SECTION 111313

LOADING DOCK BUMPERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes loading dock bumpers.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of loading dock bumper.

B. Shop Drawings: For dock bumpers. Include plans, elevations, sections, details, and attachments to other work.

PART 2 - PRODUCTS

2.1 DOCK BUMPERS

A. General: Surface-mounted bumpers; of type, size, and construction indicated; designed to absorb kinetic energy and minimize damage to loading dock structure.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Pioneer Dock Equipment.
      b. Rite-Hite Holding Corporation.
      c. Rotary Products Inc.

B. Laminated-Tread Dock Bumper: Fabricated from multiple, uniformly thick plies cut from fabric-reinforced rubber tires. Laminate plies under pressure on not less than two 3/4-inch-diameter, steel supporting rods that are welded at one end to 1/4-inch- thick, structural-steel end angle and secured with a nut and angle at the other end. Fabricate angles with predrilled anchor holes and sized to provide not less than 1 inch of tread plies extending beyond the face of closure angles.
   1. Thickness: 4-1/2 inches.
   2. Vertical Style: 8 inches wide by 20 inches high.

C. Materials: ASTM 36/A 36M for steel plates, shapes, and bars. Hot-dip galvanize according to ASTM A 123/A 123M.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Dock Bumpers: Attach dock bumpers to face of loading dock in a manner that complies with requirements indicated for spacing, arrangement, and position relative to top of platform and anchorage.
   1. Welded Attachment: Plug-weld anchor holes in contact with steel inserts and fillet weld at other locations.

3.3 ADJUSTING

A. After completing installation of exposed, factory-finished dock bumpers, inspect exposed finishes and repair damaged finishes.

END OF SECTION 111313

SECTION 111319

STATIONARY LOADING DOCK EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
1. Edge-of-dock levelers.

1.3 DEFINITIONS

A. Operating Range: Maximum amount of travel above and below the loading dock level.

B. Working Range: Recommended amount of travel above and below the loading dock level for which loading and unloading operations can take place.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.
1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for stationary loading dock equipment.
2. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

B. Shop Drawings: For stationary loading dock equipment.
1. Include plans, elevations, sections, details, and attachments to other work.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of anchors and field connection.
3. Include diagrams for power, signal, and control wiring.

1.5 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each dock leveler, for tests performed by manufacturer and witnessed by a qualified testing agency.
1. Indicate compliance of dock levelers with requirements in MH 30.1 for determining rated capacity, which is based on comprehensive testing within last two years of current products.
2. Submittal Form: According to MH 30.1.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For stationary loading dock equipment to include in operation and maintenance manuals.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.
1. Maintenance Proximity: Not more than [two] <Insert number> hours' normal travel time from Installer's place of business to Project site.

1.8 FIELD CONDITIONS

A. Field Measurements: Verify actual dimensions of construction contiguous with stationary loading dock equipment, including [recessed pit dimensions] [slopes of driveways] [and] [heights of loading docks], by field measurements before fabrication.

1.9 WARRANTY

A. Manufacturer's Special Warranty: Manufacturer agrees to repair or replace dock levelers that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Structural failures including cracked or broken structural support members, load-bearing welds, and front and rear hinges.
      b. Faulty operation of operators, control system, or hardware.
      c. Deck plate failures including cracked plate or permanent deformation in excess of 1/4 inch between deck supports.
      d. Hydraulic system failures including failure of hydraulic seals and cylinders.
   2. Warranty Period for Structural Assembly: [10] <Insert number> years from date of Substantial Completion.
   3. Warranty Period for Hydraulic System: [Five] <Insert number> years from date of Substantial Completion.
   4. Warranty shall be for unlimited usage of leveler for the specified rated capacity over the term of the warranty.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 EDGE-OF-DOCK LEVELERS

A. General: Surface-mounted, hinged-lip-type, edge-of-dock levelers designed for permanent installation on face of loading dock platform; of type, function, operation, capacity, size, and construction indicated; and complete with controls, safety devices, and accessories required.
   1. Manufacturers: Subject to compliance with requirements, [provide products by the following] [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:
   2. Basis-of-Design Product: Subject to compliance with requirements, provide [product indicated on Drawings] <Insert manufacturer's name; product name or designation> or comparable product by one of the following:
      a. Blue Giant Equipment Corporation.
      b. Nordock Inc.
      c. Pentalift Equipment Corporation.
      d. Pioneer Dock Equipment.
      e. Rotary Products Inc.

B. Standard: Comply with MH 30.1[, except for structural testing to establish rated capacity].

C. Rated Capacity: Capable of supporting total gross load of <Insert load> without permanent deflection or distortion.

D. Platform Ramp Width: 78 inches.

E. Hinged Lip: Not less than 1/2-inch- thick, nonskid steel tread plate.

1. Hinge: Full-width, piano-type hinge with heavy-wall hinge tube [and grease fittings], with gussets on lip and ramp for support.

F. Function: Dock levelers shall compensate for differences in height between truck bed and loading platform.
   1. Automatic Vertical Compensation: Floating travel of ramp with lip extended and resting on truck bed shall compensate automatically for upward or downward movement of truck bed during loading and unloading.
   2. Lip Operation: Manufacturer's standard mechanism, which automatically extends and supports hinged lip on ramp edge with lip resting on truck bed over dock leveler's working range, allows lip to yield under impact of incoming truck and automatically retracts lip when truck departs.
      a. Length of Lip Extension: 15 inches.
   3. Automatic Ramp Return: Automatic return of unloaded ramp, from raised or lowered positions to stored position, level with platform, as truck departs. Leveler shall be capable of retracting to stored position while truck is at loading dock.

G. Hydraulic Operating System: Electric control from a remote-control station; fully hydraulic operation. Electric-powered hydraulic raising and hydraulic lowering of ramp. Equip leveler with a packaged unit including a unitized, totally enclosed, non-ventilated electric motor, pump, manifold reservoir, and valve assembly of proper size, type, and operation for capacity of leveler indicated. Provide a hydraulic velocity fuse connected to main hydraulic cylinder to limit loaded ramp's free fall to not more than 3 inches.
   1. Remote-Control Station: [Weatherproof single] [Single]-button station of the constant-pressure type, enclosed in NEMA ICS 6, [Type 12] <Insert type> box. Ramp and lip raise to vertical position and extend to truck bed by depressing and holding button.

H. Construction: Fabricate dock-leveler frame, platform supports, and lip supports from structural- and formed-steel shapes. Weld platform and hinged lip to supports. Fabricate entire assembly to withstand deformation during both operating and stored phases of service. Chamfer lip edge to minimize obstructing wheels of material-handling vehicles.
   1. Cross-Traffic Support: Manufacturer's standard method of supporting ramp at platform level in stored position with lip retracted. Provide a means to release supports to allow ramp to descend below platform level.
   2. Maintenance Strut: Integral strut to positively support ramp in up position during maintenance of dock leveler.

I. Integral Laminated-Tread Dock Bumper: Fabricated from 4-1/2-inch- thick, multiple, uniformly thick plies cut from fabric-reinforced rubber tires. Laminate plies under pressure on not less than two 3/4-inch- diameter, steel supporting rods that are welded at one end to 1/4-inch- thick, structural-steel end angle and secured with a nut and angle at the other end. Fabricate angles with predrilled anchor holes and sized to provide not less than 1 inch of tread plies extending beyond the face of closure angles.

J. Materials:
   1. Steel Plates, Shapes, and Bars: ASTM 36/A 36M.

K. Dock-Leveler Finish: Manufacturer's standard finish.

L. Accessories:
   1. Self-forming pan.
   2. Cast-in-place design.
   3. Run-off guards.
   4. Ramp approach plate.

2.3 FINISH REQUIREMENTS

A. Finish loading dock equipment after assembly and testing.

B. Galvanizing: Hot-dip galvanize components to comply with the following:
   1. ASTM A 123/A 123M for iron and steel loading dock equipment.
   2. ASTM A 153/A 153M or ASTM F 2329 for iron and steel hardware for loading dock equipment.

C. Finish: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat in manufacturer's standard color.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roughing-in for electrical systems for loading dock equipment to verify actual locations of connections before equipment installation.

C. Examine walls and floors of pits for suitable conditions where recessed loading dock equipment is to be installed. Pits shall be plumb and square and properly sloped for drainage from back to front of loading dock.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Coordinate size and location of loading dock equipment indicated to be attached to or recessed into concrete or masonry, and furnish anchoring devices with templates, diagrams, and instructions for their installation.

B. Place self-forming pan system for edge-of-dock levelers in proper relation to loading platform before pouring concrete.

C. Clean recessed pits of debris.

3.3 INSTALLATION

A. General: Install loading dock equipment as required for a complete installation.
   1. Rough-in electrical connections.

B. Edge-of-Dock Levelers: Attach dock levelers to loading dock platform in a manner that complies with requirements indicated for arrangement and position relative to top of platform.
   1. Weld anchor holes in contact with continuous embedded loading dock edge channel. Weld or bolt bumper blocks to face of loading dock.

3.4 ADJUSTING

A. Adjust loading dock equipment to function smoothly and safely, and lubricate as recommended by manufacturer.

B. Test dock levelers for vertical travel within operating range indicated.

C. After completing installation of exposed, factory-finished loading dock equipment, inspect exposed finishes and repair damaged finishes.

3.5 MAINTENANCE SERVICE

A. Maintenance Service: Beginning at Substantial Completion, maintenance service shall include [12] <Insert number> months' full maintenance by skilled employees of loading dock equipment Installer. Include [monthly] [quarterly] preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper loading dock equipment operation at rated speed and capacity. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.

3.6 DEMONSTRATION

A. [Engage a factory-authorized service representative to train] [Train] Owner's maintenance personnel to adjust, operate, and maintain loading dock equipment.

END OF SECTION 111319

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SECTION 112429

TIE-BACK AND LIFE-LINE ANCHORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes: The work specified in this Section includes, but shall not be limited to, the design, supply, and installation of tie-back and life-line anchors for window washing operations.
   1. Related work not specified in this Section includes, but shall not be limited to the following:
      a. Electrical conduit, wiring, and outlets on the roof (single-phase, 30 amperes, 208 volts, 60 hertz).
      b. Water supply, faucets, and drain near the roof.

1.3 SYSTEM DESCRIPTION

A. Design Requirements**:**
   1. Design system that complies with the occupational, health, and safety standards for the State in which the Project is located.
   2. Design system components to provide adequate attachment means suited to current window washing practices and compatible with industry standard equipment.
   3. Ensure that anchor components and horizontal life-lines comply with proper engineering principles and have been designed by a manufacturer qualified in window cleaning applications and safety.

1.4 ACTION SUBMITTALS

A. Product Data: Submit product data showing material proposed. Submit sufficient information to determine compliance with the Drawings and Specifications.

B. Shop Drawings: Submit shop drawings for each product and accessory required. Include information not fully detailed in manufacturer's standard product data. Submit shop drawings showing complete layout and configuration of system, anchor locations, horizontal life-line, and accessories. Clearly indicate design and fabrication details, window drops, hardware, and installation details. Shop drawings shall comply with applicable occupational, health, and safety standards for the State in which the Project is located and shall include, but shall not be limited to, necessary restrictive and non-restrictive working usage notes and general safety notes.
   1. Shop drawings shall be signed and sealed by the professional engineer.

1.5 INFORMATIONAL SUBMITTALS

A. Quality Control Submittals:
   1. Qualification Data: Submit qualification data for firms and persons specified in Quality Assurance Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names of architects and owners, and other information specified.
   2. Certificates: Submit welder certificates signed by the Contractor certifying that welders comply with requirements specified under the Quality Assurance Article.

1.6 CLOSEOUT SUBMITTALS

A. Contract Closeout Submittals:
   1. Log: Submit a safety inspection log book for yearly inspections.
   2. Project Record Documents: Submit copies of a reduced plastic-laminated project record shop drawing showing anchor locations and details. This drawing shall be posted near exits leading onto the roof(s).

1.7 QUALITY ASSURANCE

A. Qualification Data:
   1. Manufacturer Qualifications: Manufacturer shall be a firm engaged in the manufacture of tie-back and life-line anchors of types and sizes required, and whose products have been in satisfactory use in similar service for a minimum of five years.
   2. Installer Qualifications: Installer shall be a firm that shall have a minimum of five years of successful installation experience with projects utilizing tie-back and life-line anchors similar in type and scope to that required for this Project.
   3. Engineer Qualifications: The engineer shall be a professional engineer legally authorized to practice in the jurisdiction where the Project is located and experienced in providing engineering services of the kind indicated that have resulted in the installation of products similar to this Project in material, design, and extent, and that have a record of successful in-service performance.

B. Regulatory Requirements: Comply with applicable requirements of the laws, codes, ordinances, and regulations of Federal, State, and local authorities having jurisdiction. Obtain necessary approvals from such authorities.

C. Standards:
   1. General: Comply with applicable requirements of AA SAS-30; AISC S328L; AISI SG-673, Part I; and OSHA Part 1910.66.
   2. Welding Standards: Comply with applicable provisions of AWS D1.1. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

D. Preinstallation Conference: Conduct conference at Project site.
   1. Prior to commencing the installation, meet at the Project site to review the material selections, installation procedures, and coordination with other trades.

E. Single Source Responsibility: Obtain tie-back and life-line anchors and accessories from a single source with resources to produce products of consistent quality in appearance and physical properties without delaying the work.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the Project site in supplier’s or manufacturer’s original wrappings and containers, labeled with supplier’s or manufacturer’s name, material or product brand name, and lot number, if any.

B. Store materials in their original, undamaged packages and containers, inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.

1.9 PROJECT CONDITIONS

A. Field Measurements: Take field measurements prior to fabrication of the work and preparation of shop drawings, to ensure proper fitting of the work. Show recorded measurements on final shop drawings. Notify the Owner and the Architect, in writing, of any dimensions found which are not within specified dimensions and tolerances in the Contract Documents, prior to proceeding with the fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Products specified are those as manufactured by Pro-Bel Enterprises Limited. Items specified are to establish a standard of quality for design, function, materials, and appearance. Equivalent products by other manufacturers are acceptable. The Architect will be the sole judge of the basis of what is equivalent.

2.2 MATERIALS

A. General:
1. Exposed structural components shall be Type 304 stainless steel with a yield strength of 42,000 psi.
2. Single insert cast-in-place material shall be Type 304 stainless steel.
3. When steel piers are used instead of concrete piers, steel for piers shall be hot-dip galvanized and piers shall be filled with urethane foam insulation. Piers shall be a minimum height of 6 inches above the roof membrane as specified.
4. Non-exposed structural components shall be galvanized mild steel conforming to ASTM A 36, Type 350W with yield strengths of 50,000 psi for HSS and 43,000 psi for plate and other sections. Galvanizing shall conform to ASTM A 123.
5. Exposed non-structural components shall be seamless spun aluminum. Aluminum shall conform to ASTM B 209 for sheet and plate and ASTM B 221 for bars, rods, shapes, and tubes. Use aluminum Alloy 6061-T6 for aluminum components.
6. Cold-rolled sections shall conform to ASTM A 500, with a yield strength of 55,000 psi and a tensile strength of 66,000 psi.
7. Bolts, nuts, and washers shall conform to ASTM A 325 or Type 304 stainless steel where noted.

2.3 FLASHINGS

A. Wall anchors shall be properly flashed into the surface to which they are applied (i.e., box flashings, extension at metal siding, etc.). No wall anchors cast-in-place or bolted-through shall be installed through the roof membrane unless acceptable to the Architect.

B. When metal pier anchors are to be used, flashings shall be seamless. Flashings shall be made of spun aluminum. Top of anchor shall be sealed with a one-piece watertight stainless steel cap or heat-shrink rubber membrane. Rubber gaskets, rubber grommets, worm gears, caulking, and pitch pans shall not be used. Equipment height shall be a minimum of 6 inches above roof membrane. Coordinate with the roofing system work specified in Division 07 "Thermal and Moisture Protection."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Examine areas and conditions under which the work is to be installed, and notify the Contractor in writing, with a copy to the Owner and the Architect, of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.
   1. Beginning of the work shall indicate acceptance of the areas and conditions as satisfactory by the Installer.

3.2 INSTALLATION

A. Install tie-back and life-line anchors and horizontal life-lines in accordance with the Drawings, Specifications, and manufacturer's instructions, and under the supervision of a qualified professional engineer registered in the State in which the Project is located.

B. Provide items to be installed. Provide handling, installation instructions, anchorage information, roughing-in dimensions, templates, and service requirements for completion of the work of this Section. Assist or supervise, or both, the setting of anchorage devices when handled by others. Provide advice and assistance with regards to construction of other work related to products specified in this Section.

C. Install work true, level, tightly fitted, and flush to adjacent surfaces where required for the installation.

D. Provide anchorage and mounting devices required for the installation of each product.

E. Deform threads of safety anchors studs behind nuts after nuts have been tightened.

F. Where contact is made between dissimilar metals, protect components to prevent corrosion.

3.3 ADJUSTING AND CLEANING

A. Verify that work done under this Section has been completed correctly and that installed products function properly. Adjust items where necessary to ensure satisfactory operation.

B. Complete the safety inspection log book to certify system for use.

C. The work shall be cleaned of construction grime and dirt. Factory-applied coatings which have been chipped or scratched shall be touched up to the satisfaction of the Architect and the Owner.

3.4 PROTECTION

A. Provide final protection and maintain conditions in a manner acceptable to the Installer, that shall ensure that the tie-back and life-line anchors shall be without damage at time of Substantial Completion.

END OF SECTION 112429

SECTION 11400

FOODSERVICE EQUIPMENT

PART 1 - GENERAL

1.1 SCOPE

A. The work referred to in this section consists of furnishing all labor, material and services required to provide and deliver all equipment hereinafter specified into the building, uncrate, assemble, hang, set in place, level, and completely install, exclusive of final utility connections.

B. Coordinate but do not install (unless specifically directed to do so in the technical specifications) Owner and Vendor-supplied equipment noted on the drawings or in the specifications as NIKEC. Show on roughing in plans the sizes, utilities, and other requirements as furnished in the Specifications, by Owner or appropriate supplier in submittals as if the equipment is contractor furnished.

C. Coordinate and show sizes, utilities, and other requirements as determined by physical inspection for equipment noted as existing to be reused. Include costs for marking, removing, storing, cleaning, redelivering and installing such equipment. All requirements within the project manual apply to reused equipment except warranty as if contractor furnished including but not limited to code compliance and accessories necessary to conform with the new application. Kitchen Equipment Contractor (KEC) to alert Design team if bringing reused equipment to code is cost prohibitive.

1.2 SUBMITTALS

A. Upon award of Contract, furnish the Architect with reproducible copies of the following drawings, in accordance with the approved project schedule, which shall be made on sheets equal in size and matching the bid set drawing size. Reproduced copies of bid documents will not be accepted for this purpose in any fashion.

1. Equipment specified for fabrication shall be detailed and fully dimensioned to a minimum scale of ¾” = 1'-0" (1:20) for plan and elevation views and 1½” = 1'-0” (1:10) for sections.

2. Prepare foodservice equipment plan drawings at ¼” = 1'-0" (1:50) indicating the exact location for the foodservice equipment including contractor supplied equipment. Prepare separate electrical and mechanical dimensioned rough-in drawings at ¼” = 1'-0" (1:50) showing exact point of penetration of floors, walls, and ceilings for all services required to operate the equipment that the Contractor shall furnish, including the requirements for Contractor supplied and installed refrigerant and beverage piping line runs. These drawings shall also show exact locations of final connections to equipment. Indicate floor drains, floor sinks, receptacles, lights, and other special conditions related to the equipment known to the Contractor but provided under other Sections. These dimensions shall be taken from the centerline of columns, or finished walls if required.
3. Prepare separate Special Conditions drawings showing the location and size of all bases, depressions, grease interceptors, special height walls, openings in walls for

equipment or operations, and critical dimensions, etc. Drawings shall be drawn to a scale of not less than ¼" = 1'-0" (1:50).

4. Any modifications to the layout after bid documents were issued are not included and are the responsibility of the KEC.

5. The following note is to be added to each drawing sheet:
[KEC name] takes sole responsibility for the accuracy of this drawing and its content. All site conditions and requirements of equipment being provided including sizes and clearances have been accommodated. [KEC name] will provide any requested clarifications or interpretations necessary to aid the project team.

B. Manufacturers' Data: Upon award of Contract, submit bound copies of Manufacturers' Illustrations and Technical Data to the Architect for review prior to procurement. Items of Standard Manufacture shall be submitted, including items purchased to be built into fabricated equipment. Each illustration shall be marked to describe accurately the item to be furnished as specified, including voltage, phase, load, accessories, etc.

C. Manufacturers' List: Submit in writing a list of all manufacturers' representatives of the foodservice equipment, such as convection ovens, ranges, etc., and their authorized service agencies' addresses and telephone numbers.

D. Foundation Data: Data and drawings shall be submitted for each item, if any, requiring special foundations, structures, or supports. Such foundations, structures, or supports will be provided and installed by other appropriate trades in accordance with the drawings and specifications which shall be provided by the Contractor and reviewed by the Architect.

E. Operation and Maintenance Manuals: Provide three bound copies of operation, maintenance, and parts manuals for all equipment items of standard manufacture including standard component assemblies built into all custom-fabricated items.

F. Review by the Architect of the drawings and brochures submitted by the Contractor does not waive the responsibility of the Contractor to furnish each item of equipment in complete compliance with the specifications and contract drawings.

G. The number of copies of all submittals shall be as determined by the Architect.

H. Samples: Samples of materials, products, and fabrication methods shall be submitted for review at no additional cost, before proceeding with the work.

I. Substituted equipment:

1. Where three (3) specific manufacturers are specified, only those manufacturers will be acceptable for bidding purposes. Alternative will be considered only if submitted in writing during the pre-bid conference.

2. If no substitutions are submitted prior to bid date, it will be presumed by all parties concerned that none are being offered, and the bid is being submitted in full accordance with the Contract Documents. No alternate equipment (Substitutions) will be considered after contract has been awarded. Contractor is responsible for updating and coordinating with General Contractor all drawings (size and utility requirements) with approved alternate equipment.

3. All requests for the consideration of alternatives shall be in writing and all requests shall include the following information:
   a. Alternative manufacturer's name, model number, and most current catalog information, including all applicable options and accessories.
   b. Clear defined statements detailing the deviations from the bid specifications inherent with the acceptance of the alternate submission.
   c. Provide a cost comparison/difference between prime equipment specified in bid and proposed alternate.
   d. Final approval of the acceptance of any alternatives will be made jointly by Design-Builder and Owner.

1.3 QUALITY ASSURANCE

A. Standard Products: Materials, products, and equipment furnished under this contract shall be the standard items of manufacturers regularly engaged in the production of such materials, products, and equipment and shall be of the manufacturers' latest design that complies with the specifications.

B. Manufacturers' Qualifications: Manufacturers shall be regularly engaged in the production of the items furnished and shall have demonstrated the capability to furnish similar equipment that performs the functions specified or indicated herein.

C. Installation Qualifications: Contractor shall use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work defined in this Section.

D. Coordination of Work: Coordinate work with the respective trades performing preparatory work for installation of equipment under this Contract, including, but not limited to: construction of pits, trenches, receptors; rough-in of supply, waste and vent piping; electrical connections; and field verification of dimensions.

E. Product Options: Drawings indicate foodservice equipment based upon equipment specified herein. All substitutions shall be in compliance with the requirements in Division 1 (or Section I, if appropriate.).

F. Conflict: Where written specifications and drawings conflict or appear to conflict, request clarification. Prior to receiving clarification use the greater quality or greater quantity.

G. Specified Identification System: Each model number designated in this specification includes the code *F026 as a suffix to identify FoodStrategy, Inc. located in Rockville, Maryland as the specifying consultant for this project. This code is part of the international Specified Identification System (SIS) used throughout the foodservice industry. Its purpose is to identify the specifier to equipment vendors manufacturers in the event that request for clarification or other such communication with FoodStrategy is necessary during the bid preparation and project execution. Submission of a bid on this project requires maintenance of this number on all project correspondence, including fax and email, when communicating with manufacturers and/or their representatives and is not to be removed from any documentation by the bidder. Upon bid acceptance the selected Kitchen Equipment Contractor agrees to maintain this code on all purchase orders generated for this project as a condition of the contract.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver foodservice equipment in containers designed to protect equipment and finish until final installation. Make arrangements to receive equipment at project site at a time and place agreed with the General Contractor. If the site is not ready for delivery, then either delay delivery or arrange to hold in a secure and protected warehouse until delivery can be made to job site.

B. Store foodservice equipment in original containers and in location to provide adequate protection to equipment while not interfering with other construction operations. Coordinate with other trades so that worktables, serving counters and equipment are not used for scaffolding or as workbenches.

C. Handle foodservice equipment carefully to avoid damage to components, enclosures, and finish. Do not install damaged foodservice equipment; replace and return damaged components to equipment manufacturer. In the event of damage, make all repairs and replacements necessary to the approval of the Design-Builder and at no additional cost to the owner.

1.5 APPLICABLE CODES AND STANDARDS

A. Except as otherwise indicated, each item of equipment shall comply with the latest current edition of the following standards as applicable to the manufacture, fabrication, and installation of the work in this section. Comply with all Federal, State, and Municipal regulations and notifications which bear on the execution of this work. Call to the attention of the Owner in writing any design conflict with the requirements of the Americans with Disabilities Act (ADA) during Bid Process so resolution can be implemented prior to Contract Award.

1. NSF Standards: Comply with applicable National Sanitation Foundation standards and criteria and provide NSF "Seal of Approval" on each manufactured item and on major items of custom-fabricated work.

2. UL / ETL / CSA Standards: For electrical components and assemblies, provide either UL / ETL / CSA listed products or, where no listing service is available, provide a complete index of the components used as selected from the UL / ETL / CSA "Recognized Component Index." For fire extinguishing systems comply with UL 300.

3. ANSI Standards: Comply with applicable ANSI standards for electric-powered and gas-burning equipment; for piping to compressed-gas cylinders; and for plumbing fittings, including vacuum breakers and air gaps, to prevent siphonage in water piping.

4. AGA / CGA: All gas-fired equipment shall be AGA / CGA approved, equipped to operate on the type gas available at the job site, and shall contain 100% automatic safety shut-off devices.

5. NFPA Standards: Comply with NFPA Bulletin 96 for exhaust systems; with NFPA Bulletins 13, 17, 17A and 96 for fire extinguishing systems; and with NFPA 54, National Fuel Gas Code and NFPA 70, National Electrical Code.

6. ASME Code: Comply with ASME boiler code requirements for steam-generating and steam-heated equipment; provide ASME inspection, stamps, and certification of registration with National Board.

7. SMACNA Guidelines: Provide seismic restraints for food service equipment to comply with the Sheet Metal and Air Conditioning Contractors National Association's (SMACNA) "Kitchen Equipment Fabrication Guidelines", appendix 1, "Guidelines for Seismic Restraints of Kitchen Equipment", unless otherwise indicated.

8. ASHRAE: Provide mechanical refrigeration systems complying with the American Society of Heating, Refrigerating and Air Conditioning Engineers' ASHRAE 15, "Safety Code for Mechanical Refrigeration".

1.6 PROJECT CONDITIONS

A. Visit the job site to field check actual wall dimensions and roughing-in and be responsible for furnishing, fabricating, and installing the equipment in accordance with the available space and utility services as they exist on the job site for an accurate fit.

B. Check all door openings, passageways, elevators, etc., to be sure that the equipment can be conveyed to its proper location within the building and, if necessary, check with the Contractor regarding the possibility of holding wall erection, placement of doorjambs, windows, etc., for the purpose of moving the equipment to its proper location. Any removal and rebuilding of walls, partitions, doorjambs, etc., necessary to place the equipment or, if caused by incorrect information on the Contractor's drawings, shall be done at the expense of the Contractor.

C. Physically check the location and utility size of all "rough-ins" at the job site for compatibility with the equipment being installed before finished floors, walls, and/or ceilings are in place.

D. Check electrical characteristics and water, steam, and gas pressure. Provide pressure-regulating valves where required for proper operation of equipment.

1.7 GUARANTIES AND WARRANTIES

A. Self-contained or remote refrigeration systems furnished under this Contract shall be provided with start-up and a one-year service contract providing free service, 24 hours per day, seven days per week, including parts and labor. Hermetic or semi-hermetic compressors shall be covered by the manufacturers' factory warranty for an additional four years. Other equipment provided shall include a one-year warranty covering parts and labor, plus any extended warranties as normally provided by individual manufacturers. Equipment including refrigeration systems both self-contained and remote shall be warranted by the Contractor on the project for one year as indicated in the preceding sentence. The first day of the first year commences upon the issuance of a certificate of occupancy for each area.

PART 2 - PRODUCTS

2.1 GENERAL

A. The equipment and its component parts shall be new and unused. All items of standard manufactured equipment shall be current models at the time of delivery. Parts subject to wear, breakage, or distortion shall be accessible for adjustment, replacement, and repair.

B. Means shall be provided to ensure adequate lubrication for moving parts. Oil holes, grease fittings, and filler caps shall be accessible without the use of tools.

C. Plastic nameplates, to identify controls on fabricated equipment and when specified elsewhere, shall be provided of two-ply, 1/16" (2 mm), rigid plastic material which shall be specifically manufactured for engraving such nameplates. The finished nameplate shall be machine engraved with white letters on a black background and shall have edges beveled at a 45° angle. Nameplates shall be attached using an adhesive recommended by the manufacturer of the engraved material.

D. The design of the equipment shall be such as to provide for safe and convenient operation. Covers or other safety devices shall be provided for all items of equipment presenting safety hazards. Such guards or safety devices shall not present substantial interference to the operation of the equipment. Guards shall provide easy access to guarded parts.

E. Trim shall not be an acceptable substitute for accuracy and neatness. When trim is required and accepted by Architect in lieu of rejection of items of equipment, it shall be the Contractor's responsibility to provide same at no additional cost.

F. Unless otherwise specified herein, no material lighter than #20 gauge shall be incorporated into the work. Gauges for sheet iron and sheet steel shall be U.S. Standard Gauges and finished equipment gauge thickness shall not vary more than 5% plus or minus from the thickness indicated below.

GAUGE	THICKNESS	GAUGE	THICKNESS
#10	0.1406” (3.0mm)	#16	0.0625” (1.6mm)
#12	0.1094” (2.5mm)	#18	0.0500” (1.25mm)
#14	0.0781” (2.0mm)	#20	0.0375” (1.0mm)

G. Materials or work described in words which have a well-known and accepted technical or trade meaning shall be held to refer to such accepted meanings.

2.2 MATERIALS

A. Submit a certified copy of the mill analysis of materials if requested by the Architect.

B. Stainless steel sheets shall conform to American Society for Testing and Materials (ASTM) specification A240, Type 304 Condition A, 18-8, having a No. 4 finish. A No. 2B finish shall

be acceptable on surfaces of equipment not exposed to view. Sheets shall be uniform throughout in color, finish, and appearance.

C. Stainless steel tubing and pipe shall be Type 304, 18-8, having a No. 4 finish, and shall conform to either ASTM A213 if seamless or ASTM A249 if welded.

D. Rolled shapes shall be of the cold-rolled type conforming to ASTM A36.

E. Galvanized sheet steel shall conform to ASTM A526; where extensive forming to take place, conform to ASTM A527; conform to ASTM A525, coating designation G115, chemical treatment.

F. Galvanized steel sheets shall be cold-rolled, stretcher leveled, bonderized, and rerolled to ensure a smooth surface.

G. Castings shall be corrosion-resisting metal containing not less than 30% nickel. Castings shall be rough ground, polished, and buffed to bright luster and free from pit marks, runs, checks, burrs, and other imperfections. In lieu of corrosion-resisting metal castings, die-stamped or cast 18-8 stainless steel will be acceptable.

H. Millwork materials shall be free from defects impairing strength, durability, or appearance; straight and free from warpage; and of the best grade for their particular function. Wood shall be well seasoned and kiln dried and shall have an average moisture content of 8%, a maximum of 10%, and a minimum of 5%.

1. Plywood and other woodwork of treatable species, where so required by the code, shall be fire-retardant treated to result in a flame spread rating of 25 or less with no evidence of significant progressive combustion when tested for 30 minutes duration under ASTM E84 and shall bear the testing laboratory mark on a surface to be concealed.

2. Concealed softwood or hardwood lumber shall be of poplar, Douglas fir, basswood, red oak, birch, maple, beech, or other stable wood and shall be select or better grade, unselected for color and grain, surfaced four sides, square-edged, and straight. Basswood may be used where fire-retardant treated materials are required.

3. Plywood for transparent finish shall conform to U.S. Product Standard PS-51-71, Type I (fully waterproofed bond), with architectural grade face veneers of species as specified, free of all pin knots, patches, color streaks and spots, sapwood, and other defects. Plywood designated to have plywood cores shall be of either 5 ply or 7 ply construction. Plywood so designated on the drawings and plywood not otherwise shown shall have a particle board core, cross banding of veneers, and face and back veneers. Particle board cores shall have a 45-pound density, except where the fire retardant treatment requires cores of lesser density.

4. Face veneers shall be matched for color and grain to produce balance and continuity of character. Mineral streaks and other discolorations, worm holes, ruptured grain, loose texture, doze, or shake will not be permitted. Face veneer leaves on each surface shall be full-length, book matched, center matched, and sequence matched. Surfaces shall be sequenced and blueprint matched. Veneers not otherwise indicated shall be plain sliced. Backing veneers for concealed surfaces shall be of a species and thickness to balance the pull of the face veneers.

5. Hardwood plywood for painted surfaces shall conform to U.S. Product Standard PS-51-71, Type I, and shall have sound birch, maple, or other approved close grain hardwood faces suitable for a paint finish.

6. Perforated hardboard shall be a tempered hardboard, ¼" (6 mm) thick, conforming to Federal Specification LLL-B-810B, Type I, SIS, Finish B (primed), Design B (perforated), with ¼" (6 mm) diameter holes spaced on 1" (25 mm) centers both ways.

7. Plastic laminate surfaces shall be laminated with thermosetting decorative sheets of the color, pattern, and style as selected by the Architect. Horizontal surfaces shall be laminated with sheets conforming to Federal Specification L-P-508F, Style D, Type I (general purpose), Grade HP, Class 1, 1/16" (2 mm) thick, satin finish, with rough sanded backs. Vertical surfaces shall be laminated with sheets conforming to Federal Specification L-P-598F, Style D, Type II, (vertical surface), Grade HP, Class 1, non-forming, satin finish, 1/32" (1 mm) thick or heavier. Surfacing for curved surfaces shall be laminated from sheets conforming to Federal Specification L-P-508F, Style D, Type III (post-forming), Grade HP, Class 1, satin finish. Balance sheets for backs in concealed locations shall be either reject material of the same type and thickness as the general purpose grade facing or may be .020" (0.5 mm) thick laminate backing sheets conforming to Federal Specification L-P-00508E, Style ND, Type V (backing sheet), Grade HP.

8. Adhesive for application of plastic laminate to wood substrates of counter tops shall be a phenolic, resorcinol, or melamine adhesive conforming to Federal Specification MMM-A-181C and producing a waterproof bond. Adhesive for applying plastic laminate to vertical surfaces shall be either a waterproof type or a water resistant type such as a modified urea-formaldehyde resin liquid glue conforming to Federal Specification MMM-A-188C. Contact adhesive will not be acceptable.

9. Plywood for laminate assemblies shown or specified with plywood core shall be of the 5 or 7 ply construction with sanded close-grain hardwood face and back veneers, laminated with waterproof glue, in thickness shown, conforming to U.S. Product Standard PS-51-71. Particle board for plastic laminate assemblies shown or specified with particle board wood core shall conform to U.S. Products Standard CS-236-66, Type 1 or 2, Grade B (45 pound density), Class 2; except where fire-retardant treatment is required, the density shall conform to the treatment requirements.

I. Sealant: ASTM C 920; type S, Grade NS, Class 25, use, NT. Provide elastomeric sealant, NSF certified for end use application indicated. Provide sealant that, when cured and washed, meet requirements of Food and Drug Administration’s 21 CFR, Section 177.2600 for use in areas that come in contact with food. Dow-Corning #780 or General Electric "Silastic" or approved equal in either clear or approved color to match surrounding surfaces and applied in accordance with sealant manufacturers' recommendations for smooth, sealed finish.

J. Tempered Glass: ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated surfaces), Type I (transparent), Class 1 (clear), Quality q3 (glazing select). Provide products complying with ANSI Z97.1, manufactured by horizontal (roller hearth) process and ¼” (6 mm) thick, unless otherwise indicated. Provide exposed safety edges, if any, seamed before tempering.

K. Sound Dampening: NSF-certified, non-absorbent, hard-drying, sound deadening coating. Provide coating compounded for permanent adhesion to metal in 1/8" (3 mm) thickness that does not chop, flake, or blister.

2.3 FINISHES

A. Paint and coatings shall be of an NSF approved type suitable for use in conjunction with foodservice equipment. Such paint or coating shall be durable, non-toxic, non-dusting, non-flaking, and mildew resistant; shall comply with all governing regulations; and shall be applied in accordance with the recommendations of the manufacturer.

B. Exterior, galvanized parts, exposed members of framework, and wrought steel pipe where specified to be painted shall be cleaned, properly primed with rust-inhibiting primer, degreased, and finished with two (2) coats of epoxy-based gray hammertone paint, unless otherwise specified.

C. Stainless steel, where exposed, shall be polished to a #4 commercial finish. Where unexposed, finish shall be #2B. The grain of polishing shall run in the same direction wherever possible. Where surfaces are disturbed by the fabricating process, such surfaces shall be finished to match adjacent undisturbed surfaces.

D. Galvanized shelving shall not be painted.

E. Fabricated equipment shall be spray coated with plastic suitable for protecting the equipment during transport and installation. The coating shall be easily removable and shall be removed after the equipment installation is complete at the work site or, alternatively, when directed by the Architect.

F. Exposed surfaces on brass, bronze, or steel shall be plated with chromium over nickel in accordance with Federal Specifications WW-P-541, Paragraph 9.5 and Table 9.4, unless otherwise specified.

2.4 ELECTRICAL AND MECHANICAL REQUIREMENTS

A. Standard UL / ETL / CSA listed materials, devices, and components shall be selected and installed in accordance with NEMA Standards and recommendations and as required for safe and efficient use and operation of the foodservice equipment without objectionable noise, vibration, and sanitation problems.

1. Provide recognized commercial grade signals, "on-off" pushbuttons or switches, and other speed and temperature controls as required for operation of each item, complete with pilot lights and permanent engraved, plastic laminate signs and graphics identifying each item. Provide stainless steel cover plates at controls and signals.

2. Each item requiring electrical power shall be equipped with either a terminal box for permanent connection or with cord and plug for interruptible connection, as indicated. Provide NEMA standard grounding type plugs, where used.

3. Furnish foodservice equipment completely wired internally using wire and conduit suitable for a wet location, including a separate grounding wire. Provide electrical outlets and receptacles required to be mounted on or in fabricated equipment and

interconnect to a suitable terminal box (subpanel, starter, or disconnect switch if so specified) with all wires neatly tagged showing item number, voltage characteristics, and load information.

4. Receptacles for all wall- and floor-mounted outlets will be provided to be used for plug-in equipment with characteristics as noted on the drawings. Provide Hubbell three-wire or four-wire grounding-type connectors and neoprene cords installed on each item of plug-in equipment to match receptacles provided.

5. Electrically heated equipment shall be internally wired to a thermostatic control and an "on-off" red neon light indicator, which shall be mounted in a terminal box on a removable stainless steel access panel.

6. Only rigid steel zinc-coated conduit shall be used, painted to match adjacent surfaces where exposed. Wiring shall be run concealed wherever possible.

7. Provide on, or for, each motor-driven appliance or electrical heating or control unit, a suitable control switch or starter of the proper type and rating.

8. Appliances shall be furnished complete with motors, driving mechanism, starters, and controllers, including but not limited to, master switches, timers, cutouts, reversing mechanism, and other electrical equipment if and as applicable. Wiring and connection diagrams shall be furnished with electrically operated machines and for electrically wired fabricated equipment.

9. Appliances shall be of rigid construction, free from objectionable vibration. Quietness of operation of all foodservice equipment is a requirement. Remove or repair any equipment producing objectionable noise and/or vibration as directed by the Architect.

10. Motors shall be of the drip-proof, splashproof, or totally enclosed type, having a continuous duty cycle and ball bearings, except small timing motors which may have sleeve bearings. Motors shall have windings impregnated to resist moisture. Motors located where subject to deposits of dust, lint, or other similar matter from the machine on which installed shall be of the totally enclosed type. Motors shall have ample power to operate the machines for which designated under full load operating conditions without exceeding their nameplate ratings. Horsepower requirements on driven equipment shall be determined by the manufacturer based on normal operation at maximum capacity. The nominal rated motor horsepower shall be not less than the horsepower required for normal operation of the equipment at maximum capacity. Insulation shall be NEMA Class B, or better.

11. Cover plates shall be furnished and installed for all electrical outlets, receptacles, switches, etc., to match the material and finish of the equipment to which they will be fastened.

12. Switches, controls, etc., shall be conspicuously labeled as to use with plastic nameplates secured to the adjacent surface as previously specified in Article 2.01-C. Submit a sample for approval if requested by Architect.

13. Where specified for custom fabricated equipment, provide compartment with electrical sub-panel which shall be pre-wired in conduit concealed in cabinet body construction and connected to all electrical components built into or set upon the counter. Electrical sub-panel shall be UL / ETL / CSA listed, 3-phase, 4-wire circuit

breaker type with a ground buss main breaker and individual breakers for each serviced load. Buss shall be copper and the circuit breakers shall be the molded case, bolt-on type with thermomagnetic quick-make, quick-break trip. Multi-pole circuit breakers shall have an internal trip bar. The circuit breakers shall have an interrupting capacity of 10,000 amperes at 120 volts and there shall be a separate breaker for each connected load. Each breaker shall be sized for 125% of the connected load and a minimum of two (2) extra, single pole, 20 amp circuit breakers shall be provided. The loads shall be connected through the breakers in a phased sequence to balance the load on each phase.

B. Water inlets shall be located above the positive water level wherever possible to prevent siphoning of liquids into the water supply system. Wherever conditions shall require a submerged inlet, a suitable type of check valve (except in jurisdictions where check valves are prohibited) and vacuum breaker shall be provided with the fixture to prevent siphoning. Where exposed, piping and fittings shall be chrome-plated. Where vacuum breaker piping is through equipment, provide chrome-plated escutcheon plates to cover holes.

1. Provide and install indirect waste lines from equipment which will discharge into floor drains or safe wastes, chrome-plated where exposed. Extend to a point at least 1" (25 mm) (or as required by local or state code) above the rim of the floor drain, cut bottom on 45° angle and secure in position.

2. Horizontal piping lines shall be run at the highest possible elevation and not less than 6" (150 mm) above the floor, through equipment where possible.

3. No exposed piping in or around fixtures or in other conspicuous places shall show tool marks or more than one thread at the fitting.

4. Steam operating valves on or in fabricated and purchased foodservice equipment shall be provided with composition hand wheels, which shall remain reasonably cool in service.

5. Provide suitable gas and liquid pressure-reducing valves for equipment with such components that might reasonably be expected to be affected over a period of time by adverse pressure conditions, including but not limited to dishwashers, booster heaters, coffee urns, ranges, steam boilers, etc.

C. Provide and install complete refrigeration systems [charged, started, and operating properly] including, but not limited to:

1. Compressors, condensers, racks, coils, vibration eliminators, sight glasses (moisture indicating type), expansion valves, filters, oil separators, thermostats, defrost time clocks, all controls and control wiring, liquid line driers, piping, and refrigeration grade copper tubing with all sweat joints using Safety-Silv No. 1200 or approved equal silver solder (with as few joints as possible).

2. Where specifications call for pre-piped lines (i.e., from a fixture to a valve compartment, etc.), provide such work in strict conformance with other sections of the specifications which set forth standards for this type of work or in conformity with the requirements of the ASHRAE Standards or local authorities, whichever is the greater.

3. Mechanically refrigerated cold pans shall have a normally closed liquid line electric solenoid valve installed before the expansion valve and wired to a silent-type

toggle switch complete with an "on-off" red neon light indicator and both mounted in a terminal box on a removable access panel. This switch shall be fed by a separate control circuit and shall not to be wired into the compressor circuit so that it shall stop the flow of refrigerant to the cold pan and not turn off the compressor. The compressor shall then pump down and turn off through the action of the pressure control.

4. Each refrigeration item specification is written to provide minimum specifications and scope of work. Refrigeration equipment shall be designed and installed to maintain the following general temperatures unless otherwise specified.

a.	Walk-In Refrigerators	1.7°C / 35°F
b.	Walk-In Freezers	-23.3°C / -10°F
c.	Reach-In Refrigerators	1.7°C / 35°F
d.	Reach-In Freezers	-23.3°C / -10°F
e.	Undercounter Refrigerators	1.7°C / 35°F
f.	Undercounter Freezers	-23.3°C / -10°F
g.	Cold Pan	-17.8°C / 0°F
h.	Work Rooms	10°C / 50°F

5. Provide electrical and refrigeration components needed by the completed system and complete all refrigeration and control connections of and to said components.

6. Provide evaporator coil defrost system on all walk-in refrigerator and freezer rooms where the refrigeration systems are designed to operate at room temperature of less than 35°F (1.7°C).

7. Verify the requirements of and provide any or all additional refrigeration specialty(s) or component(s) required or recommended by the manufacturer for proper operation under the specific operating conditions and location of each system specified.

8. When freezers are located on grade and measure 400 square feet (36 m^2) or greater, floors will be protected against “frost-heave” by use of a closed glycol system or equivalent heating system. This system will be contained within refrigeration package and will utilize heat generated by this machinery.

9. Verify and provide manufacturer's certification (or certification by manufacturer's authorized agent) that the equipment selection hereinafter specified for each refrigeration system is properly sized and shall meet the operating requirements set forth for each system regarding maintaining specified operating temperature, hours of compressor running time, and system pressures and velocities as recommended by the equipment manufacturer(s).

10. During check-out and initial operation, verify that:

    a. Controls are properly adjusted.

    b. Condensers are equipped with an overload protector.

c. A competent service mechanic is on site during the first eight (8) hours of operation.

d. Switches, starters, and controls are identified as to function.

11. Unless otherwise specified, furnish thermometers for walk-in units mounted above the exterior entrance door with suitable length armored capillary tubes to allow the sensing bulbs to be installed in the incoming air stream to the blower coil with runs fastened to the walk-in walls to prevent it from damage. This identical requirement applies to alarm systems when specified.

2.5 PRODUCT SPECIFICATIONS

A. All items listed on the contract drawings under the heading "Foodservice Equipment Schedule" shall be furnished in strict accordance with the foregoing specifications and with the following detailed item specifications.

MAIN KITCHEN

K1 SHELVING, STATIONARY, 5 TIER
K2 DUNNAGE RACK
K3 WALK-IN COMPLEX
K4 EVAPORATOR COIL, +35F
K5 EVAPORATOR COIL, +35F
K6 EVAPORATOR COIL, +35F
K7 EVAPORATOR COIL, -10F
K8 PACKAGE REFRIGERATION SYSTEM, INDOOR, WATER COOLED
K9 SHELVING, MOBILE, 4 TIER
K10 MOBILE PAN RACK
K11 WALK-IN COOLER
K12 EVAPORATOR COIL, +35F
K13 HAND SINK WITH SOAP & TOWEL DISPENSER
K14 TWO COMPARTMENT SINK
K15 WALL SHELF
K16 SLICER STAND
K17 SLICER
K18 WORK TABLE
K19 OPEN NUMBER
K20 5 QT MIXER
K21 40 QT MIXER
K22 WORKTABLE
K23 WALL SHELF
K24 FOOD PROCESSOR
K25 ICE MAKER, 600 LB, WATER COOLED

K26 ICE BIN
K27 WATER FILTER, ICE
K28 ICE CART
K29 TRENCH DRAIN
K30 PLATING TABLE
K31 EXHAUST VENTILATOR
K32 FIRE SUPPRESSION SYSTEM, DUAL AGENT
K33 FRYER BATTERY
K34 CHARBROILER
K35 4 BURNER RANGE
K36 TILTING KETTLE, 40 GAL
K37 TILTING BRAISING PAN
K38 FLOOR TROUGH
K39 GRIDDLE
K40 TABLE W/BAIN MARIE AND SINK
K41 WALL SHELF
K42 WORK TABLE W/ SINK
K43 WORK TABLE
K44 CEILING HUNG POT RACK
K45 VACUUM PACKAGER
K46 DOUBLE COMBI OVEN
K47 ROLL IN COMBI OVEN
K48 WATER FILTER, STEAM
K49 OPEN NUMBER
K50 WASTE CONTAINER, ROUND
K51 ELECTRICAL DROP CORD, NIKEC BY GC
K52 HEATED PLATE CABINET
K53 MOBILE WORK TABLE
K54 COLD PREP TABLE
K55 WALL SHELF
K56 WORK TABLE
K57 OPEN NUMBER
K58 WORKTABLE W/ SINK
K59 WALL SHELF
K60 WALK-IN COOLER
K61 EVAPORATOR COIL, +35F
K62 BLAST CHILLER
K63 MOBILE TABLE
K64 DISPOSER
K65 POT RACK
K66 THREE COMPARTMENT POWER SINK
K67 UTENSIL RACK

K68 SHELVING, STATIONARY, 5 TIER
K69 QUEEN MARY
K70 SOAK SINK
K71 OPEN NUMBER
K72 OPEN NUMBER
K73 OPEN NUMBER
K74 OPEN NUMBER
K75 OPEN NUMBER
K76 OPEN NUMBER
K77 OPEN NUMBER
K78 HOSE REEL
K79 GLASS RACK DOLLY
K80 POKER CHIP DISH DOLLY
K81 WALL SHELF
K82 MOP SINK AND RACK
K83 BEER DISPENSING SYSTEM
K84 SODA SYSTEM, NIKEC BY VENDOR
K85 KEG SHELVING
K86 WINE SHELVING
K87 TRENCH DRAIN
K88 GARBAGE CAN
K89 HOSE REEL
K90 WALL SHELF
K91 HAND SINK WITH SOAP & TOWEL DISPENSER
K92 SHELVING, STATIONARY
K93 SOILED DISHTABLE
K94 PRE-RINSE SPRAY
K95 CONVEYOR DISHWASHER
K96 DISHWASHER VENT DUCT
K97 CLEAN DISHTABLE
K98 DISPOSESR
K99 WALL SHELF
K100 SIDE UNLOADER
K101 WALL SHELF W/POT RACK
K102 SHELVING, MOBILE
K103 OPEN NUMBER
K104 ROOM SERVICE BOX WARMER, NIKEC BY OWNER
K105 ROOM SERVICE CART, NIKEC BY OWNER
K106 2-DOOR REACH-IN REFRIGERATOR
K107 CORNER GUARD

RESTAURANT

R1	EXHAUST VENTILATOR
R2	FIRE SUPPRESSION SYSTEM, PIRANHA
R3	1-DOOR REACH-IN REFRIGERATOR/FREEZER
R4	2-FRYERS W/DUMP
R5	6-BURNER RANGE W/CONVECTION OVEN BASE
R6	CHARBROILER
R7	GRIDDLE RANGE W/CONVECTION OVEN BASE
R8	SALAMANDER
R9	COUNTER TOP COMBI OVEN
R10	WATER FILTER (COMBI)
R11	UNDERCOUNTER REFRIGERATOR
R12	CHEF'S COUNTER FRONT AND OVERSHELF, NIKEC BY MILLWORK
R13	PENDANT HEAT LAMP
R14	REFRIGERATED PREP TABLE W/DRAWERS
R15	2-WELL DROP-IN HOT WELL
R16	POS PRINTER, NIKEC, BY OWNER
R17	WASTE CONTAINER, TALL SLIM
R18	HAND SINK WITH SOAP & TOWEL DISPENSER
R19	HEARTH OVEN - WOODSTONE MS-4
R20	DECORATIVE OVEN SURROUND, NIKEC BY MILLWORK
R21	EXHAUST VENTILATOR - WOODSTONE
R22	OPEN NUMBER
R23	PIZZA COUNTER, NIKEC BY MILLWORK
R24	REFRIGERATED COLD PAN
R25	OPEN NUMBER
R26	UNDERCOUNTER REFRIGERATOR W/ DRAWERS
R27	OPEN NUMBER
R28	OPEN NUMBER
R29	OPEN NUMBER
R30	OPEN NUMBER
R31	OPEN NUMBER
R32	POS TERMINAL, NIKEC BY OWNER
R33	SHELVING
R34	WASTE CONTAINER
R35	HAND SINK
R36	BEVERAGE COUNTER
R37	WALL SHELF
R38	WALL SHELF
R39	COFFEE MAKER, NIKEC BY VENDOR
R40	TEA BREWER, NIKEC BY VENDOR

R41 WATER FILTER, NIKEC BY VENDOR
R42 1-DOOR REACH-IN REFRIGERATOR
R43 SODA DISPENSER, NIKEC BY VENDOR

BUFFET

B1 BUFFET COUNTER, NIKEC BY MILLWORK
B2 DROP-IN FROST TOP
B3 FOOD GUARD
B4 DROP-IN INDUCTION WARMER
B5 COMMUNAL BUFFET TABLE , NIKEC BY MILLWORK
B6 FOOD GUARD
B7 CONVEYOR TOASTER
B8 PLATE ALCOVE, NIKEC BY MILLWORK
B9 CEREAL DISPENSER
B10 PASTRY / BREAD DISPLAY

LOBBY BAR

L1 BAR MILLWORK, NIKEC BY MILLWORK
L2 BACKBAR REFRIGERATOR
L3 ESPRESSO MACHINE, SEMI AUTOMATIC
L4 UNDERCOUNTER REFRIGERATOR
L5 SODA GUN, NIKEC BY VENDOR
L6 ICE BIN W/ SPEEDRAIL
L7 BOTTLE STEPS
L8 TRASH CONTAINER
L9 DUMP SINK
L10 ROTARY GLASSWASHER
L11 DRAINBOARD W/ SHELVES
L12 HAND SINK W/SOAP AND TOWEL DISPENSER
L13 STORAGE CABINET
L14 POS TERMINAL, NIKEC BY OWNER
L15 DRAINBOARD
L16 BEER TAP AND DRAINER
L17 UTILITY SINK
L18 BLENDER STATION
L19 BLENDER
L20 MILLWORK LIQUOR DISPLAY, NIKEC BY MILLWORK
L21 UNDERBAR WINE REFRIGERATOR
L22 BAR TOP CLOSER

GUEST ICE - NOT SHOWN

V1 ICE MAKER, WATER COOLED
V2 ICE BIN
WATER FILTER, ICE
V3

MARKET

M1 REACH-IN REFRIGERATOR
M2 REACH-IN FREEZER
M3 MICROWAVE OVEN

HOUSEKEEPING

H1 35LB WASHING MACHINE
H2 50LB DRYER
H3 LAUNDRY SINK
H4 EYE WASH

EMPLOYEE DINING

E1 TRAY/SILVERWARE CART
E2 MOBILE PLATE DISPENSER
E3 HOT FOOD COUNTER
E4 MOBILE PLATE DISPENSER
E5 COLD FOOD COUNTER
E6 COUNTER
E7 DROP-IN REFRIGERATOR
E8 GLASS RACK DISPENSER
E9 TEA DISPENSER, NIKEC BY VENDOR
E10 JUICE DISPENSER, NIKEC BY VENDOR
E11 COFFEE MAKER, NIKEC BY VENDOR
E12 WATER FILTER, COFFEE, NIKEC BY VENDOR
E13 WASTE CONTAINER, SLIM TALL
E14 WALL SHELF
E15 HAND SINK
E16 BEVERAGE COUNTER
E17 TRAY RETURN CART
E18 OPEN NUMBER
E19 ICE DISPENSER
E20 OPEN NUMBER
E21 REFRIGERATOR, SINGLE DOOR
E22 TRASH CHUTE
E23 MICROWAVE OVEN

PART 3 - EXECUTION

3.1 INSTALLATION

A. Begin installing the equipment at the time the building is ready to receive the equipment and in accordance with the schedule.

B. Provide a competent foreman or supervisor for erection of equipment and to coordinate with other trades regarding connections, installation, and inspection. Coordinate delivery schedule to ensure adequate openings in the building to receive the equipment.

C. Install refrigeration work in an approved manner, using first quality fittings, controls, valves, etc. Refrigeration items shall be started up, tested, adjusted, and turned over to the Architect in first-class condition and left operating in accordance with the manufacturer's specifications.

D. Set equipment that rests on masonry bases level onto a bed of silicone rubber sealant.

E. Seal equipment that butts to a wall or against other equipment with silicone rubber sealant. Set trim strips or other items requiring fasteners in a bed of silicone rubber sealant and fastened with suitable stainless steel fasteners 48" (1200mm) or less on centers. Surfaces shall be thoroughly clean and degrease all surfaces prior to the application of sealant.

F. Install and interconnect electrical controls, switches, or other units which are separately furnished for field installation in or on equipment provided, unless otherwise specified.

G. Install and wire refrigeration systems in strict conformance with the manufacturers' instructions and recommendations. Ensure that all refrigeration condensing units are ventilated properly and are accessible for repair, maintenance, and inspection.

H. Hang evaporator coils per the manufacturer's recommendation at the locations as shown on the drawings. Mount units such that the drain pans are pitched to the drain lines. Hang the coils using nylon or other approved non-conductive, non-corrosive fasteners. Furnish #12 gauge galvanized steel fish plates of suitable size and shape on the exterior ceiling of the walk-in to spread the weight of the coils adequately. Connect coils to the condensing unit and install to constitute a complete working system capable of maintaining the interior temperatures specified regardless of the heavy usage the walk-in units may receive.

I. Furnish and install a copper or PVC drainline painted silver from each coil outlet to a point 1" (25mm) above the floor drain. Trap drainlines immediately above the floor drain. Provide continuous electrified heater tape for freezer drainlines, coordinate electrical requirements and wiring with electrical division. Insulate drainline after installation.

J. Refrigeration tubing shall be the Type L, ACR hard drawn degreased, sealed copper and shall be installed with horizontal runs sloped 1" per 20 feet (1:240) toward the condensing units. Refrigerant piping shall be properly supported by adjustable hangers spaced and adjusted to the drop required. Where vertical runs of more than 5' (1500mm) occur in the suction line, trap the risers at the bottom. Install piping so refrigerant or oil cannot drain back into the coils from the suction line.

K. Insulate suction and refrigerant lines with minimum 1/2" (12mm) Armstrong armaflex or equal cellular type insulation. Provide metal pipe sleeves where piping passes through a wall, ceiling, or floor. Fill space around the tubing with mastic insulating compound. Install a permanent suction line filter in each compressor suction line with pressure fitting ahead of the filter to facilitate checking of pressure drop through the filter. Fully insulate and seal penetrations through walk-in cooler or freezer structures to be vapor tight to prevent condensation within any light fixtures, switch boxes, junction boxes, or any other fittings. Fully seal refrigeration and drain lines and provide escutcheon plates.

L. Furnish and completely install a thermostat to control the refrigeration temperatures for each individual compartment.

M. Mount the condensing units on a welded steel rack containing all accessories and components necessary to form a complete condensing unit package. Provide each condensing unit with a factory mounted, pre-wired control panel/disconnect switch complete with circuit breakers, contactors, and time clocks as required.

N. Furnish the refrigeration systems with a one-year refrigeration service contract, covering all parts and labor, with service available seven days per week, 24-hours per day. Provide an option for continuation of the service contract after the first year. Warrant the refrigeration system for one year and provide the compressors with the manufacturer's extended five-year warranty.

O. Furnish four (4) copies of complete remote refrigeration system control wiring and piping diagrams. Frame one (1) copy in Plexiglas and mount at compressor location or inside the refrigeration system enclosure as appropriate.

P. Coordinate the equipment work with the respective work of other Sections so that electrical and mechanical components built into the equipment will conform and/or adapt to the type, materials, and characteristics of the building components.

Q. Install heated and motor-driven equipment so as to operate efficiently. Provide additional vents, guards, deflectors, and other accessories as needed at no additional cost. Note such additions or modifications on the shop drawings and bring to Architect's attention by special accompanying letter.

3.2 FABRICATION OF METAL WORK

A. Items of fabricated equipment shall be fabricated in the same factory and shall be similar in construction details, materials, methods, and appearance to similar types of items so fabricated under this contract.

B. All fabrication shall conform to the latest Standards and Revisions established by the National Sanitation Foundation. Provide N.S.F. “Seal of Approval” on each manufactured item, and on items of custom works.

C. Each fabricated item of equipment shall include necessary reinforcing, bracing, and welding with the proper number and spacing of uprights and cross members for strength. Wherever standard sheet sizes will permit, the tops of all tables, shelves, exterior panels of cabinet type fixtures, and doors and drainboards shall be constructed of a single sheet of metal. Except where required to be removable, flat surfaces shall be secured to vertical and horizontal bracing members by welding or other approved means to eliminate buckle, warp, rattle, and wobble. Equipment not braced in a rigid manner and which is subject to rattle and wobble shall be unacceptable, and the Contractor shall add additional bracing in an approved manner to achieve acceptance.

D. Suitable pipe slots shall be provided on fabricated equipment to accommodate service and utility lines and mechanical connections. These slots shall be of proper size and shall be neatly made with turned up edges around to eliminate cutting or defacing of equipment on the job. Cabinet bases shall be provided with an inner panel duct at the ends or rear of the cabinet allowing adequate space to conceal vertical piping. Such work, when performed at the job site, shall be of the same quality as similar work performed in the shop.

E. Exposed surfaces shall be free from bolt and screw heads. When bolts are required, they shall be of the concealed type and be of similar composition as the metal to which they are applied. Where bolt or screw threads on the interior of fixtures are visible or may come into contact with hands or wiping cloths, they shall be capped with a stainless steel acorn nut and stainless steel lock washer.

F. Where screw threads are not visible or readily accessible, they shall be assembled with stainless steel lock washers and nuts. Wherever bolts or screws are welded to the underside of trim or tops, the reverse side of the weld shall be finished uniformly with the adjoining surfaces. Depressions at these points shall not be acceptable.

G. Rivets shall not be permitted in any location.

H. Welding shall be the heliarc method with welding rod of the same composition as the sheets or parts welded. Welds shall be complete, strong, and ductile with excess metal ground off and joints finished smooth to match adjoining surfaces. Welds shall be free of mechanical imperfections such as gas holes, pits, cracks, etc., and shall be continuously welded so that the fixtures shall appear as one piece construction. Butt welds made by spot solder and finished by grinding shall not be acceptable.

1. Spot welds shall have a maximum spacing of 3" (75mm). Tack welds shall be of at least 1/4" (6mm) length of welding material at a maximum space of 4" (100mm) from center to center. Weld spacing at the ends of the channel battens shall not exceed 2" (50mm) centers.

2. In no case shall soldering be accepted.

3. Fixtures shall be shop fabricated of one piece and shipped to the job completely assembled wherever possible. Equipment too large to transport or enter the building as one piece shall be constructed so that the field joints can be welded at the job site.

4. Exposed joints shall be ground flush with adjoining material and finished to harmonize therewith. Whenever material has been depressed by a welding operation, such depression shall be suitably hammered and penned flush with the adjoining surface and, if necessary, again ground to eliminate low spots. In all cases, the grain of rough grinding shall be removed by successive fine polishing operations.

5. Unexposed welded joints on undershelves of tables or counters in stainless steel construction shall be suitably coated at the factory with an approved metallic-based paint.

6. After galvanized steel members have been welded, welds and areas where galvanizing has been damaged shall have a zinc dust coating applied in conformance with U.S. Government Military Specification Number MIL-P-26915.

I. Butt joints and contact joints, wherever they occur, shall be close fitting and shall not require a filler. Wherever break bends occur, they shall be free of undue extrudence and shall not be flaky, scaly, or cracked in appearance; where such breaks do mar the uniform surface appearance of the material, such marks shall be removed by suitable grinding, polishing, and finishing. Wherever sheared edges occur, they shall be free of burrs, fins, and irregular projections and be finished to obviate danger of cutting or laceration when the

hand is drawn over them. In no case shall overlapping materials be acceptable where miters or bullnosed corners occur.

J. The grain of polishing shall run in the same direction on horizontal and on vertical surfaces of each item of fabricated equipment except in the case where the finish of the horizontal sections of each shall terminate in a mitered edge. Where sinks and adjacent drainboards are equipped with backsplash, the grain of polishing shall be consistent in direction throughout the length of the backsplash and sink compartment.

K. Component parts, whether fabricated by the Contractor or purchased for building into the fabricated equipment, shall conform to the following.

1. Bolts, screws, nuts, and washers shall be of steel, except where brass or stainless steel is fastened, in which case they shall be of brass or stainless steel, respectively. Where dissimilar metals are fastened, bolts, screws, nuts, and washers shall be of the higher grade metal. The spacing and extent of bolts and screws shall be such as to ensure suitable fastening and prevent buckling of the metals fastened.

L. Gauges: Except as otherwise indicated, fabricate the following components from the gauge of metal indicated, and other components from not less than 20 gauge metal:

1.	Table and counter tops:	14 gauge (2.0 mm)
2.	Table reinforcements:	12 gauge (2.0 mm)
3.	Counter reinforcements:	12 gauge (2.5 mm)
4.	Sinks and drainboards:	14 gauge (2.0 mm)
5.	Wall shelves and overshelves:	16 gauge (1.6 mm)
6.	Front drawer and hinged door panels:	18 gauge (1.25 mm) (double pan type)
7.	Single louvered door panels:	16 gauge (1.6 mm)
8.	Enclosed base cabinets:	18 gauge (1.25 mm)
9.	Enclosed wall cabinets:	18 gauge (1.25 mm)
10.	Pan type inserts and tray slides:	16 gauge (1.6 mm)
11.	Removable covers and panels:	16 gauge (1.6 mm)
12.	Skirts and enclosure panels:	18 gauge (1.25 mm)
13.	Closure and trim strips over 4” wide:	18 gauge (1.25 mm)
14.	Hardware reinforcements:	12 gauge (2.5 mm)
15.	Gusset plates:	10 gauge (3.0 mm)
16.	Legs:	1-5/8” x 16 gauge (1.6 mm)
17.	Crossbracings:	1-1/4” x 16 gauge (1.6 mm)

3.3 CLEAN-UP

A. At completion of the installation, clean up, lubricate, and adjust where necessary items of equipment provided and turn them over in first-class condition.

1. Where stainless steel surfaces are disturbed by the installation or fabricating process, such surface shall be finished to match adjoining undisturbed surfaces.

2. At the completion of the installation work, stainless steel shall be gone over with a portable polishing machine and buffed to perfect surfaces. Painted surfaces shall be carefully gone over and retouched as required.

3.4 START-UP AND TESTING AND COMMISSIONING

A. Startup Services: Engage factory-authorized service representatives to perform startup services and to demonstrate and train Owner's maintenance personnel as specified below.

1. Coordinate food service equipment startup with service-utility testing, balancing, and adjustments. Do not operate steam lines before they have been cleaned and sanitized.

2. Remove protective coverings and clean and sanitize equipment, both inside and out, and relamp equipment with integral lighting. Where applicable, comply with manufacturer's written cleaning instructions.

3. Test each equipment item for proper operation. Repair or replace equipment that is defective in operation, including units that operate below required capacity or that operate with excessive noise or vibration.

4. Test refrigeration equipment's ability to maintain specified operating temperature under heavy-use conditions. Repair or replace equipment that does not maintain specified operating temperature.

5. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

6. Test motors and rotating equipment for proper rotation and lubricate moving parts according to manufacturer's written instructions.

7. Test water, drain, gas, steam, oil, refrigerant, and liquid-carrying components for leaks. Repair or replace leaking components.

8. Train Owner's maintenance personnel on procedures and schedules related to startup and shutdown, troubleshooting, servicing, and preventive maintenance for each food service equipment item.

9. Review data in the operation and maintenance manuals. Refer to Division 1 Section "Contract Closeout."

10. Review data in the operation and maintenance manuals. Refer to Division 1 Section "Operation and Maintenance Data."

11. Schedule training with Owner, through Architect, with at least 7 days advance notice.

3.5 SEISMIC RESTRAINTS

A. Install equipment in these contract documents according to the "SMACNA Guidelines for Seismic Restraint of Kitchen Equipment" in any State, province, or jurisdiction that has legislated this requirement as necessary for acceptance. This shall include:

1. Identifying these items on submittal drawings, Plans, Elevations, and Sections.

2. Showing required SMACNA methods of restraint on submittal drawings.

3. Referencing the appropriate detail(s).

4. Obtain regulatory approval for all seismic engineering details.

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

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 restraint design is appropriate to the building's structural conditions and the surfaces to which the equipment will be secured.

End of Section 11400

SECTION 115213

PROJECTION SCREENS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
1. Electrically operated, front-projection screens and controls.

1.3 DEFINITIONS

A. Gain: Ratio of light reflected from screen material to that reflected perpendicularly from a magnesium carbonate surface as determined per SMPTE RP 94.

B. Half-Gain Angle: The angle, measured from the axis of the screen surface to the most central position on a perpendicular plane through the horizontal centerline of the screen where the gain is half of the peak gain.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Show layouts and types of front-projection screens. Include the following:
1. Location of screen centerline relative to ends of screen case.
2. Anchorage details, including connection to supporting structure for suspended units.
3. Details of juncture of exposed surfaces with adjacent finishes.
4. Location of wiring connections for electrically operated units.
5. Wiring diagrams for electrically operated units.
6. Accessories.

C. Samples for Initial Selection: For finishes of surface-mounted screen cases.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For front-projection screens to include in maintenance manuals.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Environmental Limitations: Do not deliver or install front-projection screens until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1.7 COORDINATION

A. Coordinate layout and installation of front-projection screens with adjacent construction, including ceiling suspension systems, light fixtures, HVAC equipment, [fire-suppression system,] and partitions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations for Projection Screens: Obtain [front-projection screens] [each type of front-projection screen] from single manufacturer. Obtain accessories, including necessary mounting hardware, from screen manufacturer.

2.2 ELECTRICALLY OPERATED, FRONT-PROJECTION SCREENS

A. General: Manufacturer's standard units consisting of case, screen, motor, controls, mounting accessories, and other components necessary for a complete installation. [Provide units that are listed and labeled as an assembly by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.]
   1. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
   2. Controls: Remote, [key-operated,] three-position control switch installed in recessed device box with flush cover plate [matching other electrical device cover plates in room where switch is installed].
      a. Provide [two] [three] <Insert number> control switches [for each screen].
      b. Provide number of control switches indicated [for each screen].
      c. Provide power supply for low-voltage systems if required.
      d. Provide locking cover plates for switches.
      e. Provide key-operated, power-supply switch.
      f. Provide [infrared] [radio-frequency] remote control consisting of battery-powered transmitter and receiver.
      g. Provide video interface control for connecting to projector. Projector provides signal to raise or lower screen.
   3. Motor in Roller: Instant-reversing motor of size and capacity recommended by screen manufacturer; with permanently lubricated ball bearings, automatic thermal-overload protection, preset limit switches to automatically stop screen in up and down positions, and positive-stop action to prevent coasting. Mount motor inside roller with vibration isolators to reduce noise transmission.
   4. Screen Mounting: Top edge securely anchored to rigid metal roller and bottom edge formed into a pocket holding a 3/8-inch- diameter metal rod with ends of rod protected by plastic caps.
      a. Roller for end-mounted motor is supported by self-aligning bearings in brackets.
      b. Roller for motor in roller is supported by vibration- and noise-absorbing supports.
   5. Tab Tensioning: Provide units that have a durable low-stretch cord, such as braided polyester, on each side of screen that is connected to edge of screen by tabs to pull screen flat horizontally.[In lieu of tab tensioning, screens may be constructed from vinyl-coated screen cloth that contains horizontal stiffening monofilaments to resist edge curling.]

B. Suspended, Electrically Operated Screens with Automatic Ceiling Closure, with Motor-in Roller, and with Tab Tensioning: Units designed and fabricated for suspended mounting; with bottom of case composed of two panels, fully enclosing screen, motor, and wiring; one panel hinged and designed to open and close automatically when screen is lowered and fully raised, the other removable or openable for access to interior of case.
   1. Products: Subject to compliance with requirements, [provide the following] [provide one of the following] [available products that may be incorporated into the Work include, but are not limited to, the following]:
      a. Da-Lite Screen Company; Tensioned Advantage Deluxe Electrol.
      b. Draper Inc; Signature/Series V Ultimate Access/Series V.
      c. Stewart Filmscreen Corporation; ABT Trap Door ElectriScreen Stealth Trap Door ElectriScreen.

2. Provide metal or metal-lined wiring compartment.
3. Screen Case: Made from [metal] [metal and fire-retardant materials] [metal, wood, wood products, and fire-retardant materials].
4. Provide screen case [with trim flange to receive ceiling finish] [constructed to be installed with underside flush with ceiling] [constructed to be installed with ceiling finish applied to underside].
5. Finish on Exposed Surfaces: [Prime painted] [Vinyl covering or baked enamel].

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install front-projection screens at locations indicated to comply with screen manufacturer's written instructions.

B. Install front-projection screens with screen cases in position and in relation to adjoining construction indicated. Securely anchor to supporting substrate in a manner that produces a smoothly operating screen with vertical edges plumb and viewing surface flat when screen is lowered.
   1. Install low-voltage controls according to NFPA 70 and complying with manufacturer's written instructions.
      a. Wiring Method: Install wiring in raceway except in accessible ceiling spaces and in gypsum board partitions where unenclosed wiring method may be used. Use UL-listed plenum cable in environmental air spaces, including plenum ceilings. Conceal raceway and cables except in unfinished spaces.
   2. Test electrically operated units to verify that screen controls, limit switches, closures, and other operating components are in optimum functioning condition.

3.2 FRONT-PROJECTION SCREEN SCHEDULE

A. Electrically Operated, Front-Projection Screen Type [PS-<#>]: Suspended, with automatic ceiling closure.
   1. Motor Configuration: Motor in roller.
   2. Screen Surface:
   3. Size of Viewing Surface:

END OF SECTION 115213

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SECTION 118226

FACILITY WASTE COMPACTORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes waste compactors.

1.3 DEFINITIONS

A. See the "WASTEC 2013 Listing of Rated Stationary Compactors" for detailed definitions of waste-compactor terminology.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Include rated capacities, operating characteristics, furnished specialties and accessories, and finishes.

B. Shop Drawings: For each waste compactor and for special components not dimensioned or detailed in manufacturer's product data.
   1. Include plans, elevations, sections, and attachment details.
   2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
   3. Dimension chute[and diverter] locations that interface with waste compactors.
   4. Include location and installation details of automatic sprinkler in hopper of each chute-fed compactor.
   5. Indicate equipment access points and required space for equipment service and operation.
   6. Include setting drawings, templates, and instructions for installing anchor bolts and other anchorages.
   7. Include diagrams for power, signal, and control wiring.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Certificates: For each type of waste compactor.

C. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For waste compactors to include in operation and maintenance manuals.

B. Continuing Maintenance Proposal: From Installer to Owner, in the form of a standard [one-year] [two-year] [five-year] <Insert agreement period> maintenance agreement, starting on date maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.
   1. Maintenance Proximity: Not more than [one] [two] <Insert number> hour(s') normal travel time from Installer's place of business to Project site.

PART 2 - PRODUCTS

2.1 WASTE COMPACTORS

A. Waste Compactor : Manufacturer's standard stationary-horizontal-type stationary compactor, complying with requirements, liquid tight, and with components, options, and accessories needed to provide a complete, functional system.
   1. Manufacturers: Subject to compliance with requirements, [provide products by the following] [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:
   2. Basis-of-Design Product: Subject to compliance with requirements, provide [product indicated on Drawings] <Insert manufacturer's name; product name or designation> or comparable product by one of the following:
      a. Compactors, Inc.
      b. Harmony Enterprises, Inc.
      c. J. V. Manufacturing, Inc.
      d. Marathon Equipment Company; a Dover company.
      e. Precision Machinery Systems, Inc.
      f. PTR Baler & Compactor Company.
      g. Rudco Products, Inc.
      h. Sebright Products Inc.
      i. SP Industries, Inc.
      j. Wastequip, Inc.
      k. Western Chutes; a division of Buchanan Company, Inc.
      l. Wilkinson Hi-Rise, LLC.
   3. Waste-Compactor Standards: ANSI Z245.21[including appendices] and NFPA 82.
   4. Waste-Container Standards: ANSI Z245.30 and ANSI Z245.60.
   5. WASTEC-Rated Size (Volume): Minimum .
   6. Clear Top Opening (Length by Width): Minimum .
   7. Cycle Time: Maximum seconds.
   8. Discharge Opening (Width by Height): Maximum <Insert dimensions>.
   9. Ground Height: Minimum <Insert dimension>.
   10. Ram Face: Minimum <Insert dimensions>.
   11. Ram Penetration: Minimum <Insert dimension>.
   12. Normal/Maximum Resultant Ram Forces:
   13. Normal/Maximum System Pressures:
   14. Scale Weight: Maximum.
   15. Electrical Characteristics:
      a. Horsepower: [3] [10] [15] [20] [30] [50] <Insert number> hp.
      b. Voltage: [115 V ac] [208 V ac] [230 V ac], single phase, 60 hertz.
      c. Voltage: [208 V ac] [230 V ac] [460 V ac], three phase, 60 hertz.
   16. Controls: <Insert control features>.
   17. Finish: Manufacturer's standard.
      a. Color: [White] [Black] [Gray] [Dark green] [Yellow] [As selected by Architect from manufacturer's full range] <Insert color>.
   18. Deodorizing Device: [Manufacturer's standard] <Insert requirement>.
   19. <Insert requirement>.

B. Number of Extra Storage Containers: [One] [Two] <Insert number>.

2.2 FABRICATION

A. Fabricate waste compactors with smooth, eased, exposed edges to prevent injury to persons in vicinity of the equipment.

B. Fabricate containers, hoppers, compaction chambers, unit bodies, and similar components of steel with welded joints. Reinforce with steel members sized and spaced to withstand impacts and pressures of normal operations and to prevent deformation.

C. Fabricate equipment with replaceable parts at points of normal wear.

D. Fabricate liquid tight compactor baffles to stop liquid from leaking out.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, clearances, service rough-ins, and other conditions affecting performance of the Work.

B. Examine walls, floors, and chutes for suitable conditions where each waste compactor will be installed.

C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install each waste compactor according to manufacturer's written instructions, ANSI Z245.2, and ANSI Z245.21[, including appendices].

B. Install automatic sprinkler in hopper of each chute-fed compactor according to NFPA 82.

C. Set waste compactors level, plumb, properly aligned, and securely in place. Anchor as required for secure operation.

3.3 FIELD QUALITY CONTROL

A. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
   1. Perform installation and startup checks according to[ANSI Z245.21, Appendix D, "Tests for Evaluation of Equipment and Performance," and] manufacturer's written instructions.
   2. Test and adjust controls, alarms, and safeties. Replace damaged and malfunctioning controls and equipment.
   3. Verify unrestricted access to each firefighting access door or hose connection required by ANSI Z245.21 and NFPA 82 for compactor container(s).
   4. Verify correct locations, color coding, and legibility of caution, warning, and danger markings.
   5. Certify compliance with test parameters.

B. A waste compactor will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.4 MAINTENANCE SERVICE

A. Maintenance Service: Beginning at Substantial Completion, initial maintenance service shall include [12] <Insert number> months' full maintenance by skilled employees of waste-compactor Installer. Include [monthly] <Insert frequency> preventive maintenance, repair, or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper waste-compactor operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain waste compactors according to manufacturer's written instructions and ANSI Z245.2.

END OF SECTION 118226