PROJECT MANUAL

SHAW AIR FORCE BASE
CMSGT EMERSON E. WILLIAMS FACILITY
DFAC BUILDING 417.

PREPARED FOR:

UNITED STATES AIR FORCE
HQ AIR FORCE SERVICES CENTER

Issue For 100% Ready to Advertise Review Submittal

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STEEL DOORS AND FRAMES
08/20

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M	(2020; Errata 1 2021) Structural Welding Code - Steel

ASTM INTERNATIONAL (ASTM)

ASTM C578	(2022) Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
ASTM C591	(2021) Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation
ASTM D2863	(2019) Standard Test Method for Measuring the Minimum Oxygen Concentration to Support Candle-Like Combustion of Plastics (Oxygen Index)

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)

ANSI/BHMA A156.115	(2016) Hardware Preparation in Steel Doors and Steel Frames

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 80	(2022) Standard for Fire Doors and Other Opening Protectives
NFPA 252	(2022) Standard Methods of Fire Tests of Door Assemblies

STEEL DOOR INSTITUTE (SDI/DOOR)

SDI/DOOR 111	(2009) Recommended Details for Standard Steel Doors, Frames, and Accessories and Related Components
SDI/DOOR 113	(2013; R2018) Standard Practice for Determining the Steady-State Thermal Transmittance of Steel Door and Frame Assemblies

SDI/DOOR A250.4	(2018) Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors
SDI/DOOR A250.6	(2015) Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames
SDI/DOOR A250.8	(2017) Specifications for Standard Steel Doors and Frames
SDI/DOOR A250.11	(2012) Recommended Erection Instructions for Steel Frames

UNDERWRITERS LABORATORIES (UL)

UL 10C	(2016; Reprint May 2021) UL Standard for Safety Positive Pressure Fire Tests of Door Assemblies

1.2 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Doors; G

Frames; G

Accessories

Schedule of Doors; G

Schedule of Frames; G

SD-03 Product Data

Doors; G

Recycled Content for Steel Door Product; S

Frames; G

Recycled Content for Steel Frame Product; S

Accessories

SD-04 Samples

Factory-applied Enamel Finish; G

1.3 DELIVERY, STORAGE, AND HANDLING

Deliver doors, frames, and accessories undamaged and with protective wrappings or packaging. Strap knock-down frames in bundles. Provide temporary steel spreaders securely fastened to the bottom of each welded frame. Store doors and frames on platforms under cover in clean, dry, ventilated, and accessible locations, with 1/4 inch airspace between doors. Remove damp or wet packaging immediately and wipe affected surfaces dry. Replace damaged materials with new.

PART 2 PRODUCTS

2.1 STANDARD STEEL DOORS

SDI/DOOR A250.8, except as specified otherwise. Prepare doors to receive door hardware as specified in Section 08 71 00 DOOR HARDWARE. Undercut where indicated. Provide exterior doors with top edge closed flush and sealed to prevent water intrusion. Provide doors at 1-3/4 inch thick, unless otherwise indicated. Provide door material that uses a minimum of 25 percent recycled content. Provide data indicating percentage of recycled content for steel door product.

2.1.1 Classification - Level, Performance, Model

2.1.1.1 Extra Heavy Duty Doors

SDI/DOOR A250.8, Level 3, physical performance Level A, Model 1 with core construction as required by the manufacturer for interior insulated doors. Hinge pockets only prepped for one hand.

2.2 INSULATED STEEL DOOR SYSTEMS

all interior doors shall be insulated. Provide insulated steel doors with a core of polyurethane foam and an R factor of 10.0 or more based on a K value of 0.16, and construction of doors as specified herin;. door seals as indicated. Provide to doors and frames a phosphate treatment, rust-inhibitive primer, and baked acrylic enamel finish. Test doors in accordance with SDI/DOOR A250.4 and meet the requirements for Level C. Prepare doors to receive specified hardware. Provide doors 1-3/4 inch thick.

]2.3 ACCESSORIES

2.3.1 Astragals

For pairs of exterior steel doors which will not have aluminum astragals or removable mullions, as specified in Section 08 71 00 DOOR HARDWARE provide overlapping steel astragals with the doors. For interior pairs of fire rated doors, provide stainless steel astragals complying with NFPA 80 for fire rated assemblies.

2.3.2 Moldings

Provide moldings around glass of interior and exterior doors and louvers of interior doors. Provide nonremovable moldings on outside of exterior doors and on corridor side of interior doors. Other moldings may be stationary or removable. Secure inside moldings to stationary moldings, or provide snap-on moldings.

2.4 INSULATION CORES

Provide insulating cores at all exterior doors and other specific doors noted in the door schedule], and provide an apparent U-factor of .48 in accordance with SDI/DOOR 113 and conforming to:

a. Rigid Cellular Polyisocyanurate Foam: ASTM C591, Type I or II, foamed-in-place or in board form, with oxygen index of not less than 22 percent when tested in accordance with ASTM D2863; or

b. Rigid Polystyrene Foam Board: ASTM C578, Type I or II

2.5 STANDARD STEEL FRAMES

SDI/DOOR A250.8, Level 3,at all interior frames. Form frames to sizes and shapes indicated, with welded corners. Provide steel frames for doors, transoms, sidelights, mullions, cased openings, and interior glazed panels, unless otherwise indicated. Provide frame product that uses a minimum of 25 percent recycled content. Provide data indicating percentage of recycled content for steel frame product.

2.5.1 Welded Frames

Continuously weld frame faces at corner joints. Mechanically interlock or continuously weld stops and rabbets. Grind welds smooth.

Weld frames in accordance with the recommended practice of the Structural Welding Code Sections 1 through 6, AWS D1.1/D1.1M and in accordance with the practice specified by the producer of the metal being welded.

]2.5.2 Stops and Beads

Provide form and loose stops and beads from 20 gage steel. Provide for glazed and other openings in standard steel frames. Secure beads to frames with oval-head, countersunk Phillips self-tapping sheet metal screws or concealed clips and fasteners. Space fasteners approximately 12 to 16 inches on center. Miter molded shapes at corners. Butt or miter square or rectangular beads at corners.

2.5.3 Anchors

Provide anchors to secure the frame to adjoining construction. Provide steel anchors, zinc-coated not lighter than 18 gage.

2.5.3.1 Wall Anchors

Provide at least three anchors for each jamb. For frames which are more than 7.5 feet in height, provide one additional anchor for each jamb for each additional 2.5 feet or fraction thereof.

a. Masonry: Provide anchors of corrugated or perforated steel straps or 3/16 inch diameter steel wire, adjustable or T-shaped;

b. Stud partitions: Weld or otherwise securely fasten anchors to backs of frames. Design anchors to be fastened to closed steel

studs with sheet metal screws, and to open steel studs by wiring or welding;

c. Completed openings: Secure frames to previously placed concrete or masonry with expansion bolts in accordance with SDI/DOOR 111; and

2.5.3.2 Floor Anchors

Provide floor anchors drilled for 3/8 inch anchor bolts at bottom of each jamb member.

2.6 FIRE AND SMOKE DOORS AND FRAMES

The requirements of NFPA 80 and NFPA 105 takes precedence over details indicated or specified.

2.6.1 Labels

Provide fire doors and frames bearing the label of Underwriters Laboratories (UL), Factory Mutual Engineering and Research (FM), or Warnock Hersey International (WHI) attesting to the rating required. Testing must be in accordance with NFPA 252 or UL 10C. Provide labels that are metal with raised letters, bearing the name or file number of the door and frame manufacturer. Labels must be permanently affixed at the factory to frames and to the hinge edge of the door. Do not paint door and labels.

2.7 DOOR SEALS

2.8 HARDWARE PREPARATION

Provide minimum hardware reinforcing gauges as specified in SDI/DOOR A250.6 except provide 7 gauge at hinges and 14 gauge at strike minimum. Drill and tap doors and frames to receive finish hardware. Prepare doors and frames for hardware in accordance with the applicable requirements of SDI/DOOR A250.8 and SDI/DOOR A250.6. For additional requirements refer to ANSI/BHMA A156.115. Drill and tap for surface-applied hardware at the project site. Build additional reinforcing for surface-applied hardware into the door at the factory. Punch door frames, with the exception of frames that will have weatherstripping to receive a minimum of two rubber or vinyl door silencers on lock side of single doors and one silencer for each leaf at heads of double doors. Set lock strikes out to provide clearance for silencers.

2.9 FINISHES

2.9.1 Factory-Primed Finish

Thoroughly clean all surfaces of all interior doors and frames then chemically treat and factory prime with a rust inhibiting coating as specified in SDI/DOOR A250.8, or paintable A25 galvannealed steel without primer. Where coating is removed by welding, apply touchup of factory primer.

2.10 FABRICATION AND WORKMANSHIP

Provide finished doors and frames that are strong and rigid, neat in appearance, and free from defects, waves, scratches, cuts, dents, ridges, holes, warp, and buckle. Provide molded members that are clean cut, straight, and true, with joints coped or mitered, well formed, and in true alignment. Dress exposed welded and soldered joints smooth. Design door frame sections for use with the wall construction indicated. Corner joints must be well formed and in true alignment. Conceal fastenings where practicable. Frames must be welded construction. On wraparound frames for masonry partitions, provide a throat opening 1/8 inch larger than the actual masonry thickness. Design other frames in exposed masonry walls or partitions to allow sufficient space between the inside back of trim and masonry to receive caulking compound.

2.11 PROVISIONS FOR GLAZING

Materials are specified in Section 08 81 00, GLAZING.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Frames

Set frames in accordance with SDI/DOOR A250.11. Plumb, align, and brace securely until permanent anchors are set. Anchor bottoms of frames with expansion bolts or powder-actuated fasteners. Build in or secure wall anchors to adjoining construction. Backfill frames with mortar. Coat inside of frames with corrosion-inhibiting bituminous material. For frames in exterior walls, ensure that stops are filled with rigid insulation before grout is placed.

3.1.2 Doors

Hang doors in accordance with clearances specified in SDI/DOOR A250.8. After erection and glazing, clean and adjust hardware.

3.1.3 Fire Doors and Frames

Install fire doors and frames, including hardware, in accordance with NFPA 80.

3.2 PROTECTION

Protect doors and frames from damage. Repair damaged doors and frames prior to completion and acceptance of the project or replace with new, as directed. Wire brush rusted frames until rust is removed. Clean thoroughly. Apply an all-over coat of rust-inhibitive paint of the same type used for shop coat.

3.3 CLEANING

Upon completion, clean exposed surfaces of doors and frames thoroughly. Remove mastic smears and other unsightly marks.

-- End of Section --

SECTION 08 51 13

ALUMINUM WINDOWS
05/19

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ALUMINUM ASSOCIATION (AA)

AA DAF45	(2003; Reaffirmed 2009) Designation System for Aluminum Finishes

AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)

AAMA 611	(2014) Voluntary Specification for Anodized Architectural Aluminum
AAMA 701/702	(2011) Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals
AAMA 901	(2016) Voluntary Specification for Rotary & Linear Operators in Window Applications
AAMA 902	(2016) Voluntary Specification for Sash Balances
AAMA 907	(2015) Voluntary Specification for Corrosion Resistant Coatings on Carbon Steel Components Used in Windows, Doors and Skylights
AAMA 1302.4	(1973) Specifications for Forced-Entry Resistant Aluminum Prime Windows
AAMA 1503	(2009) Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections
AAMA 2603	(2020) Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels
AAMA 2604	(2017a) Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels

AAMA 2605	(2020) Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels
AAMA WSG.1	(1995) Window Selection Guide
AAMA/WDMA/CSA 101/I.S.2/A440	(2017) North American Fenestration Standard/Specification for Windows, Doors, and Skylights

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

ASHRAE 169	(2013) Climate Data for Building Design Standards

ASTM INTERNATIONAL (ASTM)

ASTM A276/A276M	(2017) Standard Specification for Stainless Steel Bars and Shapes
ASTM D3656/D3656M	(2013) Standard Specification for Insect Screening and Louver Cloth Woven from Vinyl-Coated Glass Yarns
ASTM E90	(2009; R2016) Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
ASTM E413	(2022) Classification for Rating Sound Insulation
ASTM E1300	(2016) Standard Practice for Determining Load Resistance of Glass in Buildings
ASTM E1332	(2016) Standard Classification for Rating Outdoor-Indoor Sound Attenuation
ASTM E1886	(2019) Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials
ASTM E1996	(2017) Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes
ASTM F1642/F1642M	(2017) Standard Test Method for Glazing and Glazing Systems Subject to Airblast Loadings
ASTM F2248	(2012) Standard Practice for Specifying an Equivalent 3-Second Duration Design Loading

	for Blast Resistant Glazing Fabricated with Laminated Glass
ASTM F2912	(2017) Standard Specification for Glazing and Glazing Systems Subject to Airblast Loadings

INTERNATIONAL WINDOW CLEANING ASSOCIATION (IWCA)

IWCA I-14.1	(2001) Window Cleaning Safety Standard

NATIONAL FENESTRATION RATING COUNCIL (NFRC)

NFRC 100	(2020) Procedure for Determining Fenestration Product U-Factors
NFRC 200	(2020) Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 101	(2021; TIA 21-1) Life Safety Code

PASSIVE HOUSE INSTITUTE - US (PHIUS)

PHIUS Certified	Certified Data Program for Window Performance

PASSIVE HOUSE INSTITUTE INTERNATIONAL (PHI)

Passivhaus Certified	(2012) Certification of Passive House Suitable Components
Passivhaus Criteria	(2012) Certification Criteria for Certified Passive House Glazings and Transparent Components

SCREEN MANUFACTURERS ASSOCIATION (SMA)

SMA 1004	(1987; R 1998) Aluminum Tubular Frame Screens for Windows
SMA 1201	(R 2013) Specifications for Insect Screens for Windows, Sliding Doors and Swinging Doors

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 4-010-01	(2018; with Change 1, 2020; Change 2, 2022) DoD Minimum Antiterrorism Standards for Buildings

U.S. DEPARTMENT OF ENERGY (DOE)

Energy Star	(1992; R 2006) Energy Star Energy Efficiency Labeling System (FEMP)

1.2 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for Contractor Quality Control approval. When used, a code following the "G" classification identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Windows; G

Fabrication Drawings

SD-03 Product Data

Windows; G

Recycled Content of Aluminum Windows; S

Hardware; G

Fasteners; G

Window Performance; G

Thermal-Barrier Windows; G

Mullions; G

Window Cleaners' Bolts; G

Screens; G

Weatherstripping; G

Accessories; G

Adhesives

Thermal Performance; G

Energy Star Label For Residential Aluminum Window Products; S

SD-04 Samples

Finish Sample

Window Sample

Window Mock-Ups; G

SD-05 Design Data

Structural Calculations for Deflection; G

Design Analysis; G

SD-06 Test Reports

Minimum Condensation Resistance Factor

Resistance to Forced Entry

Standard Airblast Test; G

Windborne-Debris-Impact Performance

SD-07 Certificates

Engineer's Qualifications

SD-10 Operation and Maintenance Data

Windows, Data Package 1; G

Submit in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA.

Plastic Identification

1.3 QUALITY ASSURANCE

1.3.1 Qualification of Manufacturer

Window manufacturer must specialize in designing and manufacturing the type of aluminum windows specified in this section, and have a minimum of 5 years of documented successful experience. Manufacturer must have the facilities capable of meeting contract requirements, single-source responsibility and warranty.

1.3.2 Shop Drawing Requirements

Take field measurements prior to preparation of drawings and fabrications. Provide drawings that indicate elevations of windows, full-size sections, thickness and gages of metal, fastenings, proposed method of anchoring, size and spacing of anchors, details of construction, method of glazing, details of operating hardware, mullion details, method and materials for weatherstripping, sills, trim, installation details, and other related items.

1.3.3 Engineer's Qualifications for Blast Design

All blast design calculations must be performed by or under the direct supervision of a registered engineer with a minimum of 5 years experience performing blast design. The engineer performing the blast design must be able to demonstrate experience on similar size projects using similar design methods to meet the requirements outlined in this specification.

1.3.4 Sample Requirements

1.3.4.1 Finish Sample Requirements

Submit color chart of standard factory color coatings when factory-finish color coating is to be provided.

1.3.5 Design Data Requirements

Submit calculations to substantiate compliance with deflection requirements and Antiterrorism Performance Requirements. A registered Professional Engineer must provide calculations.

Submit design analysis with calculations showing that the design of each different size and type of aluminum window unit and its anchorage to the structure and meets the requirements of paragraph ANTITERRORISM PERFORMANCE REQUIREMENTS. Calculations verifying the structural performance of each window proposed for use, under the given loads, must be prepared and signed by a registered professional engineer. Reflect the window components and anchorage devices to the structure, as determined by the design analysis, in the shop drawings.

1.3.6 Test Report Requirements

Submit test reports for each type of window attesting that identical windows have been tested and meet the requirements specified herein for conformance to AAMA/WDMA/CSA 101/I.S.2/A440 including test size, minimum condensation resistance factor (CRF), resistance to forced entry, and for Antiterrorism windows, in lieu of a Design Analysis, results of a Standard Airblast Test. For Antiterrorism windows, in lieu of a Design Analysis, results of airblast testing, whether by arena test or shock tube, must be included in a test report, providing information in accordance with ASTM F1642/F1642M, as prepared by the independent testing agency performing the test. The test results must demonstrate the ability of each window proposed for use to withstand the airblast loading parameters and achieve the hazard level rating specified in paragraph STANDARD AIRBLAST TEST METHOD.

1.3.7 Certification

Each prime window unit must bear the AAMA Label warranting that the product complies with AAMA/WDMA/CSA 101/I.S.2/A440. Certified test reports attesting that the prime window units meet the requirements of AAMA/WDMA/CSA 101/I.S.2/A440, including test size, will be acceptable in lieu of product labeling.

1.4 DELIVERY AND STORAGE

Deliver windows to project site in an undamaged condition. Use care in handling and hoisting windows during transportation and at the jobsite. Store windows and components out of contact with the ground, under a weathertight covering, so as to prevent bending, warping, or otherwise damaging the windows. Repair damaged windows to an "as new" condition as approved. If windows can not be repaired, provide a new unit.

1.5 PLASTIC IDENTIFICATION

Label plastic products provided to indicate their polymeric composition according to the following list. Where products are not labeled, provide product data indicating polymeric information in Operation and Maintenance Manual.

a. Type 1: Polyethylene Terephthalate (PET, PETE).

b. Type 2: High Density Polyethylene (HDPE).

c. Type 3: Vinyl (Polyvinyl Chloride or PVC).

d. Type 4: Low Density Polyethylene (LDPE).

e. Type 5: Polypropylene (PP).

f. Type 6: Polystyrene (PS).

g. Type 7: Other. Use of this code indicates that the package in question is made with a resin other than the six listed above, or is made of more than one resin listed above, and used in a multi-layer combination.

1.6 PERFORMANCE REQUIREMENTS

1.6.1 Wind Loading Design Pressure

Design window components, including mullions, hardware, and anchors, to withstand a wind-loading design pressure of at least as indicated on the Structural Contract Documents.

1.6.2 Tests

Test windows proposed for use in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 for the particular type and quality window specified.

Perform tests by a nationally recognized independent testing laboratory equipped and capable of performing the required tests. Submit the results of the tests as certified laboratory reports required herein.

Minimum design load for a uniform-load structural test must be 50 psf.

1.7 DRAWINGS

Submit the Fabrication Drawings for aluminum window units showing complete window assembly including hardware, weatherstripping, and subframe assembly details.

1.8 WINDOW PERFORMANCE

Aluminum windows must meet the following performance requirements. Perform testing requirements by an independent testing laboratory or agency.

1.8.1 Structural Performance

Structural test pressures on window units must be for positive load (inward) and negative load (outward). After testing, there will be no glass breakage, permanent damage to fasteners, hardware parts, support arms or actuating mechanisms or any other damage which could cause window to be inoperable. There must be no permanent deformation of any main frame, sash or ventilator member in excess of the requirements established by AAMA/WDMA/CSA 101/I.S.2/A440 for the window types and classification specified in this section.

1.8.2 Antiterrorism Performance Requirements

Windows must meet the antiterrorism performance criteria as specified in the paragraphs below in accordance with UFC 4-010-01. Conformance to the performance requirements must be validated by one of the following methods.

1.8.2.1 Computational Design Analysis Method

Design window assembly to the criteria listed herein. Include computational design analysis calculations verifying the structural performance of each window assembly proposed for use, under the given static equivalent loads.

Design window frames, mullions, sashes, and glazing to the criteria listed herein. Include computational design analysis calculations verifying the structural performance of each window system proposed for use, under the given static equivalent loads.

The glazing frame bite for the window frames must be in accordance with ASTM F2248.

Design Aluminum/Steel window framing members to restrict deflections of the edges of glazing they support to L/60 under two times (2X) the glazing resistance per the requirements of ASTM F2248 and ASTM E1300.

Anchor window frames to the supporting structure with anchors designed to resist one time (1X) the glazing resistance in accordance with ASTM F2248 and ASTM E1300.

1.8.2.2 Dynamic Design Analysis Method

Design window assembly using a dynamic analysis to prove the system will provide performance equivalent to or better than a low hazard rating in accordance with ASTM F2912. Use a triangular blast load using the applicable pressure and impulse indicated above.

1.8.2.3 Standard Airblast Test Method

As an alternative to the 'Computational Design Analysis Method' and 'Dynamic Design Analysis Method' indicated above, window assembly may be tested for evaluation of hazards generated from airblast loading in accordance with ASTM F1642/F1642M by an independent testing agency regularly engaged in blast testing. For proposed window systems that are of the same type as the tested system but of different size, the test results may be accepted provided the proposed window size is within the range from 25 percent smaller to 10 percent larger in area and aspect ratio of the original qualified tested glazing systems in accordance with ASTM F2912. Proposed window system/assembly of a size outside this range will require testing to evaluate their hazard rating or are certified by the 'Dynamic Design Analysis Method' indicated above. Testing may be by shock tube or arena test. Perform the test on the entire proposed window system/assembly, including, the glazing, its framing/support system, operating devices, and all anchorage devices. Window support system replicate anchorage of the window support system with the method of installation to be used for the project. The hazard rating for the proposed window systems, as determined by the rating criteria of ASTM F2912, to provide performance equivalent to or better than a low hazard rating (i.e. the "No Break", "No Hazard",

"Minimal Hazard", "Very Low Hazard" and “Low Hazard” ratings are acceptable. "High Hazard" ratings are unacceptable. Results of window systems previously tested by test protocols other than ASTM F1642/F1642M may be accepted provided the required loading, hazard level rating, and size limitations stated herein are met.

1.8.3 Air Infiltration

Air infiltration must not exceed the amount established by AAMA/WDMA/CSA 101/I.S.2/A440 for each window type.

1.8.4 Water Penetration

Water penetration must not exceed the amount established by AAMA/WDMA/CSA 101/I.S.2/A440 for each window type.

1.8.5 Thermal Performance

Windows (including frames and glass) will be independently tested and certified with a Solar Heat Gain Coefficient (SHGC) determined according to NFRC 200 procedures and a whole window U-factor determined in accordance with NFRC 100 within the ranges as indicated below according to the ASHRAE 169 Climate Zone of the project location. Windows used solely within the interior of a conditioned envelope are exempted from meeting U-Factor and SHGC requirements, unless otherwise noted. Provide visual Transmittance (VT) of 0.42 or greater. Submit documentation supporting compliance with Energy Star, FEMP designated, and Passive House qualifications as applicable. Provide proof of Energy Star label for residential aluminum window products.

1.8.5.4 Northern Climate

Windows installed within Climate Zone 5 will have a U-Factor of 0.38 BTU/h·ft^2·degrees F or less and a SHGC of 0.38 or less.

1.8.6 Life Safety Criteria

Provide windows that conform to NFPA 101 Life Safety Code when rescue and/or second means of escape are indicated.

1.8.7 Sound Attenuation

When tested in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 or the following below, provide a minimum Sound Transmission Class (STC) of 35 in accordance with ASTM E90 and as determined by ASTM E413 or Outside-Indoor Transmission Class (OITC) of 25 in accordance with ASTM E1332 and as determined by ASTM E413 with the window glazed with 1/2 inch air space between two pieces of 1/4 inch.

1.8.8 Windborne-Debris-Impact Performance

Exterior window system including glazing must comply with indicated basis or enhanced protection testing requirements in ASTM E1996 when tested according to ASTM E1886. Test specimens must be no smaller in width and length than glazing indicated for use on Project and must be installed in same manner as glazing indicated for use on Project.

a. Refer to drawings for classification of window requiring basic or enhanced protection.

b. Large-Missile Test: For glazing located within 30 feet of grade.

c. Small-Missile Test: For glazing located more than 30 feet above grade.

1.9 WARRANTY

Provide Manufacturer's standard performance guarantees or warranties that extend beyond a 1 year period.

PART 2 PRODUCTS

2.1 WINDOWS

Provide prime windows that comply with AAMA/WDMA/CSA 101/I.S.2/A440 and the requirements specified herein. In addition to compliance with AAMA/WDMA/CSA 101/I.S.2/A440, window framing members for each individual light of glass must not deflect to the extent that deflection perpendicular to the glass light exceeds L/175 of the glass edge length when subjected to uniform loads at specified design pressures. Provide Structural calculations for deflection to substantiate compliance with deflection requirements. Provide windows of types, performance classes, performance grades, combinations, and sizes indicated or specified. Provide aluminum window frames with a minimum recycled content of 20 percent. Provide data identifying percentage of recycled content of aluminum windows. Design windows to accommodate hardware, glass, weatherstripping, screens, and accessories to be furnished. Each window must be a complete factory assembled unit with or without glass installed. Dimensions shown are minimum. Provide windows with insulating glass and thermal break necessary to achieve a minimum Condensation Resistance Factor (CRF) of 51 when tested in accordance with AAMA 1503. Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with adjacent materials; designed to smoothly operate, tightly close, and securely lock windows, and sized to accommodate sash weight and dimensions.

2.1.8 Fixed Windows (F)

Type F-CW30.

2.1.9 Forced Entry Resistant Windows

In addition to meeting the requirements of AAMA/WDMA/CSA 101/I.S.2/A440, windows designated for resistance to forced entry must conform to the requirements of AAMA 1302.4.

2.1.10 Glass and Glazing

Materials are specified in Section 08 81 00 GLAZING.

2.1.11 Caulking and Sealing

Are specified in Section 07 92 00 JOINT SEALANTS.

2.1.12 Weatherstripping

AAMA/WDMA/CSA 101/I.S.2/A440. Provide for all ventilating (operable) sash for all windows. Provide woven wool pile weatherstripping 0.210 inch thick, conforming to AAMA 701/702, or polypropylene multifilament fiber weatherstripping installed in an integral weatherstripping groove in the sash or frame, and flexible polyvinylchloride weatherstripping installed in the sill member.

2.2 FABRICATION

Fabrication of window units must comply with AAMA/WDMA/CSA 101/I.S.2/A440.

2.2.1 Provisions for Glazing

Design windows and rabbets suitable for glass thickness shown or specified. For minimum antiterrorism windows, attach glazing to its supporting frame using structural silicone sealant or adhesive glazing tape in accordance with ASTM F2248.

2.2.2 Fasteners

Use window manufacturer's standard for windows, trim, and accessories. Self-tapping sheet-metal screws are not acceptable for material more than 1/16 inch thick.

2.2.3 Adhesives

Provide joint sealants as specified in Section 07 92 00 JOINT SEALANTS. For interior application of joint sealants, comply with applicable regulations regarding reduced VOC's, and as specified in Section 07 92 00 JOINT SEALANTS.

2.2.4 Drips and Weep Holes

Provide continuous drips over heads of top ventilators. Where fixed windows adjoin ventilators, drips must be continuous across tops of fixed windows. Provide drips and weep holes as required to return water to the outside.

2.2.5 Combination Windows

Windows used in combination must be factory assembled of the same class and grade. Where factory assembly of individual windows into larger units is limited by transportation considerations, prefabricate, match mark, transport, and field assemble.

2.2.6 Mullions and Transom Bars

Provide mullions with a thermal break. Secure mullions and transom bars to adjoining construction and window units in such a manner as to permit expansion and contraction and to form a weathertight joint. Provide mullion covers on the interior and exterior to completely close exposed joints and recesses between window units and to present a neat appearance.

2.2.7 Accessories

Provide windows complete with necessary hardware, fastenings, clips, fins, anchors, glazing beads, and other appurtenances necessary for complete installation and proper operation. Furnish extruded aluminum subframe receptors and subsill with each window unit.

2.2.7.1 Hardware

AAMA/WDMA/CSA 101/I.S.2/A440. The item, type, and functional characteristics must be the manufacturer's standard for the particular window type. Provide stainless steel hardware of suitable design and of sufficient strength to perform the function for which it is used. Equip all operating ventilators with a lock or latching device which can be secured from the inside.

2.2.7.2 Fasteners

Provide concealed anchors of the type recommended by the window manufacturer for the specific type of construction. Anchors and fasteners must be compatible with the window and the adjoining construction. Provide a minimum of three anchors for each jamb located approximately 6 inches from each end and at midpoint.

2.2.7.3 Window Anchors

Anchoring devices for installing windows must be made of aluminum, cadmium-plated steel, stainless steel, or zinc-plated steel conforming to AAMA/WDMA/CSA 101/I.S.2/A440.

2.2.8 Finishes

Comply with NAAMM's "Metal Finishes Manual" for applying and designating finishes. Exposed aluminum surfaces must be factory finished with an anodic coating. Color must be as indicated.

2.2.8.1 Anodic Coating

Clean exposed aluminum surfaces and provide an anodized finish conforming to AA DAF45 and AAMA 611. Finish must be:

a. Architectural Class I (0.7 mil or thicker), designation AA-M10-C22-A44, electrolytically deposited color anodized.

2.4 THERMAL-BARRIER WINDOWS

Provide thermal-barrier windows, complete with accessories and fittings, where indicated.

Specify material and construction except as follows:

a. Aluminum alloy must be 6063-T6.

b. Frame construction, including operable sash, must be factory-assembled and factory-sealed inner and outer aluminum completely separated from metal-to-metal contact. Join assembly by a continuous, concealed, low conductance divider housed in an interlocking extrusion of the inner

frame. Metal fasteners, straps, or anchors must not bridge the connection between the inner and outer frame.

c. Operating hardware for each sash must consist of spring-loaded nylon cushion blocks and pin locks designed to lock in predetermined locations.

d. Sash must be completely separated from metal-to-metal contact by means of woven-pile weatherstripping, plastic, or elastomeric separation members.

e. Operating and storm sash must be factory-glazed with the type of glass indicated and of the quality specified in Section 08 81 00 GLAZING.

2.5 MULLIONS

Provide mullions between multiple-window units where indicated.

Provide profiles for mullions and mullion covers, reinforced as required for the specified wind loading, and securely anchored to the adjoining construction. Mullion extrusion will include serrations or pockets to receive weatherstripping, sealant, or tape at the point of contact with each window flange.

Mullion assembly must include aluminum window clamps or brackets screwed or bolted to the mullion and the mullion cover.

Mullion cover must be screw-fastened to the mullion unless otherwise indicated.

Mullion reinforcing members must be fabricated of the materials specified in AAMA/WDMA/CSA 101/I.S.2/A440 and meet the specified design loading.

2.6 WINDOW CLEANERS' BOLTS

Provide window cleaners' bolts for all windows 7 feet or higher above finished grade, except for windows that can be removed and cleaned from the ground or from a lower roof level without the use of an extension ladder. Provide two bolts for each single window unit and each fixed glass unit. Locate bolts 44 inches above the window sill.

Window cleaners' bolts must be double-head type, AISI Series 300 corrosion-resistant steel, size and design complying with IWCA I-14.1. Contact side of the bolts must be ground to fit flat against window jambs. Bolts must be factory- or field-attached before windows are set. Reinforce backs of frames to receive bolts with 1/4 by 6-inch corrosion-resistant steel or aluminum plates bolted or welded to the frames at the factory. Special wall anchors must be provided on frames at the point of bolt attachment.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Method of Installation

Install in accordance with the window manufacturer's printed instructions and details. Build in windows as the work progresses or install without

forcing into prepared window openings. Set windows at proper elevation, location, and reveal; plumb, square, level, and in alignment; and brace, strut, and stay properly to prevent distortion and misalignment. Protect ventilators and operating parts against accumulation of dirt and building materials by keeping ventilators tightly closed and locked to frame. Bed screws or bolts in sill members, joints at mullions, contacts of windows with sills, built-in fins, and subframes in mastic sealant of a type recommended by the window manufacturer. Install and caulk windows in a manner that will prevent entrance of water and wind. Fasten insect screens securely in place.

Any materials that show visual evidence of biological growth due to the presence of moisture must not be installed on the building project.

3.1.2 Dissimilar Materials

Where aluminum surfaces are in contact with, or fastened to masonry, concrete, wood, or dissimilar metals, except stainless steel or zinc, protect the aluminum surface from dissimilar materials as recommended in the Appendix to AAMA/WDMA/CSA 101/I.S.2/A440. Do not coat surfaces in contact with sealants after installation with any type of protective material. Do not apply coatings or lacquers to surfaces to which caulking and glazing components must adhere.

3.1.3 Anchors and Fastenings

Make provision for securing units to each other, to masonry, and to other adjoining construction. Windows installed in masonry walls must have head and jamb members designed to recess into masonry wall not less than 7/16 inch.

3.1.4 Adjustments After Installation

After installation of windows and completion of glazing and field painting, adjust all ventilators and hardware to operate smoothly and to provide weathertight sealing when ventilators are closed and locked. Lubricate hardware and operating parts as necessary. Verify that products are properly installed, connected, and adjusted.

3.2 CLEANING

Clean interior and exterior surfaces of window units of mortar, plaster, paint spattering spots, and other foreign matter to present a neat appearance, to prevent fouling of weathering surfaces and weather-stripping, and to prevent interference with the operation of hardware. Replace all stained, discolored, or abraded windows that cannot be restored to their original condition with new windows.

-- End of Section --

SECTION 08 81 00

GLAZING
05/19

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)

AAMA 800	(2016) Voluntary Specifications and Test Methods for Sealants
AAMA GDSG-1	(1987) Glass Design for Sloped Glazing
AAMA TIR A7	(2011) Sloped Glazing Guidelines

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z97.1	(2015) Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test

ASTM INTERNATIONAL (ASTM)

ASTM C509	(2006; R 2021) Standard Specification for Elastomeric Cellular Preformed Gasket and Sealing Material
ASTM C864	(2005; R 2015) Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers
ASTM C920	(2018) Standard Specification for Elastomeric Joint Sealants
ASTM C1021	(2008; R 2014) Standard Practice for Laboratories Engaged in Testing of Building Sealants
ASTM C1036	(2021) Standard Specification for Flat Glass
ASTM C1048	(2018) Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass
ASTM C1087	(2016) Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems
ASTM C1172	(2019) Standard Specification for Laminated Architectural Flat Glass

ASTM C1184	(2014) Standard Specification for Structural Silicone Sealants
ASTM C1281	(2016) Standard Specification for Preformed Tape Sealants for Glazing Applications
ASTM C1376	(2015) Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass
ASTM D395	(2016; E 2017) Standard Test Methods for Rubber Property - Compression Set
ASTM D2287	(2019) Nonrigid Vinyl Chloride Polymer and Copolymer Molding and Extrusion Compounds
ASTM D4802	(2016) Standard Specification for Poly(Methyl Methacrylate) Acrylic Plastic Sheet
ASTM E90	(2009; R2016) Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
ASTM E119	(2020) Standard Test Methods for Fire Tests of Building Construction and Materials
ASTM E413	(2022) Classification for Rating Sound Insulation
ASTM E1300	(2016) Standard Practice for Determining Load Resistance of Glass in Buildings
ASTM E2190	(2010) Standard Specification for Insulating Glass Unit Performance and Evaluation
ASTM E2226	(2015; R 2019b) Standard Practice for Application of Hose Stream
ASTM F1642/F1642M	(2017) Standard Test Method for Glazing and Glazing Systems Subject to Airblast Loadings
ASTM F2912	(2017) Standard Specification for Glazing and Glazing Systems Subject to Airblast Loadings

GLASS ASSOCIATION OF NORTH AMERICA (GANA)

GANA Glazing Manual	(2008) Glazing Manual
GANA Sealant Manual	(2008) Sealant Manual
GANA Standards Manual	(2008) Engineering Standards Manual

INSULATING GLASS MANUFACTURERS ALLIANCE (IGMA)

IGMA TB-1200	(1983; R 2016) Guidelines for Insulating Glass Dimensional Tolerances

IGMA TB-3001	(2001) Guidelines for Sloped Glazing
IGMA TM-3000	(1990; R 2016) North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial & Residential Use

NATIONAL FENESTRATION RATING COUNCIL (NFRC)

NFRC 100	(2020) Procedure for Determining Fenestration Product U-Factors
NFRC 200	(2020) Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 80	(2022) Standard for Fire Doors and Other Opening Protectives
NFPA 251	(2006) Standard Methods of Tests of Fire Resistance of Building Construction and Materials
NFPA 252	(2022) Standard Methods of Fire Tests of Door Assemblies
NFPA 257	(2022) Standard on Fire Test for Window and Glass Block Assemblies

U.S. DEPARTMENT OF ENERGY (DOE)

Energy Star	(1992; R 2006) Energy Star Energy Efficiency Labeling System (FEMP)

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

16 CFR 1201	Safety Standard for Architectural Glazing Materials

UNDERWRITERS LABORATORIES (UL)

UL 752	(2005; Reprint Jan 2021) UL Standard for Safety Bullet-Resisting Equipment
UL MEAPD	(2011) Mechanical Equipment and Associated Products Directory (online version is listed under Certifications at www.ul.com)

1.2 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for Contractor Quality Control approval. When used, a code following the "G" classification identifies the office that will review the submittal for the

Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Insulating Glass

Plastic Glazing

Glazing Accessories

Sealants

SD-04 Samples

Insulating Glass

Plastic Sheet

Glazing Compound

Glazing Tape

Sealing Tapes

SD-07 Certificates

Insulating Glass

Plastic Glazing

SD-08 Manufacturer's Instructions

Setting and Sealing Materials

Glass Setting

SD-11 Closeout Submittals

Warranty for Insulated Glass Units

Warranty for Polycarbonate Sheet

Warranty for Monolithic Reflective Glass

Warranty for Monolithic Opacified Spandrel

Energy Efficient Equipment for Residential Windows; S

1.3 SYSTEM DESCRIPTION

Fabricate and install watertight and airtight glazing systems to withstand thermal movement and wind loading without glass breakage, gasket failure, deterioration of glazing accessories, or defects in the work. Glazed panels

must comply with the safety standards, in accordance with ANSI Z97.1, and comply with indicated wind/snow loading in accordance with ASTM E1300.

1.3.1 Glazing for Passive Solar and Dynamic Control Fenestration

Identify glazing for Passive Solar and Dynamic Control Fenestration noted as part of a passive solar heating system and/or chromogenic fenestration and evaluate separately from other fenestration. Glazing for use in Passive Solar systems are exempt from SHGC requirements. Area-weighted averaging of chromogenic fenestration with other non-chromogenic fenestration is not permitted. For chromogenic fenestration systems, the lower-rated labeled SHGC must be used with automatic controls to modulate the amount of heat flow into the space in multiple steps in response to daylight levels or solar intensity.

1.4 QUALITY CONTROL

Submit two 8 by 10 inch samples of each of the following: tinted glass, patterned glass, heat-absorbing glass, and insulating glass units.

1.5 DELIVERY, STORAGE, AND HANDLING

Deliver products to the site in unopened containers, labeled plainly with manufacturers' names and brands. Store glass and setting materials in safe, enclosed dry locations and do not unpack until needed for installation. Handle and install materials in a manner that will protect them from damage.

1.6 ENVIRONMENTAL REQUIREMENTS

Do not start glazing work until the outdoor temperature is above40 degrees F and rising, unless procedures recommended by the glass manufacturer and approved by the Contracting Officer are made to warm the glass and rabbet surfaces. Provide ventilation to prevent condensation of moisture on glazing work during installation. Do not perform glazing work during damp or rainy weather.

1.7 WARRANTY

1.7.1 Warranty for Insulated Glass Units

Warranty insulating glass units against development of material obstruction to vision (such as dust, fogging, or film formation on the inner glass surfaces) caused by failure of the hermetic seal, other than through glass breakage, for a 10-year period following acceptance of the work. Provide new units for any units failing to comply with terms of this warranty within 45 working days after receipt of notice from the Government.

PART 2 PRODUCTS

2.1 GLASS

ASTM C1036, unless specified otherwise. In doors and sidelights, provide safety glazing material conforming to 16 CFR 1201.

2.1.1 Clear Glass

For interior glazing (i.e., pass and observation windows), 1/4 inch thick glass should be used.

Type I, Class 1 (clear), Quality q4 (A). Provide for glazing openings not indicated or specified otherwise. Use double-strength sheet glass.

2.1.2 Laminated Glass

[ASTM C1172, Laminated glass fabricated from two nominal 1/8 inch pieces of Type I, Class 1, Quality Q3, flat annealed; clear glass conforming to ASTM C1036. Flat glass to be laminated together with a minimum of 0.060 inch thick, clear polyvinyl butyral interlayer laminate, conforming to requirements of 16 CFR 1201 and ASTM C1172. The total thickness of nominally 1/4 inches. Color to be clear.

Design window glazing using a dynamic analysis[testing from airblast loading in accordance with ASTM F1642/F1642M by an independent testing agency regularly engaged in blast testing] to prove the glazing will provide performance equivalent to or better than a low hazard rating in accordance with ASTM F2912 for the peak positive pressure in pounds per square inch (psi) and peak positive phase impulse in pounds per square inch - millisecond (psi-msec, as indicated as the minimum requirements of UFC 4-010-01 for each specific glazing condition.

2.1.3 Tempered Glass

ASTM C1048, Kind FT (fully tempered), Condition A (uncoated), Type I, Class [1 (transparent), Quality q3, 1/4 inch thick, conforming to ASTM C1048 and GANA Standards Manual. Color must be clear.

2.1.4 Heat-Strengthened Glass

ASTM C1048, Kind HS (heat strengthened), Condition A (uncoated), Type I, Class 1 (clear, Quality q3, 1/4 inch thick.

2.2 INSULATING GLASS UNITS

Two panes of glass separated by a dehydrated airspace[, filled with argon gas and hermetically sealed, conforming to ASTM E2190. Submit performance and compliance documentation for each type of insulating glass.

Insulated glass units must have a Solar Heat Gain Coefficient (SHGC) maximum of .38 determined according to NFRC 200 and a U-factor maximum of .38 Btu per square foot by hr by degree F in accordance with NFRC 100.

Glazed panels must be rated for not less than 35 Sound Transmission Class (STC) when tested for laboratory sound transmission loss according to ASTM E90 and determined by ASTM E413.
Dimensional tolerances must be as specified in IGMA TB-1200. Spacer must be black, roll-formed, with bent or tightly welded or keyed and sealed joints to completely seal the spacer periphery and eliminate moisture and hydrocarbon vapor transmission into airspace through the corners. Primary seal must be compressed polyisobutylene and the secondary seal must be a specially formulated silicone.

The inner light must be ASTM C1172, kind LA fabricated from two nominal 1/8 inch pieces of clear annealed flat glass Type I, Class I, Quality q3. Total1/4 inch thick, laminated together with minimum 0.060 inch thick clear polyvinyl butyral interlayer. The outer light must be ASTM C1036, Type I, Class 1 (tinted heat absorbing, low E glazing (see paragraph on Low Emissivity Insulating Glass for requirement, Quality q4, ¼ inch thick.

2.2.1 Low Emissivity Coatings

Interior and exterior glass panes for Low-E insulating units must be Type I annealed flat glass, Class 2-tinted with anti-reflective low-emissivity coating or heat-strengthened or fully tempered glass complying with ASTM C1048, Condition C on No. 2 surface (inside surface of exterior pane), Quality q3 - glazing select, conforming to ASTM C1036. Color must be gray.

2.3 SETTING AND SEALING MATERIALS

Provide as specified in the GANA Glazing Manual, IGMA TM-3000, IGMA TB-3001, and manufacturer's recommendations, unless specified otherwise herein. Do not use metal sash putty, nonskinning compounds, nonresilient preformed sealers, or impregnated preformed gaskets. Materials exposed to view and unpainted must be gray or neutral color. Sealant testing must be performed by a testing agency qualified according to ASTM C1021.

Submit glass manufacturer's recommendations for setting and sealing materials and for installation of each type of glazing material specified.

2.3.1 Putty and Glazing Compound

Provide glazing compound as recommended by manufacturer for face-glazing metal sash. Putty must be linseed oil type. Do not use putty and glazing compounds with insulating glass or laminated glass.

2.3.2 Glazing Compound

Use for face glazing metal sash. Do not use with insulating glass units or laminated glass.

2.3.3 Sealants

Provide elastomeric and structural sealants.

2.3.3.1 Elastomeric Sealant

ASTM C920, Type S, Grade NS, Class 12.5, Use G. Use for channel or stop glazing metal sash. Sealants must be chemically compatible with setting blocks, edge blocks, and sealing tapes, with sealants used in manufacture of insulating glass units.

2.3.3.2 Structural Sealant

ASTM C1184, Type S.

2.3.4 Sealing Tapes

Preformed, semisolid, PVC-based material of proper size and compressibility for the particular condition, complying with ASTM D2287. Use only where

glazing rabbet is designed for tape and tape is recommended by the glass or sealant manufacturer. Provide spacer shims for use with compressible tapes. Tapes must be chemically compatible with the product being set.

2.3.5 Setting Blocks and Edge Blocks

Closed-cell neoprene setting blocks must be dense extruded type conforming to ASTM C509 and ASTM D395, Method B, Shore A durometer between 70 and 90. Edge blocking must be Shore A durometer of 50 (plus or minus 5). Provide silicone setting blocks when blocks are in contact with silicone sealant. Profiles, lengths and locations must be as required and recommended in writing by glass manufacturer. Block color must be black.

2.3.6 Glazing Gaskets

Glazing gaskets must be extruded with continuous integral locking projection designed to engage into metal glass holding members to provide a watertight seal during dynamic loading, building movements and thermal movements. Glazing gaskets for a single glazed opening must be continuous one-piece units with factory-fabricated injection-molded corners free of flashing and burrs. Glazing gaskets must be in lengths or units recommended by manufacturer to ensure against pull-back at corners. Provide glazing gasket profiles as recommended by the manufacturer for the intended application.

2.3.7 Accessories

Provide as required for a complete installation, including glazing points, clips, shims, angles, beads, and spacer strips. Provide noncorroding metal accessories. Provide primer-sealers and cleaners as recommended by the glass and sealant manufacturers. Use ASTM C1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of glazing sealants to surface.

PART 3 EXECUTION

Any materials that show visual evidence of biological growth due to the presence of moisture must not be installed on the building project.

3.1 PREPARATION

Preparation, unless otherwise specified or approved, must conform to applicable recommendations in the GANA Glazing Manual, GANA Sealant Manual, IGMA TB-3001, IGMA TM-3000, and manufacturer's recommendations. Determine the sizes to provide the required edge clearances by measuring the actual opening to receive the glass. Grind smooth in the shop glass edges that will be exposed in finish work. Leave labels in place until the installation is approved, except remove applied labels on heat-absorbing glass and on insulating glass units as soon as glass is installed. Securely fix movable items or keep in a closed and locked position until glazing compound has thoroughly set.

3.2 GLASS SETTING

Shop glaze or field glaze items to be glazed using glass of the quality and thickness specified or indicated. Glazing, unless otherwise specified or approved, must conform to applicable recommendations in the GANA Glazing Manual, GANA Sealant Manual, IGMA TB-3001, IGMA TM-3000, and manufacturer's recommendations. Aluminum windows, wood doors, and wood windows may be glazed in conformance with one of the glazing methods described in the standards under which they are produced, except that face puttying with no bedding will not be permitted. Handle and install glazing materials in accordance with manufacturer's instructions. Use beads or stops which are furnished with items to be glazed to secure the glass in place. Verify products are properly installed, connected, and adjusted.

3.2.1 Sheet Glass

Cut and set with the visible lines or waves horizontal.

3.2.2 Patterned Glass

Set glass with one patterned surface with smooth surface on the weather side. When used for interior partitions, place the patterned surface in same direction in all openings.

3.2.3 Insulating Glass Units

Do not grind, nip, or cut edges or corners of units after the units have left the factory. Springing, forcing, or twisting of units during setting will not be permitted. Handle units so as not to strike frames or other objects. Installation must conform to applicable recommendations of IGMA TB-3001 and IGMA TM-3000.

3.2.4 Installation of Wire Glass

Install glass for fire doors in accordance with installation requirements of NFPA 80.

3.2.5 Installation of Heat-Absorbing Glass

Provide glass with clean-cut, factory-fabricated edges. Field cutting will not be permitted.

3.2.6 Installation of Laminated Glass

Sashes which are to receive laminated glass must be weeped to the outside to allow water drainage into the channel.

3.2.7 Plastic Sheet

Conform to manufacturer's recommendations for edge clearance, type of sealant and tape, and method of installation.

3.3 CLEANING

Clean glass surfaces and remove labels, paint spots, putty, and other defacement as required to prevent staining. Glass must be clean at the time the work is accepted.[Clean plastic sheet in accordance with manufacturer's instructions.]

3.4 PROTECTION

Protect glass work immediately after installation. Identify glazed openings with suitable warning tapes, cloth or paper flags, attached with non-staining adhesives. Protect reflective glass with a protective material to eliminate any contamination of the reflective coating. Place protective material far enough away from the coated glass to allow air to circulate to reduce heat buildup and moisture accumulation on the glass. Upon removal, separate protective materials for reuse or recycling. Remove and replace glass units which are broken, chipped, cracked, abraded, or otherwise damaged during construction activities with new units.

-- End of Section --

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, quartz 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 Food 2.0 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	Fabrication and counters
Randell	Refrigerated Prep tables with plexi covers
Turbo Air	Refrigerated Prep tables with plexi covers
Aerowerks	Dish room conveyor equipment
Vollrath	Cooking equipment
Viverau	Sparking Water Dispenser
Advance Tabco	Handsinks
Metro	Shelving
Bally	Walk-in Cooler/Freezers
Captive Aire	Exhaust Hoods
Salvajor	Dishroom Disposal Equipment

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, 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 manufacturers.

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 quartz 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 from 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 food service 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)

ALTERNATE PRICING

Fully Integrated Self-Cleaning Hood System

As an alternate to the base bid, provide pricing for a **Type I Exhaust Hood with Factory-Installed Self-Cleaning System** as specified herein:

1. **System Description**
   Hood shall be a Type I exhaust hood with integrated spray and manifold assembly. Assemblies shall be ETL Sanitation listed and ETL listed to conform to UL710, ULC710, and UL508A.

2. **Construction**

   - Hood shall be fabricated of 100% stainless steel (Type 304 or Type 430).
   - All welds within the plenum shall be dye-penetrant tested for leaks.
   - High-efficiency stainless steel baffle filters shall be provided.
   - Internal spray assemblies located in the plenum shall wash the back surface of the filters.

3. **Plumbing**

   - All plumbing shall be standard brass pipefittings, with stainless steel penetrations.
   - Spray nozzles shall be wide-angle, full-cone type with internal strainer and pressure-sensitive check valve.
   - Water inlet shall be a 3/4" NPT pipefitting.
   - Drains shall consist of one 1-1/2" NPT pipe, unless hood length exceeds 10'-0" or height exceeds 30", in which case two drains shall be provided.
   - A ball valve shall be installed with the manifold for servicing the self-cleaning system.

4. **System Operation**

   - Surfactant injection shall occur after a vacuum breaker backflow prevention valve.
   - Timers shall be factory set for a three-minute wash cycle, including a one-second surfactant injection prior to a one-minute delay.

- Refer to Section 1.8, Paragraph 3 for additional performance requirements.

5. **Inspections and Feasibility**

   - Prior to determining feasibility and design for retrofitting the current hood washing system, inspections shall be conducted by a **certified hood inspection company.**
   - Inspection findings shall be submitted to the Owner and Design Team for review prior to fabrication or installation.

6. **Acceptable Manufacturers**

   - CaptiveAire, or as listed by Air Force Services as an approved vendor.
   - Substitutions shall not be permitted without prior written approval.

Provide separate pricing for this Alternate, including all inspections, materials, factory testing, installation, and startup.

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 gastronome 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 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 the edge of tray exceeds this dimension, notify the 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-level 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. Contractors are 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 always be present 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. The contractor is responsible for obtaining any documents referenced in this Section and on any associated drawings, which contain information related 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. The contractor is to take every precaution against injuries to persons or damage to property.

E. The 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 the 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 sources 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 major foodservice 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 detailed 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 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 SPECIFICATIONS-LUKE DFAC

ITEM #1 TRASH DROP COUNTER

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

1. Model FABRICATED TRASH DROP COUNTER
2. To measure per drawing. 34" High.
   Standard grade quartz top with a 4" backsplash. Counter to accommodate 4 trash cans. Counter base to be stainless steel construction with walls, flooring and shelving as required. Refer to fabrication details.
3. Counter exterior to have 3/4" plywood panels and hinged doors covered with a standard grade laminate.

4. Counter to sit on 6" high stainless steel legs with adjustable feet and have a toe kick as required.
5. No utilities included.
6. Provide 4 equally spaced doors.

ITEM #2 DISHWASHER CONVEYOR

Quantity: One (1)
Manufacturer: Aerowerks
Model: FABRICATED

1. Model FABRICATED DISHWASHER CONVEYOR
   Refer to manuf. drawings for additional information

ITEM #3 RACK CONVEYOR DISHWASHER

Quantity: One (1)
Manufacturer: Custom
Model: EXISTING TO REMAIN

2. Model EXISTING TO REMAIN RACK CONVEYOR DISHWASHER

ITEM #4 CONVEYOR DISHMACHINE

Quantity: One (1)
Manufacturer: Custom
Model: VERIFY

1. Model VERIFY CONVEYOR DISHMACHINE

ITEM #5 VENT DUCT

Quantity: Two (2)
Manufacturer: Custom
Model: FABRICATED

1. Model FABRICATED VENT DUCT

ITEM #6 CONVEYOR

Quantity: One (1)
Manufacturer: Custom

1. CONVEYOR

ITEM #7 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 #8 WASTE COLLECTOR

Dimensions: 35.88(h) x 36.5(w) x 22.25(d)
Quantity: One (1)
Manufacturer: Salvajor
Model: P914

1. Model P914 Pot/Pan 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. 208v/60/1-ph, 5.5 amps

ITEM #9-10 SPARE NO.

ITEM #11 WALL / SPLASH MOUNT FAUCET

Quantity: Two (2)
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

ITEM #12 SPARE NO.

ITEM #15-20 SPARE NO.

ITEM #23 DISPLAY CASE, NON-REFRIGERATED COUNTERTOP

Dimensions: 30.63(h) x 28.13(w) x 25(d)
Quantity: One (1)
Manufacturer: Structural Concepts
Model: CGS2830

1. Model CGS2830 Impulse® Service/Self-Service Non-Refrigerated Display Case, countertop, 28-1/8"W, straight front glass & ends, (3) lighted metal shelves, top light, clear glass rear swinging doors, black interior & exterior, 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, standard
4. Electrical: 110-120v/60/1ph, 0.40 amp, standard
5. Electrical Connection: 6' Straight blade power cord with NEMA 5-15P, standard
6. Model Finish: Powder coated SCC Standard Silversand Black (FDA compliant)

ITEM #24 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 #25 JUICE DISPENSER, ELECTRIC

Dimensions: 33.1(h) x 15.7(w) x 25.5(d)
Quantity: One (1)
Manufacturer: BUNN
Model: 37300.0004

1. Model 37300.0004 37300.0004 JDF-4S Silver Series® 4-Flavor Cold Beverage System, Push and Hold, Lighted Door,, (3) 12 oz. drinks/min capacity, 2-modular dispense decks, 18 lb. ice bank, 7" cup clearance, dispense 1.0 to 1.5 ounces per second flow rate, pumps & mixes 2+1 to 11+1 concentrated beverages, 4+1 high viscosity & 5+1 juices, dispenses frozen and ambient products, High Intensity™ mixing technology, push button and portion control, LED lighted door graphics, door lock, juice display, 120v/60/1-ph, 6amps, NEMA 5-15P, ETLus, NSF

ITEM #26 BEVERAGE COUNTER

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

1. Model FABRICATED BEVERAGE COUNTER
2. One (1) Beverage Counter - To measure per site conditions. 34" High.
3. Standard grade quartz top with a 4" backsplash.
4. Counter to accommodate Beverage Equipment and Buyout Equipment.
5. Counter base to be stainless steel construction with walls, flooring and shelving as required. Refer to fabrication details.
6. Counter exterior to have 3/4" plywood panels and hinged doors covered with a standard grade laminate.
7. Counter to sit on 6" high stainless steel legs with adjustable feet and have a toe kick as required. No utilities included.

ITEM #27 ESPRESSO MACHINE

Quantity: One (1)
Manufacturer: VENDOR FURNISHED
Model: BEAN-TO-CUP

1. Model BEAN-TO-CUP ESPRESSO MACHINE

ITEM #28 SMOOTHIE MAKER

Quantity: One (1)
Manufacturer: VENDOR FURNISHED
Model: VERIFY

1. Model VERIFY SMOOTHIE MAKER

ITEM #29-30 SPARE NO.

ITEM #31 TRASH RECEPTACLE, INDOOR

Dimensions: 30(h) x 22(w) x 11(d)
Quantity: One (1)
Manufacturer: Rubbermaid Commercial Products
Model: FG354060BLA

1. Model FG354060BLA Slim Jim® Container,
2. 23 gallon, 22"W x 11"D x 30"H, with venting channels
3. Molded-in handles, general purpose waste, open type without lid, high-impact plastic construction, black,
4. Made in USA

ITEM #32 CONDIMENT DISPENSER

Quantity: One (1)
Manufacturer: Star (Middleby)
Model: CD3S

1. Model CD3S CONDIMENT DISPENSER

ITEM #33 CO2 TANK

Quantity: Two (2)
Manufacturer: VENDOR FURNISHED
Model: BY VENDOR

1. Model BY VENDOR CO2 TANK

ITEM #34 SODA SYSTEM W/ RACK

Quantity: One (1)
Manufacturer: VENDOR FURNISHED
Model: BY VENDOR

1. Model BY VENDOR SODA SYSTEM W/ RACK

ITEM #35 B-N-B CABINET

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

1. Model FABRICATED B-N-B CABINET

ITEM #37 COFFEE BREWER

Quantity: One (1)
Manufacturer: VENDOR FURNISHED
Model: BY VENDOR

1. Model BY VENDOR COFFEE BREWER

ITEM #41 ICED TEA BREWER / DISPENSER

Quantity: One (1)
Manufacturer: VENDOR FURNISHED
Model: BY VENDOR

1. Model BY VENDOR ICED TEA BREWER / DISPENSER

ITEM #42 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,
2. 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,
3. 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)
4. 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)
5. Installation (NET)
6. Shipping (NET)
7. 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
8. 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 #43 TRASH RECEPTACLE, INDOOR

Dimensions: 30(h) x 22(w) x 11(d)
Quantity: One (1)

Manufacturer: Rubbermaid Commercial Products
Model: FG354060BLA

1. Model FG354060BLA Slim Jim® Container, 23 gallon, 22"W x 11"D x 30"H, with venting channels, molded-in handles, general purpose waste, open type without lid, high-impact plastic construction, black, Made in USA

ITEM #44 BEVERAGE COUNTER

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

1. Model FABRICATED BEVERAGE COUNTER
2. One (1) Beverage Counter - To measure per site conditions. 34" High.
3. Standard grade quartz top with a 4" backsplash.
4. Counter to accommodate Beverage Equipment and Buyout Equipment (Provided by others).
5. Counter base to be stainless steel construction with walls, flooring and shelving as required.
6. Refer to fabrication details.
7. Counter exterior to have 3/4" plywood panels and hinged doors covered with a standard grade laminate. Counter to sit on 6" high stainless steel legs with adjustable feet and have a toe kick as required. No utilities included.

ITEM #45 POS SYSTEM

Quantity: Two (2)
Manufacturer: OWNER
Model: BY OWNER

1. Model BY OWNER POS SYSTEM

ITEM #46 POS COUNTER

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

1. Model FABRICATED POS STATION
2. One (1) Serving Counter - To measure per site conditions. 34" High.
3. Standard grade quartz top. Counter to accommodate2 POS Stations(Provided by others).
4. Counter base to be stainless steel frame construction with flooring and shelving as required.

5. Counter to have to able to house (2) roll-in items. Counter to have 18 gauge stainless steel walls, hinged doors and hinged louvered doors as required.
6. Counter exterior to have 3/4" plywood panels covered with a standard grade laminate.
7. Counter to sit on 6" high stainless steel legs with adjustable feet and have a toe kick as required. Counters to have (2) Vertical sneeze shields- one on each side.

ITEM #47 RACK DISPENSERS

Dimensions: 36.13(h) x 23.75(w) x 25.69(d)
Quantity: Two (2)
Manufacturer: Lakeside Manufacturing
Model: 998

1. Model 998 Tray & Glass Rack Dispenser, cabinet style, enclosed base, mobile, for 10" x 20" or 14" x 20" or 20" x 20" racks, stainless steel construction, 4" swivel casters (2) with brakes, NSF, Made in USA

ITEM #48 POS SYSTEM

Quantity: Two (2)
Manufacturer: OWNER
Model: BY OWNER

1. Model BY OWNER POS SYSTEM

ITEM #49-50 SPARE NO.

ITEM #51 POS COUNTER

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

1. Model FABRICATED POS STATION
2. One (1) Serving Counter - To measure per site conditions. 34" High.
3. Standard grade quartz top. Counter to accommodate 2 POS Stations(Provided by others).
4. Counter base to be stainless steel frame construction with flooring and shelving as required.
5. Counter to have to able to house (2) roll-in items. Counter to have 18 gauge stainless steel walls, hinged doors and hinged louvered doors as required.
6. Counter exterior to have 3/4" plywood panels covered with a standard grade laminate.

7. Counter to sit on 6" high stainless steel legs with adjustable feet and have a toe kick as required.
8. Counters to have (2) Vertical sneeze shields- one on each side.

ITEM #52 RACK DISPENSERS

Dimensions: 36.13(h) x 23.75(w) x 25.69(d)
Quantity: Two (2)
Manufacturer: Lakeside Manufacturing
Model: 998

1. Model 998 Tray & Glass Rack Dispenser, cabinet style, enclosed base, mobile, for 10" x 20" or 14" x 20" or 20" x 20" racks, stainless steel construction, 4" swivel casters (2) with brakes, NSF, Made in USA

ITEM #53 LIGHT FIXTURE

Quantity: One (1)
Manufacturer: BSI
Model: 2580

1. Model 2580 Slimline Light, 1-1/2" x 1-3/8", (specify length), cULus, NSF
2. Lamp type to be specified
3. Remote Infinite, standard
4. Wiring exit point to be specified
5. Lighting frame finish to be specified

ITEM #54 FROST TOP / COLD SLAB, DROP IN

Dimensions: 27.13(h) x 42.25(w) x 21.75(d)
Quantity: One (1)
Manufacturer: Randell
Model: RFT-3

1. Model RFT-3 Drop-In Frost Top, refrigerated, 43" L, (3) 18" x 13" pan capacity, stainless steel top, corrosion resistant steel exterior, self-contained refrigeration system, R290 Hydrocarbon refrigerant, 1/4 HP, 115v/60/1-ph, 3.5 amps, NEMA 5-15P, cUL, UL, NSF, Made in USA
2. (1) year parts, labor, and compressor warranty, standard

ITEM #55 SNEEZE GUARD, STATIONARY

Quantity: One (1)
Manufacturer: BSI
Model: XG3930

1. Model XG3930 XGuard™ Food Shield, single, self service, fully adjustable, 20-1/2" height, 14" wide tempered glass top & lower sneeze guard, 1" diameter tubing double supports, NSF-Component, cULus
2. Tubing to be specified (NOTE: aluminum may be used only on above counter mounts)
3. 1" radius corner, standard
4. Frame finish to be specified
5. Model 2580 Slimline Light, 1-1/2" x 1-3/8", (specify length), cULus, NSF
6. Model 3000K 3000K LED Lamp, 110v/50/60/1-ph, cULus, NSF
7. Remote Infinite, standard
8. Wiring exit point to be specified
9. Lighting frame finish to be specified
10. Housing length to be specified

ITEM #56 LIGHT FIXTURE

Quantity: One (1)
Manufacturer: BSI
Model: 2580

1. Model 2580 Slimline Light, 1-1/2" x 1-3/8", (specify length), cULus, NSF
2. Model 3000K 3000K LED Lamp, 110v/50/60/1-ph, cULus, NSF
3. Housing length to be specified
4. Remote Infinite, standard
5. Wiring exit point to be specified
6. Lighting frame finish to be specified

ITEM #57 SNEEZE GUARD, STATIONARY

Quantity: One (1)
Manufacturer: BSI
Model: XG3930

1. Model XG3930 XGuard™ Food Shield, single, self service, fully adjustable, 20-1/2" height, 14" wide tempered glass top & lower sneeze guard, 1" diameter tubing double supports, NSF-Component, cULus
2. Tubing to be specified (NOTE: aluminum may be used only on above counter mounts)
3. 1" radius corner, standard
4. Frame finish to be specified

ITEM #58 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 88204 Inset, 11 quart, induction ready, for Mirage induction rethermalizer, NSF (Refer to vollrathfoodservice.com for full warranty policy)
4. 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 #59-60 SPARE NO.

ITEM #61 DROP-IN FREEZER

Dimensions: 28.38(w) x 17.19(d)
Quantity: One (1)
Manufacturer: Randell
Model: 9550-290

1. Model 9550-290 Drop-In Freezer/Plate Chiller, 6 gallon, top opening with 2 insulated hinged covers, stainless steel interior & top, corrosion resistant steel exterior, self-contained refrigeration system, bottom mount, R290 Hydrocarbon refrigerant, 1/4 HP, UL, cUL, NSF, Made in USA
2. (1) year parts, labor, and compressor warranty, standard
3. 115v/60/1-ph, 2.0 amps, 8' cord, NEMA 5-15P, standard

ITEM #62 HOT / COLD FOOD WELL UNIT, DROP-IN, ELECTRIC

Dimensions: 27.75(h) x 70.06(w) x 26.13(d)
Quantity: One (1)
Manufacturer: Randell
Model: RCHB-5-208

1. Model RCHB-5-208 Drop-In Hot/Cold Food Unit, electric, (5) 12" x 20" pan size, common waterbath, switch for hot or cold operation, thermostatic controls, 1" drain & gate valve, 18 gauge stainless steel top & interior, corrosion

resistant steel exterior, R290a, 1/4 HP, 4.4kW, cUL, UL, NSF, Made in USA (unit cutout size: 68-1/2"W x 25"D)
2. (1) year parts, labor, and compressor warranty, standard
3. 120/208v/60/1-ph, hardwired connection, standard

ITEM #63 HEAT LAMP

Quantity: One (1)
Manufacturer: BSI
Model: 705

1. Model 705 Stealth™ Warmer & Light Combo, (specify voltage & length), cULus, NSF
2. Voltage & Length to be specified
3. Lamp type to be specified
4. Remote Infinite, standard
5. Wiring exit point to be specified

ITEM #64 SNEEZE GUARD, STATIONARY

Quantity: One (1)
Manufacturer: BSI
Model: XG3930

1. Model XG3930 XGuard™ Food Shield, single, self service, fully adjustable, 20-1/2" height, 14" wide tempered glass top & lower sneeze guard, 1" diameter tubing double supports, NSF-Component, cULus
2. Tubing to be specified (NOTE: aluminum may be used only on above counter mounts)
3. 1" radius corner, standard
4. Frame finish to be specified
5. Model 2580 Slimline Light, 1-1/2" x 1-3/8", (specify length), cULus, NSF
6. Model 3000K 3000K LED Lamp, 110v/50/60/1-ph, cULus, NSF
7. Remote Infinite, standard
8. Wiring exit point to be specified
9. Lighting frame finish to be specified
10. Housing length to be specified

ITEM #65 COLD FOOD WELL UNIT, DROP-IN, REFRIGERATED

Quantity: One (1)
Manufacturer: BSI
Model: CP-500N-30

1. Model CP-500N-30 BSI, LLC Drop-In Rotating Cold Pan, refrigerated, 30" inner dia., round, 10" unit depth, 3" below countertop interior, holds (12) bain maries or (5) triangle bowls, utilizing 404 refrigerant, pressure foamed insulation, 1/2" drain with ball valve, 304 stainless

steel, 14-gauge brushed finish interior, 18-gauge brushed finish exterior, 1/4 HP, 120v/60/1-ph, 10.7 amp, 700 BTU, NEMA 5-15, ETL
2. Built-in Unit
3. Serving Pan, triangular, single wall, stainless steel
4. Self-Contained refrigeration, standard

ITEM #66 LIGHT FIXTURE

Quantity: One (1)
Manufacturer: BSI
Model: 2580

1. Model 2580 Slimline Light, 1-1/2" x 1-3/8", (specify length), cULus, NSF
2. Model 3000K 3000K LED Lamp, 110v/50/60/1-ph, cULus, NSF
3. Housing length to be specified
4. Remote Infinite, standard
5. Wiring exit point to be specified
6. Lighting frame finish to be specified

ITEM #67 SNEEZE GUARD, STATIONARY

Quantity: One (1)
Manufacturer: BSI
Model: XG3930

1. Model XG3930 XGuard™ Food Shield, single, self service, fully adjustable, 20-1/2" height, 14" wide tempered glass top & lower sneeze guard, 1" diameter tubing double supports, NSF-Component, cULus
2. Tubing to be specified (NOTE: aluminum may be used only on above counter mounts)
3. 1" radius corner, standard
4. Frame finish to be specified
5. Model 2580 Slimline Light, 1-1/2" x 1-3/8", (specify length), cULus, NSF
6. Model 3000K 3000K LED Lamp, 110v/50/60/1-ph, cULus, NSF
7. Remote Infinite, standard
8. Wiring exit point to be specified
9. Lighting frame finish to be specified
10. Housing length to be specified

ITEM #68 LIGHT FIXTURE

Quantity: One (1)
Manufacturer: BSI
Model: 2580

1. Model 2580 Slimline Light, 1-1/2" x 1-3/8", (specify length), cULus, NSF

2. Lamp type to be specified
3. Remote Infinite, standard
4. Wiring exit point to be specified
5. Lighting frame finish to be specified

ITEM #69 SPARE NO.

ITEM #70 SERVING COUNTER

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

1. Model FABRICATED SERVING COUNTER

ITEM #71 HOT / COLD FOOD WELL UNIT, DROP-IN, ELECTRIC

Dimensions: 27.75(h) x 44.06(w) x 26.13(d)
Quantity: One (1)
Manufacturer: Randell
Model: RCHB-3-208

1. Model RCHB-3-208 Drop-In Hot/Cold Food Unit, electric, (3) 12" x 20" pan size, common waterbath, switch for hot or cold operation, thermostatic controls, 1" drain & gate valve, 18 gauge stainless steel top & interior, corrosion resistant steel exterior, R290a, 1/4 HP, 2.2kW, cUL, UL, NSF, Made in USA (unit cutout size: 42-1/2"W x 25"D)
2. (1) year parts, labor, and compressor warranty, standard
3. 120/208v/60/1-ph, hardwired connection, standard

ITEM #72 LIGHT FIXTURE

Quantity: One (1)
Manufacturer: BSI
Model: 2580

1. Model 2580 Slimline Light, 1-1/2" x 1-3/8", (specify length), cULus, NSF
2. Model 3000K 3000K LED Lamp, 110v/50/60/1-ph, cULus, NSF
3. Housing length to be specified
4. Remote Infinite, standard
5. Wiring exit point to be specified
6. Lighting frame finish to be specified

ITEM #73-74 SNEEZE GUARD, STATIONARY

Quantity: One (1)
Manufacturer: BSI
Model: XG3930

1. Model XG3930 XGuard™ Food Shield, single, self service, fully adjustable, 20-1/2" height, 14" wide tempered glass top & lower sneeze guard, 1" diameter tubing double supports, NSF-Component, cULus
2. Tubing to be specified (NOTE: aluminum may be used only on above counter mounts)
3. 1" radius corner, standard
4. Frame finish to be specified
5. Model 705 Stealth™ Warmer & Light Combo, (specify voltage & length), cULus, NSF
6. Voltage & Length to be specified
7. Model 3000K 3000K LED Lamp, 110v/50/60/1-ph, cULus, NSF
8. Remote Infinite, standard
9. Wiring exit point to be specified
10. Warmer finish to be specified

ITEM #75 HEATED SHELF FOOD WARMER

Dimensions: 2.16(h) x 49.63(w) x 19.63(d)
Quantity: One (1)
Manufacturer: Hatco
Model: HBGB-4818

1. Model HBGB-4818 Heated Base Glass Shelf, built-in, 48"L, ceramic glass surface, uniform heat, 100° - 200°F thermostatic control with lighted on/off rocker switch, choice of frame finish, cULus, UL EPH Classified
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. 1-Yr Warranty on Blanket Heating Elements against burnout, standard
5. 120v/60/1-ph, 850 watts, 7.1 amps, NEMA 5-15P (domestic voltage), standard
6. NOTE: Recommended for use in metallic countertop, verify that the material is suitable for temperatures up to 200°F
7. Model HBGB-GLASS-BLK Black finished ceramic glass, standard
8. Stainless steel trim ring (standard)
9. Flat top surface, standard
10. Thermostat control with lighted rocker switch, standard
11. Stainless steel bezel only (standard)

ITEM #76 SNEEZE GUARD, STATIONARY

Quantity: One (1)
Manufacturer: BSI
Model: XG3930

1. Model XG3930 XGuard™ Food Shield, single, self service, fully adjustable, 20-1/2" height, 14" wide tempered glass

top & lower sneeze guard, 1" diameter tubing double supports, NSF-Component, cULus
2. Tubing to be specified (NOTE: aluminum may be used only on above counter mounts)
3. 1" radius corner, standard
4. Frame finish to be specified
5. Model 2580 Slimline Light, 1-1/2" x 1-3/8", (specify length), cULus, NSF
6. Model 3000K 3000K LED Lamp, 110v/50/60/1-ph, cULus, NSF
7. Remote Infinite, standard
8. Wiring exit point to be specified
9. Lighting frame finish to be specified
10. Housing length to be specified

ITEM #77 GRIDDLE, ELECTRIC, FLOOR MODEL

Dimensions: 36(h) x 59.14(w) x 39.5(d)
Quantity: One (1)
Manufacturer: Evo America, LLC (Middleby)
Model: 10-0600-EVT

1. Model 10-0600-EVT Evo® EVent® 48E PLUS Full Metal Surround Cooking Station, electric, 48"W x 24"D rectangular steel cooktop surrounded with black granite, self-contained ventilation, multi-stage filtration system, integrated fire suppression system, 100° F to 425° F (38° C to 218° C) temperature range, touch panel display, includes: cleaning kit, (2) stainless steel spatulas, (1) stainless steel scraper, UL, UL EPH Classified, Made in USA
2. OWNER RESPONSIBILITY: Before any Evo EVent Electric Cooktop with Ventless Recirculating Ventilation System can be powered up for the first time, the factory installed UL300 Buckeye fire suppression system must be armed, commissioned, and tagged by a certified and locally licensed BUCKEYE Fire Suppression contractor. This commissioning is also the commencement of an agreement between the Buckeye agent and the owner and cannot be altered by Evo, Inc., its agents, dealers, or service agencies. Cost will vary by individual Buckeye agent and are paid by the customer, not by Evo.
3. NOTE: Before purchasing and installing this equipment, Evo, Inc. recommends that operators apply for permits as required by local jurisdictional authorities. Required permits vary by jurisdiction and may include Electrical, Fire, Mechanical and Food Service. Permits are the responsibility of the operator and/ or its contractors.
4. 1 year parts & labor warranty (contact factory for details)
5. 208v/60/3-ph, 32.0 amps, 6.7 kW, 8-foot cord, NEMA 15-50P
6. Model 10-0150-EVT-FMS Customization for 10-0148-EVT: Metal surround, stainless steel enclosure
7. Model 10-0150-EVT-34 Caster Kit, for 34" working height, ADA Compliant
8. Model 13-0237-EVT Replaceable Charcoal Filter (6 pack)

ITEM #78 SNEEZE GUARD, STATIONARY

Quantity: Three (3)
Manufacturer: BSI
Model: ZG9500-4

1. Model ZG9500-4 ZGuard® Food Shield, single, full-service/vertical partition, fully adjustable, 27" height, 24-1/2" wide tempered glass, 1" diameter tubing single supports
2. Tubing to be specified (NOTE: aluminum may be used only on above counter mounts)
3. Frame finish to be specified
4. 1" radius corner, standard

ITEM #79-80 SPARE NO.

ITEM #81 LIGHT FIXTURE

Quantity: One (1)
Manufacturer: BSI
Model: 2580

1. Model 2580 Slimline Light, 1-1/2" x 1-3/8", (specify length), cULus, NSF
2. Lamp type to be specified
3. Remote Infinite, standard
4. Wiring exit point to be specified
5. Lighting frame finish to be specified

ITEM #82 COMPACT PREP TABLE REFRIGERATOR

Dimensions: 36(h) x 27(w) x 34.5(d)
Quantity: One (1)
Manufacturer: Traulsen
Model: UST279-D

1. Model UST279-D Dealer's Choice Compact Prep Table Refrigerator with low profile flat cover, (2) drawers, one-section, 27" wide, top rail holds (9) 1/6 pans 4" deep (included), drawers hold (6) 1/6 pans per drawer (not included), top rail & drawers can accommodate up to 6" deep pans. Full length reversible cutting board, stainless steel exterior top, sides & drawers, anodized aluminum interior, galvanized exterior back & bottom, rear mounted, self-contained refrigeration, R290 Hydrocarbon refrigerant, (4) 4" casters, 1/4 HP, cETLus, ETL-Sanitation
2. 6-year parts & labor and 7 year compressor, standard. Visit www.traulsen.com for details
3. 115v/60/1-ph, 7.2 amps, 8' cord, NEMA 5-15P

ITEM #83 SNEEZE GUARD, STATIONARY

Quantity: One (1)
Manufacturer: BSI
Model: XG3930

1. Model XG3930 XGuard™ Food Shield, single, self service, fully adjustable, 20-1/2" height, 14" wide tempered glass top & lower sneeze guard, 1" diameter tubing double supports, NSF-Component, cULus
2. Tubing to be specified (NOTE: aluminum may be used only on above counter mounts)
3. 1" radius corner, standard
4. Frame finish to be specified
5. Model 2580 Slimline Light, 1-1/2" x 1-3/8", (specify length), cULus, NSF
6. Model 3000K 3000K LED Lamp, 110v/50/60/1-ph, cULus, NSF
7. Remote Infinite, standard
8. Wiring exit point to be specified
9. Lighting frame finish to be specified
10. Housing length to be specified

ITEM #84 PIZZA SERVING COUNTER

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

1. Model FABRICATED PIZZA SERVING COUNTER-
2. One (1) Serving Counter - To measure per plans. 34" High. Standard grade quartz top.
3. Counter to accommodate Drop-in Equipment and Buyout Equipment.
4. Counter base to be stainless steel frame construction with flooring and shelving as required.
5. Counter to have 18 gauge stainless steel walls, hinged doors and hinged louvered doors as required.
6. Counter exterior to have 3/4" plywood panels covered with a standard grade laminate.
7. Counter to be recessed to accommodate Roll-In Equipment, drop in and under counter equipment (Provided by others).
8. Counter to sit on 6" high stainless steel legs with adjustable feet and have a removable toe kick as required. Counter to be pre-wired to a load center with final connections by others.
9. Sneeze guards to be provided by others.

   Refer to Fabrication details for additional information.

ITEM #85 HEATED SHELF FOOD WARMER

Dimensions: 3.92(h) x 16.75(d)
Quantity: Three (3)
Manufacturer: Hatco
Model: GRSR-15

1. Model GRSR-15 Heated Shelf, Free-standing, 15" round, counter top or drop-in, designer colors, 250 watts, CE, cUL, UL, UL EPH Classified
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. 1-Yr Warranty on Blanket Heating Elements against burnout, standard
5. 120v/60/1-ph, 250 watts, 2.1 amps, NEMA 5-15P (domestic voltage), standard
6. Model STANDARD Black designer color, standard (available at time of purchase only)

ITEM #86 HEATED SHELF FOOD WARMER

Dimensions: 2.16(h) x 49.63(w) x 19.63(d)
Quantity: One (1)
Manufacturer: Hatco
Model: HBGB-4818

1. Model HBGB-4818 Heated Base Glass Shelf, built-in, 48"L, ceramic glass surface, uniform heat, 100° - 200°F thermostatic control with lighted on/off rocker switch, choice of frame finish, cULus, UL EPH Classified
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. 1-Yr Warranty on Blanket Heating Elements against burnout, standard
5. 120v/60/1-ph, 850 watts, 7.1 amps, NEMA 5-15P (domestic voltage), standard
6. NOTE: Recommended for use in metallic countertop, verify that the material is suitable for temperatures up to 200°F
7. Model HBGB-GLASS-BLK Black finished ceramic glass, standard
8. Stainless steel trim ring (standard)
9. Flat top surface, standard
10. Thermostat control with lighted rocker switch, standard
11. Stainless steel bezel only (standard)

ITEM #87 LIGHT FIXTURE

Quantity: One (1)
Manufacturer: BSI
Model: 2580

1. Model 2580 Slimline Light, 1-1/2" x 1-3/8", (specify length), cULus, NSF
2. Model 3000K 3000K LED Lamp, 110v/50/60/1-ph, cULus, NSF
3. Housing length to be specified
4. Remote Infinite, standard
5. Wiring exit point to be specified
6. Lighting frame finish to be specified

ITEM #88 SNEEZE GUARD, STATIONARY

Quantity: One (1)
Manufacturer: BSI
Model: XG3930

1. Model XG3930 XGuard™ Food Shield, single, self service, fully adjustable, 20-1/2" height, 14" wide tempered glass top & lower sneeze guard, 1" diameter tubing double supports, NSF-Component, cULus
2. Tubing to be specified (NOTE: aluminum may be used only on above counter mounts)
3. 1" radius corner, standard
4. Frame finish to be specified
5. Model 2580 Slimline Light, 1-1/2" x 1-3/8", (specify length), cULus, NSF
6. Model 3000K 3000K LED Lamp, 110v/50/60/1-ph, cULus, NSF
7. Remote Infinite, standard
8. Wiring exit point to be specified
9. Lighting frame finish to be specified
10. Housing length to be specified

ITEM #89-90 SPARE NO.

ITEM #91 CUTTING BOARD

Dimensions: 0.38(h) x 76(w) x 6.25(d)
Quantity: One (1)
Manufacturer: Stainless Fabricating
Model: FABRICATED

1. Model FABRICATED Poly Cutting Board, for (5) well, 68"W x 6-1/4"D x 3/8" thick

ITEM #93 PIZZA PREPARATION REFRIGERATOR

Dimensions: 44(h) x 60(w) x 33(d)
Quantity: One (1)
Manufacturer: Randell
Model: 8260N-290

1. Model 8260N-290 Refrigerated Raised Rail Prep Table, two-section, 60" W, 14.67 cu. ft. capacity, side-mounted self-contained refrigeration, (2) solid hinged doors, stainless steel front, top, & sides, cold wall refrigeration pan rail (includes divider bars), accommodates (8) 1/3 size pans (pans not included), separate controls, automatic adaptive defrost, aluminum interior, R290 Hydrocarbon refrigerant, 6" casters, 1/3 HP, NSF, cUL, UL, Made in USA
2. (1) year parts and labor warranty, standard
3. CW5 (5) year compressor warranty, standard
4. 115v/60/1-ph, 6.0 amps, NEMA 5-15P, standard
5. Self-contained refrigeration standard
6. 6" Casters, standard

ITEM #94 MOBILE PLATE AND DISH DISPENSER

Dimensions: 39.13(h) x 35.13(w) x 19.5(d)
Quantity: One (1)
Manufacturer: Lakeside Manufacturing
Model: 935

1. Model 935 Adjust-a Fit® Dish Dispenser, non-heated, cabinet style, enclosed base, mobile, (2) self-leveling dish dispensing tubes, maximum dish size 12" diameter, stainless steel construction, 4" swivel casters (2) with brakes, NSF, UL, Made in USA

ITEM #95 UNIVERSAL PAN RACK

Dimensions: 69.75(h) x 20.38(w) x 26.38(d)
Quantity: One (1)
Manufacturer: New Age
Model: 1305

1. Model 1305 Rack, mobile, universal, open frame design, square tube construction, (12) universal slides, 5" centers, all-welded aluminum construction, end loading, slides for 12" x 20", 18" x 26" & 13" x 18" pans, 3-1/4" wide runners, (4) 5" platform casters, NSF, Made in USA, (standard factory lead time)
2. Lifetime warranty against rust & corrosion, 5 year workmanship and material defects warranty, standard

ITEM #96 ROLL-IN REFRIGERATOR

Dimensions: 89.13(h) x 35.5(w) x 35.56(d)
Quantity: One (1)
Manufacturer: Traulsen
Model: RRI132HUT-FHS

1. Model RRI132HUT-FHS Spec-Line Refrigerator, Roll-in, one-section, self-contained refrigeration, StayClear™ Condenser, stainless steel exterior & interior, standard depth cabinet, full-height doors, accepts 72" high racks (by others) with microprocessor controls, 1/2 HP, 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. 115v/60/1-ph, 7.6 amps, cord with NEMA 5-15P, standard
5. Door hinged on right, standard

ITEM #97 HEATED HOLDING CABINET

Dimensions: 75.81(h) x 26.44(w) x 32.19(d)
Quantity: One (1)
Manufacturer: Alto-Shaam
Model: 1200-UP

1. Model 1200-UP Halo Heat® Low Temperature Holding Cabinet, double compartment, on/off simple controller with adjustable thermostats, indicator light, (2) sets of chrome plated universal side rails, (4) sets of pan slides, (16) 20" x 12" x 2-1/2" full size pan capacity, heavy stainless steel exterior, 5" casters; 2 rigid, 2 swivel with brakes, EcoSmart®, cULus, UL EPH Classified, CE, IPX4, TUV NORD, EAC, ENERGY STAR®
2. NOTE: Subject to Manufacturer's Terms & Conditions. See Documents Section
3. 120v/50/60/1-ph, 1.9 kW, 16.0 amps, NEMA 5-20P, standard
4. Reach-in design, standard
5. Solid door, hinged on right, standard
6. Model 1775 Water Reservoir Pan, for proofing
7. Model 1774 Water Reservoir Pan Cover

ITEM #98 HAND SINK

Dimensions: 12.75(h) x 17.25(w) x 15.25(d)
Quantity: One (1)
Manufacturer: Advance Tabco
Model: 7-PS-40

1. Model 7-PS-40 Hand Sink, wall mounted, 14" wide x 10" front-to-back x 5" deep bowl, 20 gauge 304 stainless steel, 7-3/4" high side splashes, with heavy duty splash mounted faucet, lever drain with overflow, P-trap, wall bracket, NSF, cCSAus

ITEM #99-100 SPARE NO.

ITEM #101 SOAP & TOWEL DISPENSER

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

1. Model G.F.G.I SOAP & TOWEL DISPENSER

ITEM #102 BACK SERVICE COUNTER

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

1. Model FABRICATED BACK SERVICE COUNTER
2. One (1) Serving Counter - To measure per site conditions. 34" High.
3. Standard Stainless top, 14 ga, Counter base to be stainless steel frame construction with flooring and shelving as required.
4. Counter to have 18 gauge stainless steel walls, hinged doors and hinged louvered doors as required.
5. Counter to sit on 6" high stainless steel legs with adjustable feet and have a toe kick as required. Counter to have convenience outlets as required.
6. Refer to fabrication details for additional specifications and details.

ITEM #103 UNDERCOUNTER REFRIGERATOR

Dimensions: 33.5(h) x 48(w) x 32(d)
Quantity: One (1)
Manufacturer: Traulsen
Model: UHT48-LR

1. Model UHT48-LR Dealer's Choice Compact Undercounter Refrigerator, Reach-in, two-section, 48" wide, stainless steel exterior top, sides & door, hinged left/right, anodized aluminum interior, galvanized exterior back & bottom, rear mounted, self-contained refrigeration, R290 Hydrocarbon refrigerant, (4) 4" casters, 1/5 hp, cETLus, ETL-Sanitation
2. 6-year parts & labor and 7 year compressor, standard. Visit www.traulsen.com for details
3. 115v/60/1-ph, 7.2 amps, 8' cord, NEMA 5-15P

ITEM #104 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. One year parts and labor warranty
4. (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 #105 SOAP & TOWEL DISPENSER

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

1. Model G.F.G.I SOAP & TOWEL DISPENSER

ITEM #106 HAND SINK

Dimensions: 12.75(h) x 17.25(w) x 15.25(d)
Quantity: One (1)
Manufacturer: Advance Tabco
Model: 7-PS-40

1. Model 7-PS-40 Hand Sink, wall mounted, 14" wide x 10" front-to-back x 5" deep bowl, 20 gauge 304 stainless steel, 7-3/4" high side splashes, with heavy duty splash mounted faucet, lever drain with overflow, P-trap, wall bracket, NSF, cCSAus

ITEM #107 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

ITEM #108 RAPID COOK OVEN

Dimensions: 61.16(h) x 48.88(w) x 32.81(d)
Quantity: One (1)
Manufacturer: TurboChef (Middleby)
Model: PLE-9500-1-DL-ICI

1. Model PLE-9500-1-DL-ICI TurboChef Plexor A3 - PLE-9500-1-DL-ICI Combination Oven, 3 decks, impinged air / convection / impinged air combination type, ventless, electric, 48.88" wide, right load, touch screen, Middleby Connect wifi ready, store over 1,000 recipes via USB or wifi, digital timer, autoload/unload, variable speed blower motor, internal catalytic converter, stainless steel exterior finish, includes open stand with castors, TurboChef Cleaner and Guard Starter Kit, includes (1) cleaner packet, (1) 24oz bottle, (1) Guard bottle and (2) foamer trigger, 208-240v/60/3-ph, 50 amps, NEMA 15-50P
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. Model PLEXOR-INSTALL Installation Program for PLEXOR Ovens, includes: delivery to customer from Taylor distributor, shipping damage protection, contact site location to confirm site is ready, (2) Taylor distributors will deliver, remove packaging, and install the oven in customer location, oven testing, end-user operational testing, creating and loading menus via USB, overview of troubleshooting and best practices (priced per oven) (NET)

ITEM #111 MOBILE PLATE AND DISH DISPENSER

Dimensions: 39.13(h) x 35.13(w) x 19.5(d)
Quantity: One (1)
Manufacturer: Lakeside Manufacturing
Model: 935

1. Model 935 Adjust-a Fit® Dish Dispenser, non-heated, cabinet style, enclosed base, mobile, (2) self-leveling dish dispensing tubes, maximum dish size 12" diameter, stainless steel construction, 4" swivel casters (2) with brakes, NSF, UL, Made in USA

ITEM #112 BACK SERVICE COUNTER W/ SINK

Quantity: One (1)
Manufacturer: Custom
Model: FABRICATED

1. Model FABRICATED BACK SERVICE COUNTER W/HANDSINK
2. One (1) Serving Counter - To measure per site conditions. 34" High.
   Standard Stainless top, 14 ga,
3. Counter base to be stainless steel frame construction with flooring and shelving as required.
4. Counter to have 18 gauge stainless steel walls, hinged doors and hinged louvered doors as required.
5. Counter to sit on 6" high stainless steel legs with adjustable feet and have a toe kick as required.
6. Counter to have (1) one 10"x14 handsink with faucet and splash guard,
7. Counter to have convenience outlets as required.

   Refer to fabrication details for additional specifications and details.

ITEM #112.1 DECK MOUNT FAUCET

Quantity: One (1)
Manufacturer: T&S Brass
Model: B-0221

1. Model B-0221 Mixing Faucet, deck mount, 12" swing nozzle, 8" centers on deck faucet with 1/2" IPS eccentric flanged female inlets, quarter-turn Eterna cartridges with spring checks, lever handles, low lead, ADA Compliant

ITEM #113 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 88204 Inset, 11 quart, induction ready, for Mirage induction rethermalizer, NSF (Refer to vollrathfoodservice.com for full warranty policy)
4. 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 #114 SPARE NO.

ITEM #115 HEATED HOLDING CABINET

Dimensions: 75.81(h) x 26.44(w) x 32.19(d)
Quantity: One (1)
Manufacturer: Alto-Shaam
Model: 1200-UP

1. Model 1200-UP Halo Heat® Low Temperature Holding Cabinet, double compartment, on/off simple controller with adjustable thermostats, indicator light, (2) sets of chrome plated universal side rails, (4) sets of pan slides, (16) 20" x 12" x 2-1/2" full size pan capacity, heavy stainless steel exterior, 5" casters; 2 rigid, 2 swivel with brakes, EcoSmart®, cULus, UL EPH Classified, CE, IPX4, TUV NORD, EAC, ENERGY STAR®
2. NOTE: Subject to Manufacturer's Terms & Conditions. See Documents Section
3. 120v/50/60/1-ph, 1.9 kW, 16.0 amps, NEMA 5-20P, standard
4. Reach-in design, standard
5. Solid door, hinged on right, standard

ITEM #116 MOBILE PLATE AND DISH DISPENSER

Dimensions: 39.13(h) x 35.13(w) x 19.5(d)
Quantity: One (1)

Manufacturer: Lakeside Manufacturing
Model: 935

1. Model 935 Adjust-a Fit® Dish Dispenser, non-heated, cabinet style, enclosed base, mobile, (2) self-leveling dish dispensing tubes, maximum dish size 12" diameter, stainless steel construction, 4" swivel casters (2) with brakes, NSF, UL, Made in USA

ITEM #117-118 SNEEZE GUARD, STATIONARY

Quantity: One (1)
Manufacturer: BSI
Model: XG3930

1. Model XG3930 XGuard™ Food Shield, single, self service, fully adjustable, 20-1/2" height, 14" wide tempered glass top & lower sneeze guard, 1" diameter tubing double supports, NSF-Component, cULus
2. Tubing to be specified (NOTE: aluminum may be used only on above counter mounts)
3. 1" radius corner, standard
4. Frame finish to be specified
5. Model 705 Stealth™ Warmer & Light Combo, (specify voltage & length), cULus, NSF
6. Voltage & Length to be specified
7. Model 3000K 3000K LED Lamp, 110v/50/60/1-ph, cULus, NSF
8. Remote Infinite, standard
9. Wiring exit point to be specified
10. Warmer finish to be specified

ITEM #120 SPARE NO.

ITEM #122 HOT / COLD FOOD WELL UNIT, DROP-IN, ELECTRIC

Dimensions: 27.75(h) x 72.69(w) x 26.13(d)
Quantity: Two (2)
Manufacturer: Randell
Model: RCHB-5-208-AF

1. Model RCHB-5-208-AF Drop-In Hot/Cold Food Unit, electric, (5) 12" x 20" pan size, common waterbath, switch for hot or cold operation, thermostatic controls, auto water fill, 1" drain & gate valve, 18 gauge stainless steel top & interior, corrosion resistant steel exterior, R290a, 1/4 HP, 4.4kW, cUL, UL, NSF, Made in USA (unit cutout size: 71-1/4"W x 25"D)
2. (1) year parts, labor, and compressor warranty, standard

3. 120/208v/60/1-ph, hardwired connection, standard

ITEM #124 COMPACT PREP TABLE REFRIGERATOR

Dimensions: 36(h) x 27(w) x 34.5(d)
Quantity: One (1)
Manufacturer: Traulsen
Model: UST279-D

1. Model UST279-D Dealer's Choice Compact Prep Table Refrigerator with low profile flat cover, (2) drawers, one-section, 27" wide, top rail holds (9) 1/6 pans 4" deep (included), drawers hold (6) 1/6 pans per drawer (not included), top rail & drawers can accommodate up to 6" deep pans. Full length reversible cutting board, stainless steel exterior top, sides & drawers, anodized aluminum interior, galvanized exterior back & bottom, rear mounted, self-contained refrigeration, R290 Hydrocarbon refrigerant, (4) 4" casters, 1/4 HP, cETLus, ETL-Sanitation
2. 6-year parts & labor and 7 year compressor, standard. Visit www.traulsen.com for details
3. 115v/60/1-ph, 7.2 amps, 8' cord, NEMA 5-15P

ITEM #127 EXHAUST HOOD

Dimensions: REFER TO PLAN AND SITE CONDITIONS
Quantity: One (1)
Manufacturer: CAPTIVE AIRE
Model: CUSTOM

1. A Type I, single island hood for use over 450°F/600°F/700°F cooking surface temperatures. Single island hoods are used over cooking equipment where no walls exist or for display cooking.
2. The hood shall have the size, shape, and performance specified on the submittal drawings.
3. The manufacturer shall supply complete computer generated submittal drawings, including hood section view(s) and hood plan view(s). These drawings must be available to the engineer, architect, and owner for their use in construction, operation, and maintenance.
4. Hood is ETL-listed to standard UL710, ULC710, and ULC-S646 when installed in accordance with these installation instructions and National Fire Protection Association Standard “NFPA 96, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.”
5. All units shall be provided with the following standard warranty: Equipment is warranted to be free from defects in materials and workmanship, under normal use and service, for a period of 2-years from date of shipment.
6. Construction shall be dependent on the structural application to minimize distortion and other defects. All seams, joints, and penetrations of the hood enclosure to the lower outermost perimeter, which directs and captures

grease-laden vapor and exhaust gases, shall have a liquid-tight continuous external weld in accordance with NFPA 96.

7. Duct sizes, CFM, and static pressure requirements shall be as shown on drawings. Static pressure requirements shall be precise and accurate; air velocity and volume information shall be accurate within 1-ft increments along the length of the ventilator.
8. Construction shall be type 304/430 stainless steel.
9. Double wall insulated front to eliminate condensation and increase rigidity on wide sizes. The insulation shall have a flexural modulus of 475 EI, meet UL 181 requirements and be in accordance with NFPA 90A and 90B.
10. Hood shall be equipped with a minimum of four connections for hanger rods. Hood lengths greater than 12' will have added hangers.
11. Exhaust duct collar to be 3" or 4" high with flange.
12. The grease drain system shall be an enclosed integral part of the hood back and have slopes with an exposed, removable 1/2 grease cup to facilitate cleaning.
13. Removable grease cup for easy cleaning.
14. Hood shall be furnished with UL classified filters, supplied in size and quantity as required by ventilator.
15. All seams shall be welded and have stainless steel on exposed surfaces.
16. Recessed LED light, 3K warm output.
17. L55 Series canopy light fixture, includes clear thermal and shock resistant globe.
18. Wire Guards
19. Fire Suppression System: UL 300 fire suppression system. «FIRESYSTEM»
20. Unexposed surfaces shall be constructed of aluminized steel. Plenum shall be insulated to prevent condensation.
21. Hood or Wall Mounted Utility Cabinet - The cabinet can store listed fire suppression system, listed components, and pre-wired electrical controls.

ITEM #128 INDUCTION RANGE, WOK, COUNTERTOP

Dimensions: 7.41(h) x 15.6(w) x 17.25(d)
Quantity: One (1)
Manufacturer: CookTek (Middleby)
Model: HTF-9500-WK35-1

1. Model HTF-9500-WK35-1 (MW3500G - formerly 621501) Induction Wok, countertop, 4.3" capacitive touch display, power percentage display options, temperature range from 85°F-425°F, portable design with stainless steel housing, 3500 watts, 240V

ITEM #129-130 SPARE NO.

ITEM #131 EQUIPMENT STAND, REFRIGERATED BASE

Dimensions: 26(h) x 48(w) x 34.13(d)
Quantity: One (1)
Manufacturer: Traulsen
Model: TE048HT

1. Model TE048HT Spec-Line Refrigerated Equipment Stand, 48'W, (4) 12' x 20' x 6' deep pan capacity, side by side, (2) drawers, self-contained refrigeration, stainless steel marine top, stainless steel interior & exterior, 4' casters, microprocessor controls, R290 Hydrocarbon refrigerant, 1/4 HP, 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. 115v/60/1-ph, 4.5 amps, cord with NEMA 5-15P plug
5. Compressor located on left side, standard
6. Casters, 4"H (set of 4), standard

ITEM #132 GRIDDLE, GAS, COUNTERTOP

Dimensions: 18.8(h) x 48(w) x 33.1(d)
Quantity: One (1)
Manufacturer: Vulcan
Model: VCCG48-AC

1. Model VCCG48-AC Heavy Duty Griddle, countertop, gas, 48" W x 24" D cooking surface, 3/4" thick Rapid Recovery™ composite plate, (4) burners, solid state thermostat every 12", atmospheric type "U" shaped aluminized steel burners, electronic spark ignition & pilot protection, wire knob guards, (1) drawer, stainless steel front, sides, front top ledge, front grease trough, 4" back & tapered side splashes, 4" adjustable legs, 120,000 BTU, CSA, NSF
2. 1 year limited parts & labor warranty, standard
3. Gas type to be specified
4. 120v/50/60/1-ph, 2 amp, NEMA 5-15P

ITEM #133 SNEEZE GUARD, STATIONARY

Quantity: One (1)
Manufacturer: BSI
Model: ZG9500-4

1. Model ZG9500-4 ZGuard® Food Shield, single, full-service/vertical partition, fully adjustable, 27" height, 24-1/2" wide tempered glass, 1" diameter tubing single supports

2. Tubing to be specified (NOTE: aluminum may be used only on above counter mounts)
3. Frame finish to be specified
4. 1" radius corner, standard

ITEM #134 MOBILE PLATE AND DISH DISPENSER

Dimensions: 39.13(h) x 35.13(w) x 19.5(d)
Quantity: One (1)
Manufacturer: Lakeside Manufacturing
Model: 935

1. Model 935 Adjust-a Fit® Dish Dispenser, non-heated, cabinet style, enclosed base, mobile, (2) self-leveling dish dispensing tubes, maximum dish size 12" diameter, stainless steel construction, 4" swivel casters (2) with brakes, NSF, UL, Made in USA

ITEM #135 PANINI GRILL

Dimensions: 22(h) x 17(w) x 17(d)
Quantity: One (1)
Manufacturer: Equipex LLC
Model: PANINI

1. Model PANINI Roller Grill Panini Grill, cast iron grooved top & grooved bottom griddle plates, 14"W x 9-1/2"D grill area, adjustable spring counterbalanced top, front drip tray & scraper, grills with stainless steel construction, 570°F thermostatic controls, cULus, cULus Classified
2. Limited 1 year parts & labor warranty
3. 208/240v/60/1-ph, 12.0/14.0 amps, 3.0 kW, cord, NEMA 6-15P
4. Grooved top & grooved bottom plates, standard

ITEM #136 BACK SERVICE COUNTER

Quantity: One (1)
Manufacturer: Custom
Model: FABRICATED

1. Model FABRICATED BACK SERVICE COUNTER
2. One (1) Serving Counter - To measure per site conditions. 34" High.
   Standard Stainless top, 14 ga,
3. Counter base to be stainless steel frame construction with flooring and shelving as required.
4. Counter to have 18 gauge stainless steel walls, hinged doors and hinged louvered doors as required.

5. Counter to sit on 6" high stainless steel legs with adjustable feet and have a toe kick as required.
6. Counter to have convenience outlets as required.

Refer to fabrication details for additional specifications and details.

ITEM #137 UNDERCOUNTER REFRIGERATOR

Dimensions: 33.5(h) x 48(w) x 32(d)
Quantity: One (1)
Manufacturer: Traulsen
Model: UHT48-LR

1. Model UHT48-LR Dealer's Choice Compact Undercounter Refrigerator, Reach-in, two-section, 48" wide, stainless steel exterior top, sides & door, hinged left/right, anodized aluminum interior, galvanized exterior back & bottom, rear mounted, self-contained refrigeration, R290 Hydrocarbon refrigerant, (4) 4" casters, 1/5 hp, cETLus, ETL-Sanitation
2. 6-year parts & labor and 7 year compressor, standard. Visit www.traulsen.com for details
3. 115v/60/1-ph, 7.2 amps, 8' cord, NEMA 5-15P

ITEM #138 UNIVERSAL PAN RACK

Dimensions: 69.75(h) x 20.38(w) x 26.38(d)
Quantity: One (1)
Manufacturer: New Age
Model: 1305

1. Model 1305 Rack, mobile, universal, open frame design, square tube construction, (12) universal slides, 5" centers, all-welded aluminum construction, end loading, slides for 12" x 20", 18" x 26" & 13" x 18" pans, 3-1/4" wide runners, (4) 5" platform casters, NSF, Made in USA, (standard factory lead time)
2. Lifetime warranty against rust & corrosion, 5 year workmanship and material defects warranty, standard

ITEM #139-140 SPARE NO.

ITEM #141 HAND SINK

Dimensions: 12.75(h) x 17.25(w) x 15.25(d)
Quantity: One (1)
Manufacturer: Advance Tabco
Model: 7-PS-40

1. Model 7-PS-40 Hand Sink, wall mounted, 14" wide x 10" front-to-back x 5" deep bowl, 20 gauge 304 stainless steel, 7-3/4" high side splashes, with heavy duty splash mounted faucet, lever drain with overflow, P-trap, wall bracket, NSF, cCSAus

ITEM #142 SOAP & TOWEL DISPENSER

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

1. Model G.F.G.I SOAP & TOWEL DISPENSER

ITEM #143 ROLL-IN FREEZER

Dimensions: 89.13(h) x 68(w) x 35.56(d)
Quantity: One (1)
Manufacturer: Traulsen
Model: RIF232H-FHS

1. Model RIF232H-FHS Spec-Line Freezer, (REMOTE MODEL), Roll-in, Two-Section, remote refrigeration, stainless steel exterior & interior, standard depth cabinet, full-height doors, for 72" high racks (by others) with microprocessor controls, unit can be programmed to operate at -10°F, cETLus, ETL-Sanitation
2. 6-year parts & labor, standard. Visit www.traulsen.com for details
3. 115v/60/1-ph, 7.0 amps, cord with NEMA 5-15P, standard
4. R407A TXV, standard
5. Left door hinged left/right hinged right, standard

ITEM #144 CONVECTION OVEN / PROOFER, ELECTRIC

Dimensions: 77.75(h) x 38.5(w) x 30.75(d)
Quantity: One (1)
Manufacturer: NU-VU (Middleby)
Model: QBT-3/9

1. Model QBT-3/9 Oven/Proofer, electric, oven (3) 18 "x 26" or (6) 13 " x 18", proofer (9) 18 "x 26" or (18) 13 " x 18" pan capacities, touch screen programmable controls, AUTOMIST™ proofer, (2) dual pane cool-to-the touch glass doors, V-Air® technology, separate heat & humidity controls for proofer, stainless steel construction, heavy duty casters, 6.7kW, cETLus, NSF, Made in USA
2. Doyon & NU-VU requires all equipment purchased for shipment outside the countries of US & Canada must complete an Electrical Questionnaire form. This form helps ensure that

all equipment is to the correct spec of the site & country. You can download the form at https://doyonnuvubaking.com/Sales/Forms/ElectricalQuestionnaire.pdf. Any questions please contact our factory by phone 800-338-9886 or email sales@nu-vu.com. Thank you.

3. Note: Accessories must be ordered with equipment in order to qualify for any additional discounts or special freight pricing. Any questions please contact Doyon/NU-VU.
4. Factory Note: This unit is engineered, designed, and built to be used in specific foodservice applications. It is intended for on-site premise batch baking of a single dough product with specific profiles and baking parameters. This unit is not recommended for general market use, unless confirmed by NU-VU Culinary Support. By quoting this product, you are acknowledging NU-VU's recommended use of the unit.
5. Two year parts and one year labor warranty, standard
6. NOTE: Installation and startup are not included in the pricing for any item. Startup and installation are the responsibility of the buyer, its agent, contractor, as the case may be.
7. 208v/60/1-ph, 32.0 amps, 2-wire system with ground
8. Door hinged on left

ITEM #146 FRYMATE HOLDING STATION

Dimensions: 36.25(h) x 15.5(w) x 30.13(d)
Quantity: One (1)
Manufacturer: Vulcan
Model: FRYMATE VX15

1. Model FRYMATE VX15 Frymate™ Holding Station, free standing or add-on unit, 15-1/2" wide, 30-1/8" depth, stainless steel cabinet base, stainless steel top drain section with removable grease collector, set of 4 casters (2 locking), connecting strip & hardware included, (for 35-65 lb capacity gas or electric fryers)
2. 1 year limited parts & labor warranty, standard

ITEM #147 GAS FLOOR FRYER

Dimensions: 47.25(h) x 15.5(w) x 30.13(d)
Quantity: One (1)
Manufacturer: Vulcan
Model: 1TR45D

1. Model 1TR45D PowerFry3™ Fryer, gas, high efficiency, 15-1/2" W, free-standing, 45-50 lbs. capacity, solid state digital control with melt cycles, ThreePass™ heat transfer system, electronic ignition, twin baskets, stainless steel cabinet & fry tank, adjustable casters (2 swivel locking & 2 non-locking), 70,000 BTU, CSA, CSA STAR, NSF, ENERGY STAR®

2. 1 year limited parts & labor warranty, standard
3. 10 year limited tank warranty, standard.
4. Gas type to be specified
5. 120v/60/1-ph, with cord & plug, standard

ITEM #148 GRIDDLE, GAS, COUNTERTOP

Dimensions: 18.8(h) x 48(w) x 33.1(d)
Quantity: One (1)
Manufacturer: Vulcan
Model: VCCG48-AC

1. Model VCCG48-AC Heavy Duty Griddle, countertop, gas, 48" W x 24" D cooking surface, 3/4" thick Rapid Recovery™ composite plate, (4) burners, solid state thermostat every 12", atmospheric type "U" shaped aluminized steel burners, electronic spark ignition & pilot protection, wire knob guards, (1) drawer, stainless steel front, sides, front top ledge, front grease trough, 4" back & tapered side splashes, 4" adjustable legs, 120,000 BTU, CSA, NSF
2. 1 year limited parts & labor warranty, standard
3. Gas type to be specified
4. 120v/50/60/1-ph, 2 amp, NEMA 5-15P

ITEM #149-150 SPARE NO.

ITEM #151 EQUIPMENT STAND, REFRIGERATED BASE

Dimensions: 26(h) x 48(w) x 34.13(d)
Quantity: One (1)
Manufacturer: Traulsen
Model: TE048HT

1. Model TE048HT Spec-Line Refrigerated Equipment Stand, 48'W, (4) 12' x 20' x 6' deep pan capacity, side by side, (2) drawers, self-contained refrigeration, stainless steel marine top, stainless steel interior & exterior, 4' casters, microprocessor controls, R290 Hydrocarbon refrigerant, 1/4 HP, 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. 115v/60/1-ph, 4.5 amps, cord with NEMA 5-15P plug
5. Compressor located on left side, standard
6. Casters, 4"H (set of 4), standard

ITEM #152 CHARBROILER, GAS, COUNTERTOP

Dimensions: 15.5(h) x 46.88(w) x 31(d)
Quantity: One (1)
Manufacturer: Vulcan
Model: VACB47

1. Model VACB47 Achiever Charbroiler, countertop, 46-7/8", (8) 17,000 BTU cast iron burners, infinite heat control valves, fully welded chassis, (2) drip trays, stainless steel front, sides & top trim, backsplash & grease trough, 4" adjustable legs, 136,000 BTU, CSA, NSF
2. 1 year limited parts & labor warranty, standard
3. Gas type to be specified
4. Model 3/4QD HOSE-4 3/4" x 4' long gas flex hose & quick disconnect with restraining device

ITEM #153 EQUIPMENT STAND, REFRIGERATED BASE

Dimensions: 26(h) x 48(w) x 34.13(d)
Quantity: One (1)
Manufacturer: Traulsen
Model: TE048HT

1. Model TE048HT Spec-Line Refrigerated Equipment Stand, 48'W, (4) 12' x 20' x 6' deep pan capacity, side by side, (2) drawers, self-contained refrigeration, stainless steel marine top, stainless steel interior & exterior, 4' casters, microprocessor controls, R290 Hydrocarbon refrigerant, 1/4 HP, 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. 115v/60/1-ph, 4.5 amps, cord with NEMA 5-15P plug
5. Compressor located on left side, standard
6. Casters, 4"H (set of 4), standard

ITEM #154 EXHAUST HOOD

Dimensions: REFER TO EQUIPMENT PLANS
Quantity: One (1)
Manufacturer: CAPTIVE AIRE
Model: CUSTOM

22. The BD2 series is a Type I, low proximity hood for use over 450°F/600°F/700°F cooking surface temperatures. The low proximity hood refers to the close location of the hood with respect to the cooking appliances.

23. The ND2 series is a Type I, wall canopy hood for use over 450°F/600°F/700°F cooking surface temperatures. The aerodynamic design includes a mechanical baffle and performance enhancing lip for exceptional capture and containment. are used over cooking equipment where no walls exist or for display cooking.
24. The manufacturer shall supply complete computer generated submittal drawings, including hood section view(s) and hood plan view(s). These drawings must be available to the engineer, architect, and owner for their use in construction, operation, and maintenance.

25. This hood is ETL-listed to standard UL710, ULC710, and ULC-S646 when installed in accordance with these installation instructions and National Fire Protection Association Standard "NFPA 96, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations."
26. Built-in compliance with NSF/ANSI Standard 2.
27. All units shall be provided with the following standard warranty: Equipment is warranted to be free from defects in materials and workmanship, under normal use and service, for a period of 2-years from date of shipment.
28. Construction shall be dependent on the structural application to minimize distortion and other defects. All seams, joints, and penetrations of the hood enclosure to the lower outermost perimeter, which directs and captures grease-laden vapor and exhaust gases, shall have a liquid-tight continuous external weld in accordance with NFPA 96.
29. Duct sizes, CFM, and static pressure requirements shall be as shown on drawings. Static pressure requirements shall be precise and accurate; air velocity and volume information shall be accurate within 1-ft increments along the length of the ventilator.

30. Construction shall be type 304/430 stainless steel.
31. Double wall insulated front to eliminate condensation and increase rigidity on wide sizes. The insulation shall have a flexural modulus of 475 EI, meet UL 181 requirements and be in accordance with NFPA 90A and 90B.
32. Hood shall be equipped with a minimum of four connections for hanger rods. Hood lengths greater than 12' will have added hangers.
33. Exhaust duct collar to be 3" or 4" high with flange.
34. The grease drain system shall be an enclosed integral part of the hood back and have slopes with an exposed, removable 1/2 grease cup to facilitate cleaning.
35. Removable grease cup for easy cleaning.
36. Hood shall be furnished with UL classified filters, supplied in size and quantity as required by ventilator.
37. All seams shall be welded and have stainless steel on exposed surfaces.
38. Recessed LED light, 3K warm output.
39. L55 Series canopy light fixture, includes clear thermal and shock resistant globe.
40. Wire Guards

41. Fire Suppression System: UL 300 fire suppression system. «FIRESYSTEM»
42. Unexposed surfaces shall be constructed of aluminized steel. Plenum shall be insulated to prevent condensation.
43. Hood or Wall Mounted Utility Cabinet - The cabinet can store listed fire suppression system, listed components, and pre-wired electrical controls.

ITEM #157 HEATED HOLDING / WARMING BIN

Dimensions: 11.8(h) x 26(w) x 14.13(d)
Quantity: One (1)
Manufacturer: Duke Manufacturing
Model: R FHU-23

1. Model RFHU-23 ReadyFlex™ Hot Holding Cabinet, (2) compartment high, (3) compartment wide, 26"W x 14-1/8"D x 11-4/5"H, holds 2.5" deep pans, pans are not included, full color touchscreen control, independent top and bottom zoned heat, individual & interchangeable pan lids, includes 3 solid and 3 vented lids, audible alarm, stainless steel construction, CE, cULus, UL EPH Classified
2. 120v/60/1-ph, 10.0 amps, NEMA 5-15P

ITEM #158 BACK SERVICE COUNTER

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

1. Model FABRICATED BACK SERVICE COUNTER
2. One (1) Serving Counter - To measure per site conditions. 34" High.
   Standard Stainless top, 14 ga,
3. Counter base to be stainless steel frame construction with flooring and shelving as required.
4. Counter to have 18 gauge stainless steel walls, hinged doors and hinged louvered doors as required.
5. Counter to sit on 6" high stainless steel legs with adjustable feet and have a toe kick as required.
6. Counter to have convenience outlets as required.

   Refer to fabrication details for additional specifications and details.

ITEM #159-160 SPARE NO.

ITEM #162 MOBILE PLATE AND DISH DISPENSER

Dimensions: 39.13(h) x 35.13(w) x 19.5(d)
Quantity: Two (2)
Manufacturer: Lakeside Manufacturing
Model: 935

1. Model 935 Adjust-a Fit® Dish Dispenser, non-heated, cabinet style, enclosed base, mobile, (2) self-leveling dish dispensing tubes, maximum dish size 12" diameter, stainless steel construction, 4" swivel casters (2) with brakes, NSF, UL, Made in USA

ITEM #163 HEAT LAMP

Quantity: One (1)
Manufacturer: BSI
Model: 705

1. Model 705 Stealth™ Warmer & Light Combo, (specify voltage & length), cULus, NSF
2. Voltage & Length to be specified
3. Lamp type to be specified
4. Remote Infinite, standard
5. Wiring exit point to be specified

ITEM #164 HEATED SHELF FOOD WARMER

Dimensions: 2.16(h) x 37.63(w) x 19.63(d)
Quantity: One (1)
Manufacturer: Hatco
Model: HBGB-3618

1. Model HBGB-3618 Heated Base Glass Shelf, built-in, 36"L, ceramic glass surface, uniform heat, 100° - 200°F thermostatic control with lighted on/off rocker switch, choice of frame finish, cULus, UL EPH Classified
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. 1-Yr Warranty on Blanket Heating Elements against burnout, standard
5. 120v/60/1-ph, 630 watts, 5.3 amps, NEMA 5-15P (domestic voltage), standard
6. NOTE: Recommended for use in metallic countertop, verify that the material is suitable for temperatures up to 200°F
7. Model HBGB-GLASS-BLK Black finished ceramic glass, standard
8. Stainless steel trim ring (standard)
9. Flat top surface, standard

10. Thermostat control with lighted rocker switch, standard
11. Stainless steel bezel only (standard)

ITEM #165 SNEEZE GUARD, STATIONARY

Quantity: One (1)
Manufacturer: BSI
Model: XG3930

1. Model XG3930 XGuard™ Food Shield, single, self service, fully adjustable, 20-1/2" height, 14" wide tempered glass top & lower sneeze guard, 1" diameter tubing double supports, NSF-Component, cULus
2. Tubing to be specified (NOTE: aluminum may be used only on above counter mounts)
3. 1" radius corner, standard
4. Frame finish to be specified
5. Model 2580 Slimline Light, 1-1/2" x 1-3/8", (specify length), cULus, NSF
6. Model 3000K 3000K LED Lamp, 110v/50/60/1-ph, cULus, NSF
7. Remote Infinite, standard
8. Wiring exit point to be specified
9. Lighting frame finish to be specified
10. Housing length to be specified

ITEM #167 MEGA TOP SANDWICH / SALAD PREPARATION REFRIGERATOR

Dimensions: 31.63(h) x 48.25(w) x 35.75(d)
Quantity: One (1)
Manufacturer: Turbo Air
Model: PST-48-18-N-GL

1. Model PST-48-18-N-GL PRO Series Mega Top Sandwich/Salad Prep Table with Glass Lid, two-section, rear mount self-contained compressor, 15.0 cu. ft., 48-1/4"W x 36-3/4"D x 31-3/4"H, (18) 1/6 size 4"deep pans, (2) solid hinged swing doors with locks, aluminum door liner, (2) stainless steel shelves, 6-1/4" deep cutting board with side rail, digital temperature control & monitor system, cold bunker system, stainless steel interior & exterior (galvanized bottom), LED interior lighting & fan control, self-cleaning condenser, R290 Hydrocarbon refrigerant, 1/5 HP, 115v/60/1-ph, 6.5 amps, NEMA 5-15P, cETLus, ETL-Sanitation, Made in USA (contact sales for lead time)
2. Note: Contact factory representative for parts & accessories discounts
3. 5 year parts & labor warranty, standard
4. 7 year compressor warranty (self-contained only)
5. 1/6 size, 4" deep condiment pan & pan dividers included, standard
6. Non-Standard mounting options below:

ITEM #168 DISPLAY MERCHANDISER, HEATED, FOR MULTI-PRODUCT

Dimensions: 32.4(h) x 36(w) x 24.29(d)
Quantity: One (1)
Manufacturer: Hatco
Model: GRSDS-36D

1. Model GRSDS-36D Glo-Ray® Merchandising Warmer, countertop, 36" long, (14) rods, pass thru design, with (2) shelves, forward-slanted shelves, pre-focused infrared top heat, tempered glass sides, stainless steel & aluminum construction, 4" legs, 1810 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. 120v/60/1-ph, 1810 watts, 15.1 amps, NEMA 5-20P (domestic voltage), standard
6. Model GGRAY Glossy gray, gloss finish, (available at time of purchase only)
7. Open Customer Side, upper, standard
8. Open Customer Side, lower, standard

ITEM #169-170 SPARE NO.

ITEM #172 MEGA TOP SANDWICH / SALAD PREPARATION REFRIGERATOR

Dimensions: 32.12(h) x 60.25(w) x 34.62(d)
Quantity: One (1)
Manufacturer: Turbo Air
Model: PST-60-24-N-GL

1. Model PST-60-24-N-GL PRO Series Mega Top Sandwich/Salad Prep Table with Glass Lid, two-section, rear mount self-contained compressor, 19.0 cu. ft., 60-1/4"W x 36-3/4"D x 31-3/4"H, (24) 1/6 size 4"deep pans, (2) solid hinged swing doors with locks, aluminum door liner, (2) stainless steel shelves, 6-1/4" deep cutting board with side rail, digital temperature control & monitor system, cold bunker system, stainless steel interior & exterior (galvanized bottom), LED interior lighting & fan control, self-cleaning condenser, R290 Hydrocarbon refrigerant, 1/5 HP, 115v/60/1-ph, 8.9 amps, NEMA 5-15P, cETLus, ETL-Sanitation, Made in USA (contact sales for lead time)
2. Note: Contact factory representative for parts & accessories discounts
3. 5 year parts & labor warranty, standard

4. 7 year compressor warranty (self-contained only)
5. 1/6 size, 4" deep condiment pan & pan dividers included, standard
6. Non-Standard mounting options below:

ITEM #173-174 SNEEZE GUARD, STATIONARY

Quantity: One (1)
Manufacturer: BSI
Model: XG3930

1. Model XG3930 XGuard™ Food Shield, single, self service, fully adjustable, 20-1/2" height, 14" wide tempered glass top & lower sneeze guard, 1" diameter tubing double supports, NSF-Component, cULus
2. Tubing to be specified (NOTE: aluminum may be used only on above counter mounts)
3. 1" radius corner, standard
4. Frame finish to be specified
5. Model 2580 Slimline Light, 1-1/2" x 1-3/8", (specify length), cULus, NSF
6. Model 3000K 3000K LED Lamp, 110v/50/60/1-ph, cULus, NSF
7. Remote Infinite, standard
8. Wiring exit point to be specified
9. Lighting frame finish to be specified
10. Housing length to be specified

ITEM #175-179 SPARE NO.

ITEM #182 CONDIMENT DSIPENSER-PUMP STYLE

Quantity: One (1)
Manufacturer: Star (Middleby)
Model: CD3S

ITEM #183 NAPKIN DISPENSER

Quantity: Four (4)
Manufacturer: Stainless Fabricating
Model: FABRICATED

1. Model FABRICATED NAPKIN DISPENSER

ITEM #184 PUMP CONDIMENTS

Quantity: (10)
Manufacturer: Custom

1. PUMP CONDIMENTS

ITEM #185 FLATWARE HOLDER, CYLINDER HOLDER / DISPENSER

Dimensions: 12.63(h) x 10.13(w) x 16(d)
Quantity: Two (2)
Manufacturer: Vollrath
Model: CTFWH-6B

1. Model CTFWH-6B Flatware Holder, countertop, 10-1/8"W x 16"D x 12-5/8"H, (6) compartments (3 high x 2 wide), includes (6) 52633 flatware cylinders, black ABS & smoked acrylic construction (Refer to vollrathfoodservice.com for full warranty policy)

ITEM #186 TRASH RECEPTACLE, INDOOR

Dimensions: 30(h) x 22(w) x 11(d)
Quantity: One (1)
Manufacturer: Rubbermaid Commercial Products
Model: FG354060BLA

1. Model FG354060BLA Slim Jim® Container, 23 gallon, 22"W x 11"D x 30"H, with venting channels, molded-in handles, general purpose waste, open type without lid, high-impact plastic construction, black, Made in USA

ITEM #187-200 SPARE NO.

END OF SECTION