DAKOTA COUNTY LEC – WALK-IN REFRIGERATOR/FREEZER COMPLEX REPLACEMENT
HASTINGS, MN
SECTION 114000 – FOODSERVICE EQUIPMENT

PART 1 GENERAL

1.01 WORK INCLUDED: Provide labor, equipment, appliances and materials, and perform all operations in connection with the execution of the Work as stated and as represented in the drawings and specifications including that which is reasonably inferred; install and coordinate all equipment in Section 114000.

A. Equipment: Fabricate, deliver, unload, uncrate, assemble, set in place and level ready for final connection by mechanical and electrical trades.

B. Coordination: Coordinate mechanical and electrical rough in services, manufactured equipment and fabricated equipment construction, equipment bases, curbs, ceiling heights, depressed areas, sleeves, wall openings, refrigeration lines, service access, existing building conditions that affect equipment, and all other building conditions required to accommodate the Section 114000 equipment including new, existing, Owner-furnished, Vendor-furnished and future equipment with other trades; cut holes in equipment to accommodate pipes, drains, electrical conduit and outlets as required.

C. Schedule: Perform work in a timely manner consistent with the construction schedule, submit written notice of any manufacturer or construction related problems that are causing a delay in the equipment delivery or installation; substitutions for failure to order equipment in a timely manner are not acceptable.

D. Permits, Licenses and Inspections: Secure and pay for tests, permits and inspections required by authorized regulatory agencies and directly related to the construction and installation of the Section 114000 foodservice equipment work.

E. Document Inconsistencies: When drawings and specifications contain conflicting requirements, request written clarification; provide the better quality or greater quantity of work or material; costs incurred by failure to clarify conflicting requirements are the equipment contractor's responsibility.

F. Model Number Changes and Manufacturer Sales or Bankruptcies: When equipment specified is no longer available, the Owner’s Representative reserves the right to accept the manufacturer's replacement or equipment from a manufacturer specified as equal; the Owner’s Representative reserves the right to reject equipment when a specified manufacturer is sold, when sale is pending, when filing for Chapter 7 or 11 status, and receive equipment from a specified equal manufacturer.

G. FSEC Qualifications: Must be able to provide references for two projects of similar size and complexity within the past five years. These must be consultant specified projects successfully completed to the Owner’s Representative’s satisfaction.

1.02 RELATED WORK BY THE FOODSERVICE EQUIPMENT CONTRACTOR (FSEC)

A. Services and Connections: Extending utility lines from rough-in locations to connection points on the equipment and final connections, including indirect wastes to floor drains, unless otherwise specified.

B. Interconnections: Between equipment and remote components.

C. Disconnection: Existing equipment that is removed to accommodate installation of new equipment.

D. Architectural: Repair and/or replace quarry tile flooring as needed if loosened or damaged during demolition of existing walk-in; match existing tile and grout color as closely as possible; follow Manufacturer's instructions for ventilation of new walk-in while grout cures.

1.03 DEFINITIONS

A. Equal: Must be comparable in critical dimensions, capacity, features, utilities and operation; if equal is submitted, pay all costs required to modify work of any trade affected to accommodate equal.

B. Foodservice Equipment Contractor (FSEC): Person or organization identified as such in the Agreement as providing the Section 114000 equipment

C. Manufactured Equipment: Equipment offered as a catalog item, but which is built to size for each project and generally requires a shop drawing

D. Buy-out Equipment: Equipment offered as a catalog item by a manufacturer, including items requiring minor modifications.

1.04 REGULATORY REQUIREMENTS

A. Laws and Ordinances: Comply with laws, ordinances, rules, codes and regulations relating to the performance of the Work; rulings and interpretations of the enforcing agencies are considered a part of the regulations; no extra charge will be paid for furnishing items required by the enforcing agency.

B. Minimum Standards: Notify the Owner's Representative prior to equipment purchase and/or installation of any item that does not comply with the applicable regulations, including but not limited to the following:
1. National Sanitation Foundation (NSF): Equipment and installation; affix the NSF label to each equipment item
2. Underwriters Laboratory (UL): Electrical equipment and/or components
3. American Gas Association (AGA): Gas fired equipment and installation
4. American Institute of Electrical and Electronics Engineers: Electrical wiring and devices included with the equipment
5. American Society of Heating, Refrigeration and Air Conditioning Engineers, Inc. (ASHRAE): Refrigeration systems
6. American Society of Mechanical Engineers (ASME): Boilers
7. National Electrical Code (NEC): Electrical wiring and devices included with the equipment
8. National Fire Protection Association (NFPA): Exhaust hood and fire protection systems
9. American Society of Tested Materials (ASTM): Metals
10. American National Standards Institute (ANSI): Materials
11. Occupational Safety and Health Agency (OSHA): Equipment and installation
12. Sheet Metal and Air Conditioning Contractors National Association (SMACNA): Equipment and installation where required
13. American Disabilities Act (ADA): Equipment and installation where required
14. International Building Code (IBC) and Standard Building Code (SBCC): Equipment and installation where required
15. Intertek Testing Services (ETL)
16. Safe Drinking Water Act: Lead-free plumbing fittings, faucets and fixtures or more stringent state/local codes where applicable

17. US Energy Independence Act 2007: Walk-in Refrigerator and Freezers and Refrigeration Systems

1.05 SUBMITTALS

A. General: Manufacturer or fabricator changes are not acceptable after submittal review and acceptance without written authorization from Owner's Representative.

B. Schedule: Submit within thirty (30) days from award of Contract; identify key dates and tasks that must be completed by others in order to meet the equipment installation schedule.

C. Review: Stamp and sign each submittal indicating it has been checked for conformance to the specifications, field dimensions, compatibility with other equipment, and coordination with other trades and services.

D. Revisions: Incorporate corrections noted by the Owner's Representative and resubmit new sets for review; repeat until corrections are incorporated.

E. Electronic shop drawings submittals - submit separate submittals per manufacturer
1. Submittal one to include:
   a. Equipment brochure
   b. Equipment plan and schedule, rough-in plans and schedules and special conditions plan
   c. Walk-ins and refrigeration

F. Drawings
1. General
   a. Match the contract drawings sheet size
   b. Leave a 3" x 8" space for review stamps
   c. Lettering not less than 1/8" high
2. Floor Plan and Schedule
   a. Scale: ¼" = 1' 0"
   b. Number equipment and include a schedule on the same sheet if possible
   c. Use Architect's dimensioned plans to prepare plan drawing; verify field dimensions
3. Rough in Plan
   a. General: Provide a utility symbol legend; list the utility requirements, along with the equipment item number on a line extending from the symbol; show exact rough in locations and heights; stub out of walls wherever possible; make allowances for valves, fittings and other required components specified under Mechanical and Electrical Sections; if utilities are already installed, field measure locations and indicate on plan, noting any objection to installed location.
   b. Scale: ¼" = 1' 0"
   c. Equipment Included: Show requirements for specified, Owner-furnished, existing and future equipment; include equipment layout on drawing
   d. Format: Provide separate drawings for mechanical and electrical rough-in plans and schedules.
   e. Dimensioning: Dimension utility rough ins installed under floor from either existing walls, exterior walls or from column line centers; dimension other rough ins from new walls
   f. Code Compliance: See Article 1.04
   g. Coordination: Refer to the architectural, electrical and mechanical engineering drawings for this submission; verify that the correct utility services are available

for equipment ordered; verify existing building conditions; coordinate any changes required to accommodate equipment provided

h. Interconnections: Include connection diagrams for equipment where one or more items are interconnected
i. Sleeves and Conduits: Include requirements for refrigeration lines

4. Equipment Shop Drawings
   a. Scale: Detail fabricated and manufactured equipment in plan, elevation and end view at ¾" = 1' 0" or larger; show sections at 1 ½" = 1' 0" or larger
   b. Organization: Indicate equipment by item number and arrange on sheets in numerical sequence
   c. Field Dimensions: Equipment dimensions are subject to adjustments required by field dimensions and understructure components; take measurements and coordinate with finished building conditions; field dimensions completed by a company/person approved by the custom fabricator; circle any dimensional changes on initial and subsequent submissions
   d. Walk-ins: Show ceiling panel lay-outs and all control and switch locations

G. Written Materials
1. Itemized Bid: If not required during bid submittal, provide itemized bid within 10 days of bid award date; include freight and installation within each item.
2. General: Submit two (2) bound copies for review; if submitted electronically, they are to follow the same format as the hard copy.
3. Equipment Brochure
   a. Equipment List: Include item number, quantity and manufacturer
   b. Cover Sheet: Submit a typewritten sheet — copies of project specification are not acceptable — for each item with item number and equipment description to include model number, quantity, optional features, special construction, installation and utility service requirements for manufacturer provided; include Owner-furnished, existing and future equipment
   c. Manufacturer's Catalog Sheet: Circle relevant utility requirements, dimensions and accessories for each item; do not include advertising or sales sheets; mark item number and quantity required; mark out equipment not being supplied
   d. Organization: Arrange sheets in numerical sequence; tab every 25th item
4. Operation and Maintenance Manual – submit prior to equipment demonstrations
   a. Service Agents: List manufacturers alphabetically with tabs; list equipment type; identify local service agent; list the name, address and telephone number authorized to service the equipment; list FSEC when there is no other service agent
   b. Parts Catalog, Operating and Maintenance Instructions: Include manufacturer's original instructions for buy-out and manufactured equipment; organize alphabetically by manufacturer
   c. Certificate of Warranty: Provide for each piece of refrigeration equipment per Article 1.07 B & C
5. Utility Rebate Documents: For applicable equipment, provide and prepare manufacturer's rebate registration documents for submission by Owner's Representative to utility company; include pertinent equipment model/serial numbers, utility data, installation dates and other information needed to complete application.

1.06 SUBSTITUTIONS

A. Procedure: Submit a written request to the Owner's Representative for approval not less than ten (10) days prior to the bid date; include a description of the proposed substitute, drawings, equipment cutsheets, performance test data and any other data or

information necessary for complete evaluation; list separately construction and performance features that do not meet or exceed the specified item.

B. Approval: Approval or rejection of a proposed substitution is vested in the Owner's Representative whose decision is final and binding; determination may or may not express the reason for the decision; approval by Addendum or Change Order only; verbal approval is not binding.

C. Responsibility: If proposed substitution is approved, pay all costs required to modify work of any trade affected to accommodate substitution.

1.07 WARRANTY/CORRECTION PERIOD

A. General: Warranty equipment and installation with full parts and labor for one (1) calendar year from date of acceptance by Owner’s Representative; acceptance is defined by first date of foodservice facility operation; inoperable equipment is not considered “accepted”; inoperable equipment includes, but is not limited to, inadequate training and demonstration, defective materials and improper installation.

B. Walk-in Refrigeration and Freezer Systems: One year full system parts and labor warranty to cover all components and installation; five (5) year compressor/condenser warranty to cover parts and materials only; service available 24 hours per day, seven (7) days per week; contract begins on date of acceptance by Owner's Representative.

C. Correction Period: When the complete breakdown of a piece of equipment occurs, perform service within 24 hours; make other repairs within one week.

D. Service Agreement: Service agents listed in the Operation and Maintenance Manual must perform service as described above; repairs and/or replacements not made within the specified time will be corrected by other means and the Section 114000 contractor is responsible for reasonable costs incurred.

E. Defective Equipment: If within the first year of operation the piece of equipment has not been fully operational for 6 continuous months, the FSEC will replace the unit at their expense.

PART 2 PRODUCTS

2.01 QUALIFIED FABRICATORS

A. Qualifications: Minimum of five years' experience in similar work; produce custom fabricated equipment in one shop.

B. Authorized Equipment Fabricators: The following companies are approved custom stainless steel equipment fabricators; request for substitutions can be made per Article 1.06. Must be NSF (or ETL Sanitation) listed for counter construction and UL (or ETL) listed fabricator. Fabricator must prewire counters to a single point connection; see Article 2.11C.

Vollrath/ACS LLC
(651) 265-0603

FSF Manufacturing
(407) 971-8280

IEI Institutional Equipment Inc.
(630) 771-0990

Russco
(816) 241-8787x103

Two Rivers Enterprises
(320) 746-3156

2.02 MATERIALS - Not Used

2.03 FABRICATION – Not Used

2.04 FABRICATION - REFRIGERATION - Not Used

2.05 HARDWARE COMPONENTS - Not Used

2.06 MILLWORK - Not Used

2.07 REFRIGERATION

A. Walk In Refrigerator & Freezer Construction
1. Size: Per plan; 8’-10” minimum finished interior height; interior dimensions must accommodate shelving shown on plan
2. General:
   a. Wall and Ceiling Panels (and floors, if applicable): 4” thick modular panels joined by not less than three (3), cam lock devices; cam locks accessed from inside walk in; cover access holes with gray plastic caps or white plastic to match white walls or ceiling; gasket to seal between panels; foamed in place CFC reduced urethane insulation, self-extinguishing UL classified according to ASTM and U B C 52.3 with flame spread of 25 or less and smoke development of 450 or less; R 25 or greater for refrigerators; R 32 or greater for freezers.
   b. Ceiling Panels: Span shortest distance; utilize over-partition joined panels to minimize suspended ceilings; use 5” thick ceiling panels on spans greater than 15’-0”; maximum unsupported span of 17’-4”; suspended ceiling seams siliconed and tar taped.
   c. Finishes:
      (1) Exterior Finishes: 22 gauge, Type 304 smooth stainless steel per Article 2.02B, where exposed; vertical grooves in panels are not acceptable; 22 gauge galvanized steel on unexposed surfaces
      (2) Interior Finishes
         (a) Wall Panels: .04” (before embossing) stucco embossed aluminum
         (b) Ceiling Panels: .032” smooth aluminum with two coats of white, baked polyester enamel
3. Wall Protectors (If Specified): 1-1/2” wide extruded aluminum rail with vinyl insert; field positioned; secure with unexposed sheet metal screws; end caps
4. Diamond Tread Wall Overlay (If Specified): Provide 1/8” thick, 48" diamond-tread plate aluminum on exposed exterior; secure with oval countersunk head stainless steel screws and seal joints with silicone; install after stainless steel coved base and overlap stainless steel coved base by 1/2".
5. Floor: See item specifications for conditions that apply to this project; prefabricated freezer floor panels must have R-28 rating or greater; verify that building is transit level prior to installing walk ins; notify Owner’s Representative and Architect if sub floor ventilation or heating is required for walk in freezers; FSEC to verify that sub-

floor installation conditions are acceptable prior to installing floor and box; identify any discrepancy in writing to Owner's Representative prior to installation
   a. Prefabricated Floor/Floorless: Per Detail SD-183, install foam screeds on wearing slab; 4" thick floor with urethane insulation as described in Article 2.07, para. A.2; 16 gauge stainless steel where exposed with coved interior; 3/4" marine plywood reinforcing below top; 1,000 lb. per square foot rated load; 30" minimum length interior ramp; non-skid strips on ramp and traffic aisles
6. Stainless Steel Coved Base: 22 gauge stainless steel on interior and exterior; 4" minimum height, 8'0" maximum length; 3/4" diameter cove; secure without exposed fasteners; overlap seams 1", miter joints at corners
7. Door: R-25 or greater for refrigerators; R-32 or greater for freezers; In fitting, flush mounted, not less than 36" x 78" clear opening; 22 gauge smooth stainless steel with no exposed fasteners; replaceable magnetic gasketing on top and sides; replaceable double sweep gasket at bottom; door jamb with replaceable heater wires; stainless steel reinforced heated threshold flush with finished floor; frame-mounted door heater control switch, label control switch as "door heater adjustment" with incremental temperature level indicator control markings (high, medium, low)
   a. Vision Panel: Not less than 150 square inches; heated; triple pane glass
   b. Hinges: Three, Kason Model 1346 with stainless steel cover; lift-off adjustable hinge; cam-lift spring- assisted self-closing hinges with 7-9/16" long strap; use Kason load chart to verify hinge model selection for specific door weight and width
   c. Handle: Kason 1236 or Kason 27C with steel reinforced plate inside door panel or equal by Dent, lever action door handle with cylinder lock, padlock hole and interior safety release; provide common key for all walk-in doors
   d. Door Closer: Kason 1092 or Kason 1094 with stainless steel hook
   e. Kickplate: 1/8" thick diamond tread plate aluminum on both sides of door and frame; extend from door bottom to door handle; secure with counter sunk oval head stainless steel screws; seal perimeter with silicone
   f. Incandescent Light: Delete lamp holder, bulb and shield entirely from door panel
   g. Electrical: Wire in conduit concealed in door panel to junction box top of ceiling per Detail SD-191
8. Thermometer: -40°F to 99°F; flush-mount in door panel on latch side, 60" above floor; conceal wire through door panel to junction box on top of walk-in; provide 24 volt transformer; wire from display through door panel, and extend sensor a minimum of 6'-0" from the door, in multiple walk-in compartment application with interior door, locate display for inner compartment in outer compartment door panel below display for outer compartment
   a. Digital Thermometer with Alarm and Building Alarm Interface: Modularm 75LC with Motion Sensor: Kason Model 1901A
   b. Digital Thermometer with Alarm and Building Alarm Interface: Modularm 75LC with MD-1 motion detector and IP-1 with illuminated push button for panic alarm and lights
9. Pressure Relief Port: Provide heated relief port in freezers and non-heated in refrigerators; locate in exposed wall
10. Lights: Provide minimum (or greater) foot candle light levels as required per current FDA food code or per local code requirements; see item specification for lights required for this project
   a. LED: Component Hardware Model LED48X754-CL-N; 52" long fixture; LED strips and driver replaceable without tools; 6000 lumens; locate as shown on plan; lighting intensity 10 foot candles or light level necessary to meet code.
11. Enclosure Panels & Trim Strips: Secure with no exposed fasteners; close space between walk in and ceiling with enclosure panels, maximize panel width and minimize panel height; if access is required, supply only two 36" wide removable

panels; close vertical space between walk in panels and building walls with trim strips; enclosure and trim same material as wall panels per Detail SD-193.

12. Penetrations and Seams: Penetrations sealed with closed cell minimum expanding spray foam; seams sealed completely with Dow Corning 999A silicone glazing sealant to prevent condensation; tar tape on ceiling joints
13. Receptacle for Heater Tape: Provide weather tight receptacle for freezer coil drainline heater
14. Electrical: Prewire lights, alarm, door, window and port heaters, and receptacle for heater tape in ½" OD PVC conduit above walk in to junction box; ready for final connection by Electrical Trades per Detail SD-191; conduit within walk in is not acceptable
15. Sprinkler Heads: When required, cut holes for sprinkler heads; provide stainless steel trim cap and seal holes per Article 2.07A, para. 13

B. Refrigeration System: Complete operating system

1. Condensing Unit:
   a. General: Condenser type per item specification and as detailed below; hermetic compressors for 1/2 h.p. and under, standard scroll compressors (digital when included with item specification) for 3/4 h.p. and above; internal starting contactors and thermal overload protection; splash lubrication system using POE-32 polyolester synthetic refrigeration oil; oil sight glass; removable oil drain plug; label indicating oil used; high/low pressure control; suction line filter; suction and discharge service valves and copper/brass vibration isolators; receiver with fusible plug or relief valve; liquid line shut off valve; sight glass; molecular sieve filter dryer; main power supply fused disconnect switch; wiring throughout installed in conduit bolted to unit; R-448A or equal U.S. Environmental Protection Agency (EPA)-approved and compatible refrigerant for medium and low temperature applications
   b. Air-Cooled Indoor: Same as air-cooled outdoor minus the following components: crankcase heater with low ambient controls, headmaster, insulated and heated receiver; no housing required
2. Evaporator: Forced convection, direct expansion-style, fabricated with copper tubing and aluminum fins; match to condensing unit and suspend with air discharged parallel to the ceiling; lifetime sealed motors with inherent motor protection; evaporator fan motors of under 1 h.p. and less than 460 volts must use two-speed electronically commutated (EC) motors; factory-installed liquid line solenoid valve and electronic expansion valve; enclose coil section and fans within aluminum housing; for projects located within 20 miles of salt air, provide protective coating on aluminum evaporator fins to prevent corrosion
   a. Refrigerator: Air defrost
   b. Freezer and Low Temperature Refrigerator: Electric heater and controls for positive automatic defrost
   c. Installation: Hang coils per manufacturer's recommendations using plastic or nylon threaded rod; spread coil weight evenly over ceiling panels; support long span ceiling panels as required
   d. Refrigerator Drainline: Run copper drainline from evaporator to building floor drain; exit walk in as close to floor as possible; trap below coil inside of walk in; paint drainline with non-toxic paint, color to match wall panels; secure to walk-in wall
   e. Freezer and Low Temperature Refrigerator Drainline: Trap outside of walk in; wrap with Frostex heater tape, manufactured by nVent and wired for continuous "on" operation; insulate with ½" thick Armaflex, Type AP insulation; secure to walk-in wall
3. Refrigeration Lines: Interconnect evaporator to condensing unit; pipe between components as required with refrigeration grade, degreased, sealed, Type L-ACR, hard drawn copper tubing; slope horizontal runs toward condensing unit one-half

inch per 10’-0” of length so that refrigerant or oil cannot drain back into evaporator from suction line; trap suction line as it exits evaporator coil; trap bottom of vertical runs of 5’ 0” or more; if vertical run is 15’-0” or more, provide additional trap every 10’-0”; isolate refrigerant piping connected to compressors using copper/brass vibration isolators properly mounted at both ends; entire system cannot be exposed to atmosphere for more than (15) minutes; remove piping end caps just prior to soldering; braze all connections with Sil-Fos-15 solder; pass a continuous flow of nitrogen gas through the area being brazed or soldered; dismantle valves during soldering; clean pipe by pulling a clean cloth through its entire length; blow out piping prior to testing and insulating using dry nitrogen gas and pull a vacuum through the lines; insulate refrigeration lines with Armaflex, Type AP insulation or equal by Rubatex, ¾” thick for refrigerators and ¾” thick for freezers and low temperature refrigerators; verify acceptability of Armaflex, Rubatex or Aerocel EPDM insulation with local codes; if refrigeration lines pass through a return air plenum, use Pittsburgh Corning Foamglass, 2” thick insulation when Armaflex is unacceptable; install sections of insulation with 10”long metal guards at hanger points; support piping at intervals of 8’-0” or less based on pipe size and code requirements, using Uni-Strut channel hangers; secure piping to channel hangers using galvanized clamps with neoprene grommets separating the piping from the clamps; seal all joints and seams with Armstrong 520 adhesive; for outdoor use, cover insulation with VentureClad, 1507B, black, VentureClad line set tape (www.venturetape.com) insulate and heat trace outdoor lines where temperatures fall below -15°F; where VentureClad is not permitted by local code, provide Airex E-Flex Guard insulation.

4. Refrigeration Controls
    a. Walk-in Refrigerator: Provide demand defrost controller by KE2 Therm Industries or equal for refrigerator evaporators, one per evaporator; controller factory-mounted on front of coil without exposed conduit and labeled as "demand defrost controller”; temperature sensors to be factory installed within evaporator; controller to include microprocessor with onboard web server allowing system parameters to be monitored remotely utilizing standard TCP/ IP protocols HTML and XML communication
    b. Walk-in Freezer and Low Temperature Refrigerator: Provide demand defrost controller by KE2 Therm Industries or equal for freezer and low-temperature evaporators, one per evaporator; controller factory-mounted on front of coil without exposed conduit and labeled as "demand defrost controller”; temperature sensors to be factory installed within evaporator; controller to include microprocessor with onboard web server allowing system parameters to be monitored remotely utilizing standard TCP/ IP protocols HTML and XML communication; heater block-out relay to prevent heater from operating while compressor is running; heat exchanger and accumulator
    c. Remote Reach-in and Roll-in Refrigerator and Freezer Systems: Provide time clock for positive "off" cycle air defrost
5. System Operation: Complete system capable of maintaining the interior temperature specified
    a. Refrigerators: 35° F operating temperature ± 2° with a 16 18 hour running time; design to operate at 100° F ambient temperature; size evaporator for 10° TD maximum
    b. Freezers: -10° F operating temperature + 2° with an 18 hour running time; design to operate at 100° F ambient temperature; size evaporator for 10° TD maximum
    c. Low Temperature Refrigerators: 28° F. operating temperature ± 2° with a 16-18 hour running time; design to operate at 100° F ambient temperature; size evaporator for 10° TD maximum
6. Installation - see item specification condition that applies to this project

a. Interior: Mount equipment on fully welded angle iron rack sized to support weight and dimensions of condensing unit(s); set, level and bolt down rack(s) on floor or suspend from structural wall or roof support members in location specified in manner acceptable to the Owner's Representative; paint racks with two coats of rust inhibiting paint or polyurethane; provide two color etched plastic nameplate identifying equipment served by each refrigeration system
b. Exterior: Set, level and bolt down condensing units in location specified; coordinate requirements for mounting with Owner's Representative; roof curbs and penetrations are not in Section 114000
c. Ventilation: Notify the Owner's Representative prior to installation if ventilation is not adequate
d. Diagrams: include with operations and maintenance manual

2.08 EXHAUST HOODS - Not Used

2.09 FIRE PROTECTION SYSTEMS - Not Used

2.10 CONVEYORS - Not Used

2.11 UTILITY SERVICE REQUIREMENTS

A. Electrical
1. General: Underwriters' Laboratories (UL) listed and comply with National Electrical Code, Standards of National Electrical Manufacturers' Association and American Institute of Electrical and Electronics Engineers; wire, wind or construct equipment to conform to available electrical services; furnish wiring and connection diagrams with equipment; provide equipment rigid and free from objectionable vibration and noise
2. Plug in Equipment: Furnish with cords attached; match plugs to receptacles; coordinating cords and plugs are the FSEC's responsibility; modify cord to a suitable length; on mobile equipment; provide suitable length restraint to facilitate cleaning; mount restraint to prevent it lying on floor.
   a. Motor Driven Appliances and Electric Heating Units: UL listed control switch or starter; exposed fused disconnect at motors larger than ½ hp or per code requirements; furnish line switches, fittings and connections when not part of the equipment for installation by Electrical Trades
   b. Motors: Drip-proof, splash-proof or totally enclosed type, having a continuous-duty cycle; ball bearings except small motors which may have sleeve bearings; windings impregnated to resist moisture; enclose when exposed to dust, lint, water or other matter; mount on vibration elimination pads
   c. Switches and Controls: Internally wire equipment to a thermostatic control and/or on/off switch with red indicator light; locate where shown; label function with plastic nameplates with not less than ¼" high white recessed lettering, and glue to adjacent surface

PART 3 EXECUTION

3.01 SITE INSPECTION

A. Field Measurements: Field measure foodservice space prior to equipment construction; conform to finished building conditions; submit written notification to Owner's Representative if building conditions prevent equipment from functioning properly.

B. Site Conditions: Verify that surfaces, prepared openings, finished building dimensions, and roughed in utilities are ready for equipment; coordinate equipment with building

openings and dimensions; construct and deliver equipment in sections sized to site limitations.

C. Utilities: Verify that voltages, air volumes, water temperature and water, steam, and gas pressures are as required for equipment; coordinate changes to ensure that equipment operates properly

D. Acceptance: Beginning of installation means acceptance of site conditions.

E. Responsibility: Assume the expense of changes to equipment and/or cutting and patching walls, partitions, ceilings and floors necessary to receive and successfully operate equipment, caused by failure to coordinate with site conditions.

3.02 INSTALLATION

A. Qualifications: Minimum five years' experience in similar work, including field welding.

B. Code Compliance: Conform to current Standards and Revisions established by the National Sanitation Foundation, Ann Arbor, Michigan, and to prevailing local codes and regulations.

C. Sealing: Seal equipment that abuts a wall or other fixed equipment with silicone sealant per Article 2.02, para. C; ¼" maximum width.

D. Trim: Material to match equipment surface; trim equipment in wall openings, recesses or abutting a wall that cannot be effectively sealed with silicone; exposed fasteners are not acceptable; unacceptable as a substitute for accuracy and neatness.

E. Schedule: Comply with the Owner's Representative's construction schedule; notify the Owner's Representative in writing, not less than thirty (30) days prior to the scheduled deadline if there is a reason the schedule cannot be met.

F. Cutting and Patching: Cut and drill tops, backs, or other elements for service outlets, fixtures, and fittings; cut and patch foodservice equipment as required for equipment installation or service

G. Protection: Protect equipment from damage.

H. Damage and/or Loss: Replace or repair items that are lost or damaged prior to Owner's Representative's acceptance

I. Factory Supervision: Provide factory authorized service agent supervision for installation of job-site assembled conveyors, flight-type dishmachines and pulpers; include a thorough check of utility connections, pressures and overall installation.

J. Custom Fabrication: The fabricator must conduct or approve the person/company responsible for taking field dimensions and installing their equipment.

3.03 EXISTING EQUIPMENT

A. Disconnect all mechanical and electrical utilities from Walk-in Complex; disassemble, remove from site and safely dispose of complex panels and all associated components; obtain written authorization from Owner's Representative to remove equipment from

site (Owner's Representative has the option to retain existing equipment and/or associated components)

3.04 CLEANING

A. Remove masking or protective covering from stainless steel and other finished surfaces; wash, clean and polish equipment; polish glass, plastic, hardware, accessories, fixtures and fittings prior to the inspection and acceptance of the Work

3.05 DEMONSTRATION AND TESTING

A. Demonstration: Schedule times with the Owner's Representative to provide instruction on the maintenance and use of each item; demonstrate operation to appropriate inspectors if required; verify that copies of all instructional, operational, maintenance manuals, charts and audio and video media have been provided at least two weeks prior to demonstration as required in Article 1.05, para. G.4.

B. Testing: Test, regulate and put into proper operating condition; calibrate controls, including thermostats; coordinate dishmachine testing with detergent supplier; properly activate water filters per manufacturer's recommendations.

C. Chart of Completion: Provide separate charts for demonstration and testing; include item number, description of equipment, date, person/firm responsible, and Owner's Representative's initials; provide charts to Owner's Representative and Consultant prior to Owner's Representative's acceptance.

3.06 ITEM SPECIFICATIONS

1 WALK-IN REFRIGERATOR/FREEZER COMPLEX
One
Thermalrite (Plymouth, MN location) or equal by Thermo-Kool, American Panel, Kolpak or Refrigerated Solutions Group (Norlake) *R103

A. Phase II - Demolition of existing Refrigeration Systems and Walk-in Complex General: Before disconnection of system components, evacuate and dispose of R22 refrigerant and oil in compliance with current EPA standards; provide certificate of safe disposal to Owner's Representative, including name and location of disposal site; remove and dispose of existing evaporator coils; demo walk-in complex panels, dispose as required by local code; omit finished ceiling above walk-in complex, no obstructions from finished floor to 10'-6" AFF

B. Features: Complex size and shape as shown on Plan, constructed and equipped per Article 2.07; digital thermometer with alarm and building alarm interface; LED lights per Part 2.07A

C. Floor: Standard Detail SD-183; FSEC to verify that floor conditions are approved prior to installing floor and box; provide any discrepancy in writing to Owner's Representative

D. Finishes: Natural finish embossed aluminum exposed exterior; white baked enamel over smooth aluminum ceiling; stucco-embossed aluminum interior walls; galvanized steel on unexposed exterior surfaces; 1/8" thick diamond tread plate, 48" high on exposed exterior; secure with countersunk oval head screws and seal joints and edges with silicone; provide diamond tread plate loose for installation at site (with the exception of the door) for coordination with coved base; install after stainless steel coved base and overlap base by 1/2"

E. Installation: Manufacturer Authorized Installer to install walk-in compartment

F. Electrical: 120V, 1 phase

G. Bid Alternate – Finish: Stainless steel exposed exterior

2 FREEZER SYSTEM COIL
One
A. Features: Properly-sized evaporator coil; system equipped and installed per Article 2.07B (demand defrost system without time clock); install coil as tight to ceiling as possible without affecting operation of coil, Refer to Item #4
B. Electrical: 208V, 1 phase (Evaporator Coil)

3 REFRIGERATION SYSTEM COIL
One
A. Features: Properly sized evaporator coil; system equipped and installed per Article 2.07B (demand defrost system without time clock); install coil as tight to ceiling as possible without affecting operation, refer to Item #4
B. Electrical: 120V, 1 phase (Evaporator Coil)

4 RACKED REFRIGERATION SYSTEM
One
RDT Model ZS1-02Z-CT3-AST or equal by Cold Zone both w/Copeland compressor unit; Heatcraft evaporator coil or equal by HTPG *R103
A. Phase I – Install new Refrigeration System, including piping runs; extend runs from refrigeration system to above location of new evaporators in new Walk-in Complex; to be installed prior to demolition of existing walk-in and installation of new Walk-in Complex during Phase II
B Features: Properly sized indoor, air-cooled racked refrigeration system to serve Item #1 Refrigerator and Freezer Complex; scroll type compressors; properly sized evaporator coils; system equipped and installed per Article 2.07B (demand defrost system without time clock)
C. Rack: Factory assembled multi compressor system; stainless steel housing and one-piece louvers; prewired control panel with main disconnect, circuit breakers, contactors wired to a single point power connection; prepiped refrigeration lines; each system equipped with an oil separator, headmaster controls and insulated receivers; construct rack to fit tight to wall and size rack to allow 3'-0" minimum aisle at front and end with load center panel; provide bracket for rack that can be mounted on the wall in loading dock area per Plan, verify exact location
D. Installation: By Manufacturer's authorized installer; verify exact location of rack and associated piping route to new Walk-in Complex with Owner's Representative; maintain Manufacturer's recommended offsets to adjacent obstructions to ensure adequate ventilation requirements are met; refrigeration sizing is based on the assumption that condensing units are located within 150' of the evaporator coils
E. Electrical: 208V, 3 phase (compressors)
120V, 1 phase (evaporator coil)
208V, 1 phase (evaporator coil)

5 REFRIGERATOR/FREEZER SHELVING
Twelve
Metro Industries MetroMax Q Shelving *R103
A. Features: Shelves width and length shown on Plan; four reinforced polypropylene open grid shelves per section; 63" high MetroMax i polymer posts; 5" diameter polyurethane casters, two with brakes, delete donut bumpers
B. Installation: Verify that units fit within finished wall dimensions; assemble with bottom shelf 10" above floor or per local health code requirements

6 TEMPORARY REFRIGERATOR

One

Polar King International, Inc. Model DT810 or approved equal **(Note: Refrigerated truck will be considered an approved equal)**

A. Features: Pre-assembled unit to operate at +35° F; self-contained refrigeration system; electrically powered

B. Installation: Verify exact location with Owner's Representative and confirm units fit in designated space; coordinate duration of unit rental with project schedule and time estimated to complete all specified work in Phase II, including three-day minimum testing period of new Walk-in Complex and Refrigeration System

C. Electrical: 208V, 1 phase

7 TEMPORARY FREEZER

One

Polar King International, Inc. Model DT810 or approved equal **(Note: Refrigerated truck will be considered an approved equal)**

A. Features: Pre-assembled unit to operate at -10° F; self-contained refrigeration system; electrically powered

B. Installation: Verify exact location with Owner's Representative and confirm units fit in designated space; coordinate duration of unit rental with project schedule and time estimated to complete all specified work in Phase II, including three-day minimum testing period of new Walk-in Complex and Freezer System

C. Electrical: 208V, 1 phase

END OF SECTION 114000