with Armaflex paint.
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 within 12" or less of water or underground waste lines.
7. Exterior-run piping shall be insulated as per above and covered with stainless steel channels secured to structure, sealed to be weather-proof.

M. Heat Interchangers

1. All blower controls, unit coolers, plate type evaporators and other evaporators where specified to be provided with heat interchangers with a capacity to match the condensing unit.

N. Temperature Control

1. Temperature control of cold storage rooms shall be by line voltage thermostats operating liquid line solenoids.
2. Temperature control for remote normal temperature refrigerator shall be by low pressure switch setting.
3. Temperature in each cold storage room compartment shall be controlled by electric thermostat, Ranco No 010-1408, located within compartment and sensing element positioned to avoid fan discharge air stream.
4. Contractor to coordinate any additional specified temperature control/monitoring/alarm system within this document set including assisting with coordination of home-run control wiring, wireless assembly coordination and HACCP requirements in terms of reporting.

O. Valves and Accessories

1. All valves and controls shall be standard weight and suitable for service purpose intended and subject to approval by Designer.

2. Provide shut-off valves and service port for each refrigerated fixture for multiplex installations to enable service personnel to service one fixture while the other fixture(s) connected to same compressor can continue to operate.
3. Each system shall include condensing unit with standard valving, refrigerant piping, refrigerant, evaporator(s), liquid and suction line isolation valves with-in 5'(1500MM) of evaporators, thermostatic expansion vale for evaporator, heat exchanger, filter-dryer, liquid line solenoids for Cold Storage Rooms and liquid indicator.
4. Vibration eliminators on compressor suction and discharge lines, size same as piping as manufactured by Anaconda.
5. Refrigerant shut-off valves shall be as manufactured by Henry or Superior Valve Company. Valves shall be placed and in liquid line for each condensing unit and in each liquid line to each evaporator.
6. Expansion valves shall be Sporlan or approved equal, furnished, and installed in the liquid line at the evaporator unless provided with manufactured equipment. External equalizer expansion valves shall be provided for coils fitted with refrigerant distributor.
7. A Sporlan or approved equal drier shall be provide at compressor. Up to 3HP shall be a catch-all series, larger than 3HP shall be angle replaceable cartridge series or approved equal.
8. Each liquid line sight glass shall be Sporlan (See All) moisture and liquid indicator and shall be full line size or approved equal.
9. Solenoid valves shall be Sporlan or approved equal, line voltage, manual lift stem type to operate at a maximum of 2 lbs. (0.9kg) 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 controller for each Cold Storage Room compartment coil on a system.
10. Include a suction line filter with access valve adjacent to compressor. Filter shall be a Superior "F" Series or equal.
11. EPR, CTR, and/or CDA valves shall be Alco or Sporlan or approved equal.
12. Suction accumulators shall be Refrigeration Research 3700 series or Virginia VA series or approved equal.
13. Discharge line mufflers shall be Refrigeration Research M-10 and M-15 or AC and RSS-6300 series or approved equal.
14. Time clocks shall be Paragon or approved equal.

P. Drain Lines

1. Type "L" copper coil drain lines extended to exterior of refrigerated compartments over floor sinks (drain) 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 refrigeration compartment walls with minimum pitch of 2" per foot.
3. Drain lines inside low temperature compartments shall be equipped with drain-line heaters wired y electrical division. Drain lines in low-temperature compartments shall be extended into adjacent, medium, or high temperature compartments to reduce length of drain

line heater required. (Drain line in low temp compartment to be insulated with Armaflex ½" – insulation and wall fastening by the foodservice equipment contractor).

4. Drain lines on the exterior of refrigerated compartment shall be painted with chrome tone paint and shall be trapped to disallow ambient air infiltration into refrigerated cavity.

Q. Refrigerant/Compressor Oil Reclaim

1. For existing refrigeration systems which may be reused, abandoned or where site conditions warrant, the system(s) refrigerant, oil and/or other components shall be reclaimed and contained by certified personnel in conformance to Refrigerants and Hazardous Waste criterion as specified by the Environmental Protection Agency and/or Montreal Protocol Guidelines & Requirements.

2.9 MISCELLANEOUS MATERIALS AND FABRICATION

A. Nameplates: Whenever possible, locate nameplates and labels on manufactured items, in accessible position, but not within customer's normal view. Do not apply name plates or labels on custom fabricated work, except as required for compliance with governing regulations, insurance requirements, or operator performance.

B. Manufactured Equipment Items: Furnish items as scheduled or herein specified. Verify dimensions, spaces, rough-in and service requirements, and electrical characteristics, before ordering. Provide trim, accessories and miscellaneous items for complete installation.

C. Insert Pans

1. General: cut-outs, openings, drawers, or equipment specified or detailed to hold stainless steel insert pans to be provided with a full complement of pans as follows:

   a. One (1) stainless steel, 20-gauge (1mm) minimum, solid insert pan – in US pan size of gastronorm configuration as specified for each space, sized per plans, details, or specifications.
   b. Where pan sizes are not indicated in plans, details, or specifications, provide one full-size pan for each opening.
   c. Provide maximum depth pan to suit application and space.
   d. Provide 18-gauge (1.3mm) NSF-approved removable stainless steel adapter bars where applicable.

2. All cut-outs and openings, or equipment specified or detailed to hold stainless steel insert pans, shall be provided with a hinged stainless steel removable right cover.

D. Tray Slides: Before fabrication of counters with tray slides, verify.

1. Size and shape of tray with Owner/Operator. Edge of tray should not overhang outer support/slider by more than 2" (50mm). If edge of tray exceeds this dimension, notify Architect, in writing, for evaluation and adjustment, if necessary.

2. Configuration of corners, turns, and shape of tray slides for proper support and saft guidance of trays.
3. Tray slide to be capable of supporting 200 pounds per linear foot (298 kgs/meter), live load.
4. All tray slides shall be fabricated with a 15 degree turn down 2” in from end of slide to disallow scraping of trays and poly racks

E. Self-leveling dispensers: Verify type, make dimensions and weight of ware with Owner/Operator, and submit to the dispenser manufacturer, for proper sizing and calibration of dispensers.

F. Carbon dioxide (CO2) equipment: Where equipment requires connection with compressed CO2 cylinder for operation, provide 2-cylinder manifold and control system (integral with equipment) with proper connectors for Department of Transportation (DOT) approved type cylinders, complete with cylinder safety devices and supports. Applicable to projects with CO2 equipment included in Contractor’s specified equipment.

G. Reasonable quietness of operation of equipment is a requirement, and Contractor will be required to replace or repair any equipment producing out-of-the-ordinary intolerable noise. This also includes providing and installing bumpers and gaskets for doors and drawers on fabricated and standard manufactured items and sound insulation where feasible.

H. Gas pressure regulator: All gas fired equipment included with this Section is to be provided with a gas pressure regulating valve with a built-in vent limiting device sized per WC pressure rating of this project. Contractor is responsible for coordinating this requirement with their manufacturers and suppliers.

PART 3 - EXECUTION

3.1 SUPERVISION

A. A competent supervisor, representing the Contractor, is to be present at all times during progress of the Contractor’s work.

B. Contractor is responsible for coordinating with all applicable Deign Team members, Key Ownership Stakeholders Assigned, General Contractor, other Contractors and/or Sub-Contractors and Trades involved in this Project and associated with any items or work provided under this Section, as required for the successful provision, installation, completion, and functioning of these items and/or work, and the Project in general. This is to include, but not be limited to, exchange of shop drawings, details, and manufacturer’s information, supplying templates or actual components to be installed in or on items provided by other Sections, for coordination; and coordinating with and between their own

internal staff, sub-contractors, trades, manufacturers, fabricators and installers, for compliance with the Contract Documents.

C. Contractor responsible for obtaining any documents referenced in this Section and on any associated drawings, which contain information relative to the performance of this Contract and disseminating and coordinating the pertinent information contained in them, with the appropriate sub-contractors, manufacturers, fabricators, and/or installers.

D. Contractor is to take every precaution against injuries to persons or damage to property.

E. Contractor is to store his apparatus, materials, supplies and equipment in an orderly fashion at the site of the work so it will not unduly interfere with the progress of his work or the work of any other contractors.

3.2 SITE EXAMINATION

A. Verify site conditions under the provisions of the General Conditions, Supplementary Conditions, and applicable provisions of Division 1 Sections. Notify the Architect, in writing, of unsatisfactory conditions for proper installation of foodservice equipment.

B. Verify wall, column, door, window, and ceiling locations and dimensions. Fabrication and installation should not proceed until dimensions and conditions have been verified and coordinated with fabrication details.

C. Verify that wall reinforcement or backing has been provided and is correct for wall supported equipment. Coordinate placement dimensions with wall construction Section.

D. Verify that ventilation ducts are of the correct characteristics, and in the required locations.

E. Verify that utilities are available, of the correct characteristics, and in the required locations.

3.3 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. Deliver materials (except bulk materials) in manufacturer's containers, fully identified with manufacturer's name, trade name, type, class, grade, size, color, item number, area, etc.
3. Contractor is responsible for receiving and warehousing equipment and fixtures, until ready for installation. Store materials, equipment and fixtures in sealed containers, where possible. Store off the ground and under cover, protected from damage.
4. Contractor to verify and coordinate conditions at the building site, particularly door and/or wall openings, and passages, to assure access for all equipment. Pieces too bulky for existing facilities are to be hoisted or otherwise handles with apparatus as required.
5. Extra charges resulting from special handling or shipment to be paid by the Kitchen Equipment Contractor if insufficient time was allowed in placing factory orders to ensure normal shipment.

B. The work to be accomplished so as not to delay the project construction schedule, interfere or conflict with the work being performed by other contractors. Work to be coordinated and integrated to prevent conflict of work necessitating changes to work already completed. Sequence installation and erection to ensure correct mechanical and electrical utility connections are achieved.

C. Verify all field dimensions before fabrication.

D. Install items in accordance with manufacturer's instructions.

E. Set each item of non-mobile and non-portable equipment securely in place, leveled and adjusted to correct height. Anchor to supporting substrate where indicated, and where required for sustained operation and use without shifting or dislocation. Conceal anchorages, wherever possible. Adjust counter tops and other work surfaces to a level tolerance of 1/16" (1.6mm), (maximum offset, and plus or minus on dimension, and maximum variation in 24" (610mm) run from level or indicated slope). Provide anchors, supports, bracing, clips, attachments, etc., as required to comply with the local seismic restraint requirements. The Guidelines for Seismic and Restraint of Kitchen Equipment, as prepared for the Sheet Metal Industry Fund of Los Angeles and endorsed by S.M.A.C.N.A., is to be followed. Install seismic restraints for food service equipment.

F. Complete field assembly joints in the work (joints which cannot be completed in the shop) by welding, bolting-and-gasketing, or similar methods as indicated and specified. Grind welds smooth and restore finish. Set or trim flush, except for "T" gaskets as indicated. Field joints shall not be visible to the untrained eye.

G. Provide closure plates and strips where required, with joints coordinated with units of equipment.

H. Provide sealants and gaskets all around equipment to wall, ceiling, floors, masonry pads, and adjoining units not portable and with enclosed bodies to make joints airtight, waterproof, vermin-proof, and sanitary for cleaning purposes. 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, welding, soldering or mastic. Mastic to be General Electric Silicone Construction Sealant Series SE1200 or equal in appropriate color.

I. Joints up to 3/8" (9.5mm) wide, to be stuffed with backer rod, to shape sealant bead properly, at ¼" (6mm) depth.

J. At internal corner joints, apply sealant or gaskets to form a sanitary cove, of not less than 3/8" (9.5mm) radius.

K. Shape exposed surfaces of sealant slightly concave, with edges flush with faces of materials at joint.

L. Provide sealant filled or gasketed joints up to 3/8" (9.5mm) joint width. Wider than 3/8" (9.5mm), provide matching metal closure strips, with sealant application each side of strips. Anchor gaskets mechanically, or with adhesives to prevent displacement.

M. Treat enclosed spaces, inaccessible after equipment installation, by covering horizontal surfaces with powdered borax at a rate of 4 ounces per square foot (1.2 kg/m2).

N. Insulate to prevent electrolysis between dissimilar metals.

O. Cut and drill components for service outlets, fixtures, piping, conduit, fittings, etc. as required. Grind and polish penetrations to safe tolerance. Work to include welded sleeves, collars, ferrules or escutcheons.

P. Verify and coordinate the mounting heights of all wall shelves and equipment, with equipment located below them, for proper clearances.

Q. Walk-In Cooler/Freezers

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. Provide the necessary job site coordination with the various trades to ensure job site conditions will meet the requirements of the cold storage rooms.
3. During curing and cleaning of the wearing floors inside the cold storage rooms, the cold storage room doors shall be left open and well ventilated to prevent damage to the interior. "Keep Out" signs to be posted at each open door.
4. After the installation of the cold storage rooms and prior to the installation of the wearing floor has cured, the cold storage room doors are to be closed and locked.

R. Coordinate with the Plumbing and Electrical Divisions and provide penetrations in food service equipment for plumbing and electrical service to and to the fixtures, as required. This includes welded sleeves, collars, ferrules, or escutcheons. These services are to be

located so that they do not interfere with intended use and/or servicing of the fixture.

S. All equipment provided by this Section, that requires light bulb(s), are to be provided with heavy-duty, energy efficient, extra-long-life bulbs with a minimum life expectance of 5000 hours, and as required by the local Jurisdictions. All light bulbs in and/or above foodservice equipment and/or areas are to be coated or provided with shields in compliance with local health codes.

T. All equipment provided by this Section shall include any and all parts, components, options, accessories, etc. necessary to provide a completely functional item for its intended use under normal conditions and, if appropriate, after the final utility connections are completed by other Divisions. This shall generally apply to equipment such as soda systems, beer systems, and remote refrigeration systems, any type of remote system or equipment, or ice machines, but shall also apply to any equipment provided by this Section.

3.4 COUNTERTOP INSTALLATION

A. General: Install countertops, except for vanities, over plywood sub-tops with a full spread of water-cleanable epoxy adhesive.

B. Install components plumb. Level and rigid, scribes to adjacent finishes, in accordance with approved shop drawings and product data.

1. Tops:

a. Flat and true to within 1/8” of a flat surface over a 10’ length.
b. Allow a minimum of 1/16” to a maximum of 1/8” clearance between surface and each wall.

2. Fit countertops around projections and to adjacent construction. Smooth and clean field cut edges. Ensure that trim will completely cover cut edges.

C. Bond seams with stone seam adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to seams to prevent adhesive smears. Use clamps to ensure countertop units are properly aligned and seams are minimum width.

D. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts while cutting to prevent damage.

E. Install backsplash and end splash by adhering to wall with water-cleanable epoxy adhesive.
F. Leave 1/16-inch gap between countertop and splash for filling with sealant. Use temporary shims to ensure uniform spacing.

G. Heat isolation for hot food wells, heated deck and other drop-in heated equipment.

1. Three (3) layers of Nomex insulation held in place with aluminum tape.
2. 16-gauge stainless steel collar.
3. Heat resistant, food safe silicone caulking.

H. Apply sealant to seams and to gap between countertops and splashes; comply with Section 07 92 00 (07920) "Joint Sealants".

I. Countertop Adjusting and Cleaning

1. Remove and replace or repair stonework of the following description:
   a. Broken, chipped, stained, or otherwise damaged stones: Broken, chipped, stained or otherwise damaged stone may be repaired, providing the methods and results are acceptable to Owner's Representative.
   b. Defective joints.
   c. Stones and joints not matching approved samples.
   d. Stonework not complying with other requirements indicated.

2. Replace in manner that results in stonework matching approved samples and field-constructed mock-ups, complying with other requirements, and showing no evidence of replacement.
3. The contractor is to clean the stone countertops not less than six days after completion of work, using clean water and stiff and soft rags. Do not use wire brushes, acid-type cleanings agents, cleaning compounds with caustic or harsh filler, or other materials or methods that could damage the stone.

J. Countertop Sealer Application

1. All surfaces must be clean and free from all loose grit and debris, stains, dirt, and wax coatings. Surfaces shall remain dry for a minimum of 24 hours before the application of sealer and remain dry for 24 hours after the application of sealer.
2. Floor surface temperature must be above 50°F and below 90°F.
3. Test on a small area before using to determine if the product is acceptable with type of stone.
4. Two (2) uniform coatings of sealer shall be applied before or after installation of stone materials. If prior to installation, adequate documentation shall be included with the material confirming it has been sealed. If after installation, install in strict accordance with Sealer manufacturer's recommendations.

3.5 PROTECTION OF WORK

A. Use all means reasonable to protect the materials of this Section against theft and damage before, during, and after installation, and to protect the associated work and materials of the other trades.

B. Fabricated fixtures: cardboard, fiberboard or plywood taped to tops and exposed body panels/components.

C. Manufactured Equipment: cardboard, fiberboard or plywood taped as required by equipment shape and installation-access requirements.

D. Prohibited use of equipment includes tool and materials storage, workbench, scaffolding and stacking of construction materials.

E. Damaged Equipment: immediately document and submit to Owner with Contractor's recommendation of action for repair or replacement and its impact on the Project Schedule and Contract Amount.

F. Prefabricated walk-in coolers/freezers are not to be used as general storage and should be locked before leaving the site daily. Damage and theft resulting from failure to secure units will be repaired or replaced at Contractor's expense.

3.6 ADJUSTING

A. Equipment to be tested for leaks, poor connections, inadequate or faulty performance.

1. Thermostatically controlled equipment and equipment with automatic features shall be operated for 14 days to prove controls are functioning as intended. Walk-in refrigerators and freezers shall be turned on and run for a minimum of fourteen days.

B. Refrigeration equipment to run a minimum of three days durations before acceptance.

C. Lubricate and adjust drawer slides, hinges, casters.

D. Adjust pressure regulating valves, time-delay relays, thermostatic controls, temperature sensors, exhaust hood grills, etc.

E. Clean or replace faucet aerators, line strainers.

F. Repair, adjust or replace equipment, which is found to be defective in its operation, including units which are below capacity or operating with excessive noise or vibration

3.7 CLEANING, RESTORING AND REPAIRING

A. After completion of installation, and completion of other major work in foodservice areas, remove protective coverings and clean foodservice

equipment internally and externally. Repair all damage as a result of this installation.

B. Restore exposed and semi-exposed finishes removing abrasions and other damages, polish exposed metal surfaces and touch-up painted surfaces. Replace work which cannot be successfully restored.

C. Polish glass, plastic, hardware and accessories, fixtures and fittings.

D. Wash and clean equipment and leave in a condition ready for the Owner to sanitize and use.

3.8 TESTING

A. Delay the start-up of equipment until service lines have been tested, balanced, and adjusted for pressure, voltage and similar considerations, and until water and steam lines have been cleaned and treated for sanitation.

B. Kitchen Equipment Contractor (K.E.C.) with assistance from a factory-certified representative from the exhaust hood manufacturer shall conduct an exhaust hood performance test for each exhaust hood in the K.E.C.'S scope of work at the conclusion of the project when all hoods and related cooking equipment are in operation. K.E.C. shall have manufacturer's factory authorized representative test and measure exhaust airflow rates, dampers, switches, and sequence of operation, with all appliances at operating temperatures. K.E.C. shall furnish a written report within ten (10) working days of substantial completion and acceptance of the project by the Owner, indicating the design requirements for each hood and the actual operating parameters as tested and measured.

C. Refrigeration Piping Testing

1. Each system shall be pressure tested for leaks. Tests are to be on the high side and the low side. All valves shall be fully open during last test.
2. Tests are 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 p.s.i.
    b. Add dry nitrogen, the supply of which shall be equipped with a pressure regulating valve to provide the specified pressure.
    c. Carefully test all joints for leaks using either a Halide torch or an electronic Halogen leak detector.

3. Precautions to be taken to disconnect the low-pressure controls for protection of the bellows during testing.
4. Refrigeration System Evacuation

a. Evacuation shall be with a vacuum pump with an indicating gauge registering pressure in microns. Pump shall be connected to the system with a 5/8" (15mm) O.D. line or larger.
b. Evacuate both high and low sides to 500 microns. Break the vacuum with refrigerant to 0 p.s.i. evacuate high and low sides to 100 microns, and then break vacuum to 0 p.s.i. with the refrigerant to be used in the system.

3.9 START-UP AND INSTRUCTIONS

A. Make arrangements for demonstration of foodservice equipment operation and maintenance, in advance, with the Owner/Operator.

B. Demonstrate foodservice equipment to familiarize the Owner and the Operator on operation and maintenance procedures, including periodic preventative maintenance measures required. Include an explanation of service requirements and simple on-site service procedures, as well as information concerning the name, address and telephone number of qualified local source of service. The individual(s) performing the demonstration are to be knowledgeable of operating and service aspects of the equipment.

C. Provide a written report of the demonstration to the Owner, outlining the equipment demonstrated and malfunctions or deficiencies noted. Indicate individuals present at demonstration

D. Final Cleaning: After testing and start-up, clean the foodservice equipment and leave in a condition ready for the Owner to sanitize and use.

E. All keys for all locks provided with equipment provided under this Section are to be gathered up, individually tagged with the equipment they belong to, put into a single box, and handed over to the Owner's authorized representative. A list of the keys and their associated equipment item numbers are to be provided with the O&M Manuals, along with a copy of the list, signed by the Owner's representative, acknowledging receipt of the keys.

3.10 CLEAR AWAY

A. Throughout the progress of their work, Contractor is to keep the working area free from debris and remove rubbish from the premises resulting from work being done by them. At the completion of their work, Contractor is to leave the premises in a clean and finished condition.

3.11 SEISMIC RESTRAINTS

A. Install equipment according to the SMACNA's "Kitchen Ventilation Systems and Food Service Equipment Guidelines Publication 1767", Appendix A, as necessary for acceptance. This shall include:

1. Identifying items on submittal drawings, plans, elevations, and sections.
2. Showing required SMACNA methods of restraint on submittal drawings.
3. Referencing the appropriate details
4. Obtain regulatory approval for all seismic engineering details.

B. If no SMACNA detail exists for a particular equipment/situation, prepare and obtain approval for a special attachment details:

1. Detail must be prepared by an engineer licensed by the State having jurisdiction over the project and accompanied by the supporting calculations used in the design.
2. Verify that the restrain design is appropriate to the building's structural conditions and the surfaces to which the equipment will be secured.

3.12 DESIGN SUBMITTAL REQUIREMENTS

A. Kitchen Equipment Contractor to submit detailed and fully coordinated drawings for all foodservice equipment produced in Autodesk Revit 2020. Revit 2020 drawings must be 1/4-inch scale minimum. Submit complete Foodservice Equipment Itemized Floor Plans, Full MEP Itemized Equipment Schedules, Electrical Rough-In Drawings, Plumbing Rough-In Drawings, Exhaust Hood Rough-In Drawings, Exhaust Manufacture Shop Drawings, Special Conditions Drawings (Noting all ceiling, wall, floor changes and dimensioned wall backing required for the project), Refrigeration System Manufacture Shop Drawings, Walk-In Box Manufacture Shop Drawings, Tray Return System Manufacture Shop Drawings, Dish Machine Manufacture Shop Drawings, Power Sink Manufacture Shop Drawings, Fabricated Serving Counter Manufacture Shop Drawings, Sneeze Guard Manufacture Shop Drawings, Foodservice Fixture and Equipment Elevations, Foodservice Fixture and Equipment Sections and Foodservice Fixture and Equipment Standard Details. Provide detail drawings showing complete wiring, piping, and schematic diagrams, and any other details required to demonstrate that the foodservice major systems are fully coordinated and will properly function as complete unit(s) once installed. Drawings must show proposed layout and anchorage of equipment and appurtenances, and equipment relationship to other parts of the scope of work, including clearances for maintenance, operation, ADA clearances and proper aisle spaces. All rough-in drawings noted above shall be full dimensioned from face of finished walls. Kitchen Equipment Contractor to provide field verify architectural background within Revit model to ensure dimensional accuracy on rough-in plans

prior to submittal review and completion to ensure proper dimensions for construction.

1. Detail drawings by Kitchen Equipment Contractor must be separate drawings and be on the Governments standard sheet size, but not smaller than the contract drawings, indicating foodservice equipment and cold storage assemblies with itemized schedule, special conditions drawings indicating size and location of slab depressions, cores, wall openings, block-outs, ceiling pockets, blocking grounds, ceiling details, wall, access panels, rough-in plumbing/mechanical systems and rough-in electrical systems.

2. Prepare and submit detail drawings that show the size, type, and location of equipment drain lines, and floor drains / sinks. Indicate drain lines from equipment, distances of drain lines and floor drain or floor sink receptacles from equipment and aisles, and elevation views of drain piping and floor drains or floor sink locations.

3. Detail drawings by manufacturers must be separate drawings; manufacturer's standard size and indicate item number, name, and quantity, construction details, sections, and elevations, adjacent walls, columns, and equipment, plumbing and electrical schematics, and fabricated fixtures with single electrical or plumbing connection, and service access panels required for maintenance or replacement of mechanical or electrical components.

4. Detail drawings of the custom fabricated serving counters shall include all sneeze guard placement fully dimensioned (height, reach and all NSF conforming dimensions are to be shown) on the serving counter drawings. Serving counter detail drawings shall include fully dimensioned floor plan views, fully dimensioned elevation views, fully dimensioned sections views and fully dimensioned critical expanded views of the hot / cold drop-in isolation detail, mounting method of the sneeze guard details, quartz manufacture fabrication details and drop-in control panel mounting details on the service side of the serving counters. The detail drawings shall also include full load center balancing schedules that shall me coordinated with the General Contractor and Electrical Contractor prior to final rough-in to ensure proper building fee power is being supplied by the General Contractor and Electrical Contractor.

5. The kitchen equipment contractor shall provide laser cut plywood templates to be used for jobsite coordination during construction and for the General Contractors use locating all load center power stub-ups and floor sink locations. The kitchen equipment contractor shall personally supervise and install the plywood templates. Once plywood templates are installed, Kitchen Equipment Contractor shall spray paint the edges of the custom fabricated serving counter templates, spray paint and location all floor sink locations and load center locations. Once spray painting is complete, Kitchen Equipment Contractor is to gain final sign off from the General Contractor, Electrical Contractor and Plumbing Contract that all rough-ins locations have been fully coordinated and agreed upon. Kitchen

Equipment Contractor is to leave plywood templates in place onsite and remove at a later date when requested by the General Contractor.

3.14 SUBMITTALS

A. Government, Architect of Record and Foodservice Consultant of Record approval is required for all foodservice equipment detail drawings, manufacture shop drawings and manufacture cut-sheet book submittals prior to release and fabrication.

SD-01 Preconstruction Submittals and Field Dimensioned; Kitchen Equipment Contractor's Field Verification Report of Architectural Data and Manufacturer's Qualifications

SD-02 Detailed Revit Drawing Package

SD-03 Manufacture Shop Drawing Package

SD-04 Product Data Sheets for Foodservice Equipment

SD-05 Samples for Serving Counter Materials, Sample of Stainless-Steel Materials (All Gauges) and Sample of Exposed Exterior Walk-In Box Finish

SD-06 Design Data Manufacturer's Descriptive and Technical Literature

SD-07 Test Reports Manufacturer's Test Data Field Test Reports and Existing Exhaust Hood Air Balancing Test

SD-08 Certificates National Sanitation Foundation Standards Underwriters Laboratories Standards Energy Star

SD-09 Manufacturer's Instructions Manufacturer's Instructions for shipping, handling, storage, installation, and start-up. Kitchen Equipment Contractor Equipment Demonstration for All Manufactures

SD-10 Operation and Maintenance Data Operation and Maintenance Manuals List of Authorized Local Service and Repair Entities

SD-11 Closeout Submittals Manufacturer's Warranty Contractor's Warranty for Installation As-Built Revit Drawings and Model Submission

3.13 ITEMIZED SPECIFICATION

ITEM #301 TRASH/TRAY COUNTER

Quantity: One (1)
Manufacturer: Stainless Fabricating
Model: CUSTOM

1. Model CUSTOM TRASH/TRAY COUNTER

ITEM #302 WATER DISPENSING SYSTEM

Dimensions: 52.88(h) x 23.38(w) x 21.63(d)
Quantity: One (1)
Manufacturer: Vivreau Advanced Water Systems
Model: V3-202

1. Model V3-202 (1045954) Vivreau High Volume Water Bottling System, dual tap, undercounter cabinet, self-contained ice bank refrigeration system, micro-filtered, chilled still and sparkling water, twin tap with removable nozzles & stainless steel drip tray, accommodates 20 lb CO2 cylinder (cylinder not included), front feet, rear rollers, 120v/60/1-ph, 11.0 amps, NEMA 5-15P, ETL, NSF (for indoor use only)
2. Annual Maintenance Program, includes: (2) filter changes per year, routine maintenance, reactive service, (1) year warranty on parts & service, training materials, marketing & promotional services (priced per year) (NET)
3. Installation (NET)
4. Shipping (NET)
5. Model ZZVIVRE008 100 Bottles (cases of 20) mix of sparkling and still Vivreau Bottles comes standard with equipment. Contact factory for selection. Additional artwork charges may apply for custom logo
6. Model TRAY-16 (1046000) Wash Rack, (16) 4.4" x 4.4" compartments, use with Designer, Classic or Twist bottles, fits standard commercial dishwasher

ITEM #303 COFFEE SATTELITE

Quantity: One (1)
Manufacturer: BY OWNER
Model: BY OWNER

ITEM #304 COFFEE BREWER

Quantity: One (1)
Manufacturer: BY OWNER
Model: BY OWNER

ITEM #305 CONVEYOR TOASTER

Dimensions: 13.75(h) x 14.5(w) x 17.71(d)
Quantity: One (1)
Manufacturer: Hatco
Model: TQ-10

1. Model TQ-10 Toast-Qwik® Conveyor Toaster, horizontal conveyor, countertop design, all bread types toaster, approximately 5 slices/min capacity, painted steel top & aluminized steel construction, 4" legs, 1.8kW, CE, cULus, UL EPH Classified, Made in USA
2. NOTE: Sale of this product must comply with Hatco's Minimum Resale Price Policy; consult order acknowledgement for details
3. NOTE: Includes 24/7 parts & service assistance, call 414-671-6350
4. One year on-site parts & labor warranty, plus one additional year parts only warranty on all Toast-Qwik metal sheathed elements
5. 120v/60/1-ph, 1800 watts, 15.0 amps, NEMA 5-15P (domestic voltage), standard

ITEM #306 BEVERAGE COUNTER

Quantity: One (1)
Manufacturer: Stainless Fabricating
Model: CUSTOM

1. Model CUSTOM BEVERAGE COUNTER
   The counter measures 144" long x 36" deep x 34" high; the top is constructed of med grade stone and the body is constructed out of 16 gauge stainless steel. The counter legs measure 6" high x 1 5/8" outside diameter x .065 inches thick stainless steel tubular legs which will be fitted with adjustable stainless steel bullet type feet. Counter to have laminate panels on 3 sides. removable stainless steel kick plates, and hinge doors with locks.

ITEM #307 CONDIMENT PUMPS

Quantity: One (1)
Manufacturer: BY OTHERS
Model: BY OTHERS

ITEM #308 DISPLAY CASE, REFRIGERATED, SELF-SERVE

Dimensions: 60.12(h) x 99.75(w) x 48.12(d)
Quantity: One (1)
Manufacturer: Structural Concepts
Model: FSI860R

1. Model FSI860R Oasis® Refrigerated Self-Service Island, 60"H, open air screen, (3) non-lit non-adjustable metal shelves, top light,

black interior, includes price tag moulding (matches interior color), laminated exterior, levelers, Breeze self-contained refrigeration system, R290 Hydrocarbon refrigerant, cETLus, ETL-Sanitation
2. NOTE: If GFCI is required, a GFCI breaker MUST be used in lieu of a GFCI receptacle
3. Warranty: 1 year parts & labor warranty, 5 year compressor warranty, standard
4. Refrigeration: Breeze self-contained refrigeration, standard
5. Electrical Connection: 6' NEMA 6-30P, 208-240v/60/1-ph straight blade power cord, standard
6. Base Support: Casters with levelers (self-cont.), standard
7. Interior Color: Powder coated SCC Standard Silversan Black (FDA compliant), standard
8. Exterior Color: Laminate standard color 909-58 Black
9. Model GRAIN DIRECTION Standard laminate grain directions (when applicable):
   - Front Panels (Upper Header and Lower Panels): Horizontal grain direction
   - End Panels: Vertical grain direction
   - Blend & Reveal Cases Only: Horizontal grain direction on front and end panels
10. Thermometer: Digital fahrenheit thermometer, standard
11. Shelving: Non-adjustable metal shelves, non-lighted, standard
12. Price Tag Molding: Price tag molding (matches interior color), standard
13. Vinyl Graphics: None, standard
14. Heat Treated Crating: None, standard

ITEM #309 DIGITAL MENU BOARD

Quantity: Two (2)
Manufacturer: BY OWNER

1. DIGITAL MENU BOARD

ITEM #310 SPARE

ITEM #311 WALK-IN COOLER PANELS-REFACED

Dimensions : VERIFY IN FIELD = APPROX 9’(h) X 7’9”(W)
Quantity: One (1)
Manufacturer: STAINLESS FABRICATOR
Model: CUSTOM

ITEM #312 WALK IN COOLER-EXISTING TO REMAIN

ALTERNATE: Provide alternate pricing for-

Quantity: One (1) PER WALK IN
Manufacturer: KITCHEN BRAINS
Model: MODULARM 75LC MULTI-MONITOR

Audio-visual alarm to be included in existing door section, with remote sensor and adjustable alarm points to indicate the temperature inside, and sound an alarm when the temperature is unsatisfactory. The alarm shall have a mute switch to silence the audible alarm and a reset button to reset the alarm once the temperature conditions are satisfactory. Alarm to be capable of connecting to Owner's building monitoring system.

ITEM #313 DISPLAY MERCHANDISER, HEATED, FOR MULTI-PRODUCT

Dimensions : 29.05(h) x 48.25(w) x 27(d)
Quantity: One (1)
Manufacturer: Hatco
Model: GR2SDH-42D

1. Model GR2SDH-42D Glo-Ray® Designer Horizontal Display Warmer, countertop, (2) shelves (16) rods, thermostat, pre-focused infrared top heat, incandescent light, hardcoat aluminum base, tempered glass end panels, designer panels & corner caps, 4" legs, 2980 watts, cULus, UL EPH Classified, Made in USA
2. NOTE: Sale of this product must comply with Hatco's Minimum Resale Price Policy; consult order acknowledgement for details
3. NOTE: Includes 24/7 parts & service assistance, call 414-671-6350
4. One year on-site parts & labor warranty, plus one additional year parts only warranty on all Glo-Ray metal sheathed elements
5. 120/208v/60/1-ph, 2980 watts, 12.4 amps, NEMA L14-20P (domestic voltage), standard
6. Model STANDARD Clear Anodized Aluminum housing, finish, standard (available at time of purchase only)
7. Model STANDARDBLACK Black, designer inset panel color, standard (available at time of purchase only)
8. Model BLACK Black, designer corner cap color (available at time of purchase only)

ITEM #314 POS SERVING COUNTER

Quantity: One (1)
Manufacturer: Stainless Fabricating
Model: CUSTOM

1. Model CUSTOM POS COUNTER
   The counter measures 131" long x 36" deep x 34" high; the top is constructed of med grade stone and the body is constructed out of 16 gauge stainless steel. The counter legs measure 6" high x 1

5/8" outside diameter x .065 inches thick stainless steel tubular legs which will be fitted with adjustable stainless steel bullet type feet. Counter to have laminate panels on 3 sides. removable stainless steel kick plates, and hinge doors with locks.

ITEM #315 POS SYSTEM

Quantity: One (1)
Manufacturer: OWNER
Model: BY OWNER

1. Model BY OWNER POS SYSTEM

ITEM #316 CUP DISPENSER

Quantity: One (1)
Manufacturer: SAN JAMAR
Model: C2210C

ITEM #317 INDUCTION RETHERMALIZER, BUILT-IN / DROP-IN

Dimensions: 12.31(h) x 13.88(w)
Quantity: Two (2)
Manufacturer: Vollrath
Model: 741101D

1. Model 741101D Mirage® Induction Rethermalizer, drop-in, dry operation, 11 quart, inset with hinged cover, (4) soup presets, stir indicator LED, solid state controls with locking function, temperature control in °F or °C, cabinet mount controls with leads, includes: induction ready inset, inset cover, mounting hardware & cord with NEMA 5-15P, 800 watts, 6.7 amps, 120v/60/1-ph, cULus, NSF, FCC (cover not NSF) (Refer to vollrathfoodservice.com for full warranty policy)
2. Requires use of included Vollrath induction-ready inset - failure to use these insets may damage the unit & will void the warranty
3. Model 47490 Kool-Touch Hinged Cover, stainless with black phenolic knob, fits 78204 Inset & 77110 Double Boiler, imported (Refer to vollrathfoodservice.com for full warranty policy)

ITEM #318 BACK SERVICE COUNTER

Quantity: One (1)
Manufacturer: Stainless Fabricating
Model: CUSTOM

1. Model CUSTOM BACK SERVICE COUNTER
   The counter measures 161" long x 30" deep x 34" high; the top is constructed of 14 gauge

stainless steel and the body is constructed out of 16 gauge stainless steel. The counter measures 6" high x 1 5/8" outside diameter x .065 inches thick stainless steel tubular legs which will be fitted with adjustable stainless steel bullet type feet. Base to have 3 sided removable stainless steel kick plate. BACK OPEN.

ITEM #319-321 SPARE

ITEM #322 HAND SINK

Dimensions: 13(h) x 12(w) x 16(d)
Quantity: One (1)
Manufacturer: Advance Tabco
Model: 7-PS-22

1. Model 7-PS-22 Hand Sink, wall mounted, 9" wide x 9" front-to-back x 5" deep bowl, 20 gauge 304 stainless steel, heavy duty deck mounted fixed faucet, drain with crumb basket & 1-1/2" IPS connection, NSF, cCSAus
2. Model K-400 Hands-Free Wand Attachment, for hand washing sink
3. Model K-08 Low-flow aerator 0.5gpm, fits 55/64-27 male or 15/16-27 female thread on spout, conforms to California AB 1953

ITEM #323 REACH-IN FREEZER

Dimensions: 83.44(h) x 76.31(w) x 35(d)
Quantity: One (1)
Manufacturer: Traulsen
Model: G31013

1. Model G31013 Dealer's Choice Storage Freezer, Reach-in, three-section, self-contained refrigeration, microprocessor control with LED display, stainless steel front, full-height solid doors (hinged left/left/left), anodized aluminum sides & interior, (3) epoxy coated shelves per section (factory installed), LED interior lights, 6" high casters, R290 Hydrocarbon refrigerant, unit can be programmed to operate at -10°F, 1-1/4 HP per system, 115v/60/1-ph, 13.5 amps, NEMA 5-15P, cETLus, ETL-Sanitation
2. Oversized units with crated shipping dimensions greater or equal to 72" in length and/or 90" in height. If delivery is to a facility without a standard height dock, additional shipping charges will apply, depending on the service requested (consult factory for details)
3. 6-year parts & labor and 7 year compressor, standard. Visit www.traulsen.com for details
4. Casters, 6"H, locking (set of 4), standard

ITEM #324 REACH-IN REFRIGERATOR

Dimensions: 83.25(h) x 58(w) x 35(d)
Quantity: One (1)
Manufacturer: Traulsen
Model: RHT232WUT-FHS

1. Model RHT232WUT-FHS Spec-Line Refrigerator, Reach-in, two-section, 51.6 cu. ft., self-contained refrigeration, StayClear™ Condenser, variable speed compressor, stainless steel exterior and interior, standard depth, wide full-height door or doors with EZ-Clean Gaskets, (3) adjustable wire shelves per section, microprocessor controls, 6" adjustable stainless steel legs,R-290 Hydrocarbon refrigerant, 1/2 HP, cETLus, ETL-Sanitation, ENERGY STAR®
2. 6-year parts & labor and 7 year compressor, standard. Visit www.traulsen.com for details
3. 115v/60/1-ph, 7.6 amps, cord with NEMA 5-15P, standard
4. Full height solid door, standard
5. Full height solid door, standard
6. Left door hinged left/right hinged right, standard
7. Casters, 6" high (set of 4)

ITEM #325 HEATED HOLDING PROOFING CABINET, HALF-HEIGHT

Dimensions: 44(h) x 27.63(w) x 31.5(d)
Quantity: One (1)
Manufacturer: Metro
Model: C535-CFC-4

1. Model C535-CFC-4 C5™ 3 Series Heated Holding & Proofing Cabinet, with Red Insulation Armour™, mobile, half height, insulated, clear polycarbonate door, removable bottom mount control module, thermostat to 200°F, fixed wire slides on 3" centers (8) 18" x 26" or (16) 12" x 20" x 2 1/2" pan capacity, 5" casters (2 with brakes), aluminum, 120v/60/1 ph, 2000 watts, 16.7 amps, NEMA 5 20P, cULus, NSF
2. 1 year warranty against manufacturing defects

ITEM #326-327 ICE MAKER, CUBE-STYLE

Dimensions: 23(h) x 22(w) x 24(d)
Quantity: One (1)
Manufacturer: Scotsman
Model: MC0322MA-1

1. Model MC0322MA-1 Prodigy ELITE® Ice Maker, cube style, air-cooled, self-contained condenser, production capacity up to 356 lb/24 hours at 70°/50° (232 lb AHRI certified at 90°/70°), medium cube size, ICELINQ® mobile app, Bluetooth® connectivIty, preservation mode, external bin full indicator,

AutoAlert™ indicating lights, WaterSense adjustable purge control, one-touch cleaning, harvest assist, front facing removable air filter, unit specific QR code, stainless steel finish, AgION™ antimicrobial protection, 115v/60/1-ph, 12.7 amps, cULus, NSF, engineered and assembled in USA
2. NOTE: Sale of this product must comply with Scotsman's MSRP Policy; contact your Scotsman representative for details
3. 3 year parts & labor warranties
4. 5 year parts & labor warranties on Evaporator
5. 5 year parts on compressor & condenser
6. Model B322S Ice Bin, top-hinged front-opening door, 370 lb application capacity, for top-mounted ice maker, 22" width, metallic finish exterior, toolless removable baffle, polyurethane insulation, polyethylene liner, includes 6" legs, NSF, engineered and assembled in USA
7. 3 year parts & labor warranties
8. Model KHOLDER Ice Scoop Holder, fits all modular ice storage bins, stainless steel

ITEM #328 PLASTIC SHELVING

Dimensions: 24(w) x 24(d)
Quantity: Four (4)
Manufacturer: Metro
Model: MAX4-2424F

1. Model MAX4-2424F Quick Ship - MetroMax® 4 Shelf, 24"W x 24"D, with removable polypropylene solid mats & (4) wedge connectors, built in Microban® antimicrobial product protection, 800 lb. capacity per shelf, NSF
2. Model MX74UP Quick Ship - Polymer trilobal post (compatible with MetroMax® i, MetroMax® 4, MetroMax® Q), 73-3/16"H, for use with stem casters, adjusts at 1" increments, corrosion proof all polymer construction with built in Microban® antimicrobial product protection
3. Model 5PCX Quick Ship - Polymer Stem Caster, swivel, 5" dia., 1-1/4"W face, -20° F to 120°F temperature range, polyurethane wheel tread, 300 lb. capacity, NSF (donut bumpers included) (for use with all MetroMax posts & shelves)

ITEM #329 DISHWASHER, UNDERCOUNTER

Dimensions: 33.25(h) x 23.94(w) x 26.81(d)
Quantity: One (1)
Manufacturer: Hobart
Model: LXNR-1

1. Model LXNR-1 LXn Advansys Dishwasher, undercounter with 17” door opening height, 208-240v/60/1ph, accommodates optional two-level racking accessory, high temperature sanitizing, Steam Elimination and Energy Recovery, 30, 24, 13 Racks/Hour, 48 with racks/hour with second level rack, Fresh Water Rinse, .62 gal/rack, Complete Delime™ with Delime Notification, Auto

Dispensing, and Booster Guard™, 3 selectable cycles – light, normal, heavy (NSF Pot & Pan cycle on heavy cycle), smart touchscreen controls with SmartConnect™ app, Service Diagnostics, Chemical Pumps with Auto Prime, 23-15/16"W x 26-13/16"D x 33-1/4"H, cULus, NSF, ENERGY STAR®. Factory Startup – Free for installations within 100 miles (accessible by public roadway) of a Hobart Service Office during normal business hours with appropriate notice; Installation beyond 100 miles or those not accessible by public roadway will be quoted by Service.

2. Standard warranty – 1-Year parts, labor & travel time during normal working hours
3. Model DWT-ADV-LXN Drain water tempering kit for LXNR models
4. Model ACC-INSTALL-HOB Accessory Installation – For installations within 100 miles (accessible by public roadway) of a Hobart Service Office during normal business hours with appropriate notice; Installation beyond 100 miles locations in Alaska, Hawaii or New York City or those not accessible by public roadway will be quoted by Service. Includes installation of this item only, final electrical or plumbing connections by others. Recommendation: coordinate accessory installation with machine assembly/ installation (NET)

ITEM #330 SLANTED DISHRACK

Quantity: One (1)
Manufacturer: STAINLESS FABRICATOR
Model: CUSTOM

1. 36” Long x 15” high
2. 18 gauge stainless steel
3. Refer to fabrication details.

ITEM #331 TWO (2) COMPARTMENT SINK

Dimensions: 45(h) x 81(w) x 28(d)
Quantity: One (1)
Manufacturer: Advance Tabco
Model: 94-22-40-18RL

1. Model 94-22-40-18RL Regaline Sink, 2-compartment, with left & right-hand drainboards, 20" front-to-back x 20"W sink compartment, 14" deep, with 11"H backsplash, stainless steel legs with adjustable left-to-right and front cross rails, 18" drainboards, 1" adjustable feet, 14 gauge 304 stainless steel, overall 28" F/B x 81" L/R, NSF

ITEM #331.1 WALL / SPLASH MOUNT FAUCET

Quantity: One (1)
Manufacturer: T&S Brass
Model: B-0231

1. Model B-0231 Sink Mixing Faucet, wall mount, 8" centers, 12" swing nozzle, lever handles, quarter-turn Eterna cartridges, 1/2" NPT female inlets, low lead, ADA Compliant
2. Model B-0199-01 Aerator, non-splash, 55/64" -27 female aerator threads, fits goosenecks & nozzles

ITEM #332 POT/PAN POWER WASH SINK

Quantity: One (1)
Manufacturer: Stainless Fabricating
Model: CUSTOM

1. Model CUSTOM POT/PAN POWER WASH SINK
STANDARD SPECIFICATIONS:
• Available left-to-right or right-to-left operation
• 34” front to back depth
• All tanks and tabling: 14 gauge, 304 stainless steel
• System conforms to ANSI/NSF Standard 2 with all welds to be heliarc (TIG) welds
• Backsplash to be 9.5” overall height, 6” vertical with 45 degree angle to wall with 1-½” turn up
• 1” End splash on both ends
• Soiled dish table custom length with 12” or 24” scrap sink
• Wash tank shall be 28.75” front-to-back x 21” deep
• Wash tanks available in 36”,42”,48” or 60” lengths
• 36”, 42” or 48” wash tanks to be a 2 HP motor
• 60” wash tank to be a 3 HP motor
• Wash pump motor with stainless steel impeller, pump housing and wash manifold
• Parallel wash flow with low profile wash jets spaced every 6” flush along the back wall of wash tank and above the wash pump intake
• Stainless steel wash pump intake to run full length of the rear of wash tank, below wash jets
• Bottom of wash tank creased to facilitate draining
• Stainless steel wash pump housing fully self-draining with no use of drain line or valve
• 7000 watt wash tank heater maintains wash tank temperature of 115˚ +/- ½ °F
• Rinse and sanitizer sinks each shall be 28.75” i.d. front to back
• Drains and faucets included, but optional

ITEM #332.1 WALL / SPLASH MOUNT FAUCET

Quantity: One (1)
Manufacturer: T&S Brass
Model: B-0231

1. Model B-0231 Sink Mixing Faucet, wall mount, 8" centers, 12" swing nozzle, lever handles, quarter-turn Eterna cartridges, 1/2" NPT female inlets, low lead, ADA Compliant

2. Model B-0199-01 Aerator, non-splash, 55/64" -27 female aerator threads, fits goosenecks & nozzles

ITEM #332.2 PRE-RINSE FAUCET ASSEMBLY, WITH ADD ON FAUCET

Quantity: One (1)
Manufacturer: T&S Brass
Model: B-0133-12-CR-B

1. Model B-0133-12-CR-B EasyInstall Pre-Rinse Unit, spring action gooseneck, 8" wall mount, spray valve (B-0107), 12" add-on faucet, wall bracket, quarter-turn Cerama cartridges, low lead

ITEM #333 WASTE COLLECTOR

Dimensions: 35.88(h) x 24.81(w) x 22.25(d)
Quantity: One (1)
Manufacturer: Salvajor
Model: S914

1. Model S914 Scrap Collector™, scrapping, pre-flushing & collecting system (widely accepted in areas where disposers are restricted), NEMA 4 HYDROLOGIC® control panel with patented operator sensor, two water saving modes (timed run & auto start/stop), safety line disconnect, LCD readout, salvage basin & silverware trap, scrap basket, 3/4 HP corrosion-resistant pump, pump intake screen, stainless steel construction, UL, CSA, CE, NSF
2. Collector top is available to ship to the fabricator in advance of unit (additional shipping charges will apply). Please provide instructions on order
3. 115v/60/1-ph, 11.0 amps
4. Model 980211 Seismic Flange for Support Leg (3 included)

ITEM #334 DISHWASHER, POT/PAN/UTENSIL, DOOR TYPE

Dimensions: 71(h) x 36(w) x 36(d)
Quantity: One (1)
Manufacturer: Champion
Model: PP-10

1. Model PP-10 Pot & Pan Washer, rack type, single rack, front load design, built-in, 70 degree rise, booster heater, tank heat, 5 HP pump motor, jet spray arms, manual controls, external wash down hose with spray nozzle, (1) stainless steel rack with hold down lid, (1) stainless steel insert for bun/sheet pans, all stainless steel construction
2. **NOTE: Please be advised that all quotes provided are valid for a period of 30 days from the date issued. Champion Industries reserves the right to make price

adjustments, price increases or add surcharges as appropriate due to tariffs or market fluctuation that are out of our control. Thank you for your understanding.

3. 1 year parts & labor warranty, standard
4. Complimentary factory authorized performance test included, upon equipment start-up. Consult local Champion sales representative for coordination of the start-up. If customer is beyond 60 miles from Champion authorized service agent, consult factory.
5. Single point electrical connection

ITEM #335 TRASH RECEPTACLE, INDOOR

Dimensions: 29.88(h) x 20(w) x 11(d)
Quantity: One (1)
Manufacturer: CFS Brands
Model: 34202303

1. Model 34202303 Carlisle - Trimline™ Waste Container, 23 gallon, rectangular, integrated corner tabs, bottom helper handles, heavy-duty, polyethylene, black

ITEM #336 PIZZA PREPARATION REFRIGERATOR

Dimensions: 42(h) x 60(w) x 31.5(d)
Quantity: One (1)
Manufacturer: Delfield
Model: 18660PTBMP

1. Model 18660PTBMP Refrigerated Pizza Table, two-section, 60" W, 14.37 cubic feet, (7) 1/3 pan capacity, (2) shelves, (1) 27" door & (1) 19" door, 18 gauge stainless steel top, refrigerated pan rail, stainless steel ends, 6" casters, side-mounted refrigeration system, R290 Hydrocarbon refrigerant, 1/4 HP, cUL, UL, NSF
2. Model 0460003N 3 year parts & labor warranty, standard
3. Model W00007AN 7 year compressor warranty, standard
4. 115v/60/1-ph, 4.7 amps, NEMA 5-15P, standard
5. Compressor on right, standard

ITEM #337 CHEF'S SERVING COUNTER

Quantity: One (1)
Manufacturer: Stainless Fabricating
Model: CUSTOM

1. Model CUSTOM CHEF'S SERVING COUNTER
Counter measures 134" long x 42" wide x 34" high. The top is constructed of 14 gauge
stainless steel with the body being constructed of 16 gauge stainless steel. The counter is to sit on 6" high x 1-5/8"

O.D. x .065 thick stainless steel tubular legs fitted with adjustable stainless steel bullet feet. Base to have stainless steel removable kick plates, intermediate shelf where shown, recess area for buyouts

ITEM #338 DOUBLE OVERSHELF

Quantity: One (1)
Manufacturer: Stainless Fabricating
Model: CUSTOM

1. Model CUSTOM DOUBLE OVERSHELF
Double over shelf measures 134" long x 18" wide and is constructed of 16 gauge stainless steel with the back formed straight up 1-1/2". The front edge and both ends are turned straight down 1-1/2" and back 1/2" at 60 degrees from vertical. shelf will have 6 legs supported for counter top.

ITEM #339-340 SPARE

ITEM #341 EXHAUST HOOD - EXISTING TO REMAIN

Quantity: One (1)
Manufacturer: Custom
Model: G.F.G.I

1. Model G.F.G.I EXHAUST HOOD - EXISTING TO REMAIN

ITEM #342 COMBI OVEN, GAS

Dimensions: 43.32(h) x 37.2(w) x 33.78(d)
Quantity: One (1)
Manufacturer: Convotherm
Model: C4 ET 10.10GS-N

1. Model C4 ET 10.10GS-N Convotherm Maxx Pro Combi Oven/Steamer, gas, boilerless, (10) half size sheet pan or (10) 12" x 20" x 1" hotel pan capacity, 10” wifi-ready, high resolution easyTouch control panel, 20 stages each & 399 cooking recipes storage, (4) cooking modes: hot air, steam, combi-steam & retherm, LED light, triple pane right hinged door with anti-microbial hygienic door handle,

multi-point core temperature probe, five-speed auto reversing fan, includes (5) wire shelves, pull-out spray hose, ConvoClean+ fully automatic hands-free cleaning system, stainless steel construction, 0.5kW, 120v/60/1-ph, 7.5 amps, 68,200 BTU, cULus, NSF

2. NOTE: Purchasers, owners & operators are solely responsible to verify that the incoming water to the equipment is within the manufacturer's water quality specs as outlined on the product spec sheet. Water quality verification in virtually all cases requires water testing & in some cases, requires that water samples be submitted & for which the test results may take 4 weeks to receive. Non-compliance with manufacturer water quality specifications can cause irreparable damage to the equipment & / or its components & will VOID the original manufacturer's warranty. Water treatment solutions shown on this page & in the pricelist are offered for purchasing convenience only & can be selected only if the incoming water quality falls within the water treatment manufacturer's selection guidelines.
3. 2 years parts & labor warranty (requires registration at convotherm.com), standard
4. Model C-START Cleaner Kit, Includes: One (1) 2.5 Gallon container of ConvoClean forte solution,
   One (1) 2.5 Gallon container of ConvoCare solution & a set of connectors and hoses
5. Gas type to be specified
6. Door hinged right, standard
7. An RO system must be included on this quote if mail-in water test results have not been received by the dealer PRIOR to creating this quote. A filter system should only be included on this quote if water test results are in hand & the test results indicate a water filter meets the water specification.

ITEM #343 CONVECTION OVEN, ELECTRIC

Dimensions: 54.75(h) x 40(w) x 42.25(d)
Quantity: One (1)
Manufacturer: Vulcan
Model: VC4ED

1. Model VC4ED Convection Oven, electric, single-deck, standard depth, solid state controls, 60 minute timer, (5) nickel plated racks, 23-3/4"H legs with foot, stainless steel front, top & sides, stainless steel door with window, 1/2 HP, 12.5kW, NSF, cUL, UL, ENERGY STAR®
2. 1 year limited parts & labor warranty, standard
3. 208v/60/3-ph, 35 amps, standard

ITEM #344 CONVECTION OVEN, ELECTRIC

Dimensions: 23.2(h) x 27.7(w) x 31.7(d)
Quantity: One (1)
Manufacturer: TurboChef (Middleby)

Model: DOUBLE BATCH, 1P

1. Model DOUBLE BATCH, 1P HHD-9500-801 Double Batch™ Oven, electric, 1-phase ventless, countertop, stackable, (2) independent decks, store up to 800 recipes (400 per cavity), smart voltage sensor technology (North America only), internal catalytic converters, 16" pizza capacity per deck, (1) oven cleaner, (1) oven guard, (1) aluminum paddle, (2) trigger sprayers, (2) standard racks, (2) top & bottom jetplates, stainless steel front, top & sides, rubber seal for surface mounting, cULus, UL EPH Classified, TÜV, CE
2. Model MDD-1001 Open Kitchen bundle, includes - 1 x ConnectWare module, 1 x Secure Access Point (SAP), 3 year subscription for Open Kitchen (NET price displays when item is added to quote)
3. All items FOB: Carrollton, Texas: Consumable/accessory orders less than $5,000 will incur a handling fee. Orders shipping standard ground will incur a $15.00 handling fee. Orders shipping other than standard ground will incur $25.00 handling fee
4. One year parts and labor warranty
5. (DOUBLE BATCH, 1P-1) 208/240v/60/1-ph, 50.0 amps, 8.32/9.6 kW, 6 ft. cord & plug (nominal), NEMA 6-50P, standard

ITEM #345 RAPID COOK OVEN

Dimensions: 21.25(h) x 24.5(w) x 31.25(d)
Quantity: One (1)
Manufacturer: TurboChef (Middleby)
Model: I3-TOUCH CONTROL DL - 3 PHASE

1. Model I3-TOUCH CONTROL DL - 3 PHASE I3-9500-814-DL I3™ Microwave/Impingement Oven, Rapid Cook, electric, 3-phase 23", ventless, countertop, High Level touch controls with wifi, fully insulated cook chamber, stores up to 200 recipes, internal catalytic converter, smart voltage sensor technology (US only), digital display, removable rack and grease collection pan, top and bottom jet plates, pull down door with ergonomic handle, multi-speed impingement blower, (2) solid PTFE baskets, (1) oven cleaner, (1) oven guard, (1) aluminum paddle, (2) trigger sprayers, (1) standard rack, side hand grips, stainless steel front, top & sides, cULus, CE, UL EPH Classified, ANSI/NSF 4, TUV
2. Model MDD-1001 Open Kitchen bundle, includes - 1 x ConnectWare module, 1 x Secure Access Point (SAP), 3 year subscription for Open Kitchen (NET price displays when item is added to quote)
3. All items FOB: Carrollton, Texas: Consumable/accessory orders less than $5,000 will incur a handling fee. Orders shipping standard ground will incur a $15.00 handling fee. Orders shipping other than standard ground will incur $25.00 handling fee
4. One year parts and labor warranty

5. 208-240v/60/3-ph, 24.0amps, 8.6-9.9kw, 6 foot cord (nominal), NEMA 15-30P

END OF SECTION