

SECTION 11 41 22 - REFRIGERATED FIXTURE INSTALLATION

PART 1 - GENERAL

1.1 SUMMARY

A. General:

1. This Section specifies installation of refrigerated fixtures and equipment furnished by the Kroger Company referred to as the Owner.
2. This Section includes various store type installations. Some of the items specified in this Section will not be used on the Project. Refer to Refrigeration and Fixture Drawings for items included in the Project.
3. Supervision to coordinate the activities of all trades will be furnished by others. The Installer is responsible for supervising their own Work and meet dates shown on the installation schedule.

B. Section includes:

1. All labor, material and equipment specified in this Section and on the Refrigeration and Fixture Drawings necessary for a complete and working installation of Owner's fixtures and equipment.
2. Installation of the Owner furnished refrigerated fixtures shown on the Drawings (Fixture Plan) include, but are not limited to the following:
 - a. Installation of refrigerated cases.
 - b. Installation of temp tags for Owners temperature monitoring system.
 - c. Installation of refrigerated case shelving, and inserts.
 - d. Installation of the misting system for the produce wet rack.
 - e. Install refrigerated ice machines as shown on Drawings. Adjust as required.
 - f. Nails, bolts, nuts, screws, hangers, chains, washers, threaded rods, and other materials and devices.
 - g. Adhesive and silicone sealant.
 - h. Other materials and devices not provided by Owner necessary to complete the refrigerated case installation.

- C. Modifications and additions to this Section, if required, are indicated in Section 11 41 22.01 "Supplementary Refrigerated Fixture Installation." If Section 11 41 22.01 "Supplementary Refrigerated Fixture Installation" is not included in this Project Manual, no modifications and additions to this Section are indicated. Where any portion of this Section is modified or deleted by Section 11 41 22.01 "Supplementary Refrigerated Fixture Installation," the unaltered portions shall remain in effect.

1.2 DEFINITIONS

- A. Certain terms and words used throughout Section shall be defined as follows:

1. **Owner:** The person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Owner" means the Owner or the Owner's Representative.
2. **Contractor:** The General Contractor with overall responsibility to build a complete store, on schedule, ready for operation as a complete food store.
3. **Installer:** The entity identified in this Section responsible for but not limited to material and installation of the refrigerated fixtures, as identified in this Section.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Report to Owner any defaults in work furnished and installed by others that causes conditions unsuitable for Installer's Work. Failure to inspect and report unsuitable conditions shall constitute acceptance of work furnished and installed by others as fit and proper for coordination with the Installer's work.
- B. Cooperation with Other Trades: Cooperate with other installers doing work on the Project to prevent any conflict that would require moving or changing any devices, or other equipment, or require other installers to relocate devices and equipment when installed according to plans and specifications.
 1. Where interference exists, notify Owner before proceeding with installation.

1.4 WORK SCHEDULES

- A. Typical work schedule shall consist of five 8-hour workdays ending no earlier than 3:00 p.m. local time at the store or in shifts as required in the Phase Plan or Project Schedule.
 1. For non-local Installers, as approved by the Owner, work may be conducted in four 10-hour days provided the work day does not end prior to 3:00 p.m. local time.
- B. Office, Pharmacy, Computer Room and Customer Care Office Moves: For remodel projects involving modification or relocation of these areas, provide a laborer to assist in the move. The Work shall occur at night and the appropriate hours necessary to perform the work shall be included in the Installer's cost.

1.5 SUBMITTALS

- A. The Owner will provide the following submittals for Owner supplied items for the Installer's information upon request:
 1. Product Data: For each item and accessory supplied by Owner.
 2. Shop Drawings: For special components and installations not detailed in manufacturer's product data.
- B. Closeout Submittals

1. Operation and Maintenance Data: For equipment furnished by installer and equipment furnished by Owner to include in emergency, operation, and maintenance manuals. Include service and installation instructions.
 - a. Collect manuals for equipment installed in this Section and place in a three ring binder. Deliver to the Owner's store manager upon completion of the Work. Refer to General Conditions for additional requirements.
 - b. The Owner will supply the Installer with receiver copies of all equipment and fixture purchase orders to include in Operation and Maintenance Manual.
2. Record Drawings: As-built drawings showing the location of refrigerated cases

1.6 QUALITY ASSURANCE

- A. Work, materials, and equipment shall comply with rules and regulations of authorities having jurisdiction. Continually monitor field installation for code compliance and workmanship quality. Installation shall comply with all manufacturers' recommendations.
- B. Maintain a set of Contract Documents on the Project for Owner to review and verify any discrepancies.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. For remodels, do not store material in the sales area. Material stored in the back room must be out of the way of the Owner's operations.

1.8 FIELD CONDITIONS

- A. Field Measurements: Verify dimensions of other construction by field measurements before beginning Work.
- B. For remodels, temporarily relocate cases as indicated or directed by Owner. Verify special project scope and schedule. Start and verify operation of self-contained equipment, both new and temporary and make any necessary repairs. Repairs will be handled by Change Order.

1.9 WARRANTY

- A. Installer's Warranty: Standard form in which Installer agrees to repair or replace any component that does not comply with requirements or that deteriorates or malfunctions as a result of improper installation by the Installer within specified warranty period.
 1. Warranty Period: 90 days from date of store Grand Opening provided installation is accepted and approved as completed in compliance with the Contract Documents by the Owner.
 2. Warranty Retainage: Until the end of the warranty period, 5 percent of the contract amount due the Installer will be held as a retainage unless a different retainage percentage is required by the Authority Having Jurisdiction.

3. Warranty Service: During the warranty period, regardless if the service call is due to failure of equipment or failure of the installation, the Installer shall enter the service call with Service Hub, the Owner's electronic service call system. Submit service reports to the Owner at the end of the warranty period.
 - a. As part of the Installer's warranty service, the Installer shall make arrangements to have a service technician present at the store for the Grand Opening day to correct problems or make adjustments designated by the Owner, working a minimum of four hours, commencing two hours before store opening.
- B. Refer Division 00 Section "General Conditions" for general warranty information.

PART 2 - PRODUCTS

2.1 OWNER FURNISHED PRODUCTS

- A. Receive, handle, store, and protect materials, equipment, fixtures or supplies delivered to the site by the Owner for installation under this Section. Schedule and coordinate deliveries.

2.2 INSTALLER FURNISHED PRODUCTS

- A. General: Installer furnished products includes the following:
 1. Slotted Channel Framing: Cold-formed metal box channels (struts) complying with MFMA-4.
 - a. Basis of Design Product: Unistrut Corporation; Series P-4000 or heavier
 2. Silicone Sealant: ASTM C 920, Type S, Grade NS, Class 25, Use NT, A or N-Curing, Mildew-Res.
 - a. Product:
 - 1) Dow Corning Corporation; 786 Mildew Resistant.
 - 2) GE Silicones; Sanitary SCS1700
 - 3) Pecora Corporation; 898
 - 4) Tremco, Inc.; Tremsil 200BASF Omniplus
 3. Butyl-Rubber-Based Joint Sealant: ASTM C 1311.
 - a. Products:
 - 1) Bostik, Inc.; Chem-Calk 300.
 - 2) Pecora Corporation; BC-158.
 - 3) Tremco, Inc.; Butyl Sealant
 4. Any additional parts or materials required for a complete system to Owner's specifications.

- B. Unless otherwise specified, all materials and equipment items shall be new. All materials used in the Project shall be equal to approved samples in every respect. When required by the Owner, the Contractor shall provide certificates of conformance for materials specified.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of refrigeration systems.
- B. Examine roughing-in for refrigerant piping systems to verify actual locations of piping connections before equipment installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: For stores remaining open during construction, perform Work in a manner as to provide a minimum of annoyance and interference to Owner's operations, its customers and vendors.
 - 1. No work shall be done by the Installer that will void a manufacturer's warranty.
 - 2. If during the course of the Work any piece of equipment under the scope of this Work is damaged (the damage occurring after arrival), notify the Owner immediately, listing the model number, serial number and the extent of the damage. Ensure the damage is corrected.
 - 3. Remove and dispose of trash and debris resulting from the uncrating, joining, and assembly of equipment completely and in an orderly fashion. Remove trash and debris daily and dispose of materials lawfully.

3.3 UNLOADING, SETTING, AND ASSEMBLY

- A. General:
 - 1. Arrange for equipment manufacturer's representative to be present during unloading and setting (refer to Owner's P.O. and delivery schedule).
 - 2. Immediately upon delivery, inventory contents of containers. Notify supplier and Owner in writing when cases do not include material normally supplied in accordance with the equipment list, including holding charge. Lack of holding charge is unacceptable.
 - 3. Protect refrigeration fixtures prior to installation.
 - 4. Inspect cases after uncrating. The equipment and accessories furnished are pre-wired and are purchased with the manufacturer's standard one-year parts warranty. If equipment arrives at the Project damaged:
 - a. Obtain a signed inspection report, in duplicate, from carrier.
 - b. Notify the Owner and fixture supplier immediately.
 - c. Do not conduct repairs or replacement until authorized.

5. Upon authorization, obtain, from the manufacturer, and replace any malfunctioning parts or equipment.
6. Check self-contained refrigerated equipment for proper operation and correct temperature settings.
7. Check Fixture Plan Layout, R-1 Refrigeration Equipment Plan, and any Addenda for self-contained equipment. Follow manufacturer's specifications for start-up and checking.

B. Cases

1. Uncrate and set refrigerated cases and equipment per manufacturer's installation instructions and as indicated on the refrigeration equipment layout Drawings.
 - a. Set cases level. Check for levelness front to back, end to end, using a 6 foot long level or other more stringent leveling instrument when necessary. Verify that cases are in line and joints properly sealed and pulled together tight.
 - b. Install with metal case shims provided by the manufacturer. If more shims are required than furnished, use similar field supplied metal material.
 - c. Adjust doors and hinges for proper fit, level, seal and closure for cases equipped with display doors.
 - d. Stay current with the manufacturer's installation and operation manuals provided.
2. Install seismic supports and bracing as required by manufacturer and authorities having jurisdiction, and as required for stability. Extend and fasten members to supporting structure as required or refer to structural drawings if provided for anchoring.
3. Install trim, joint strips, shelves, rack and kick plates on refrigerated cases. Prior to installing trim and kick plates, inspect under fixture to verify that all construction debris and materials have been removed.
4. Sealing
 - a. General:
 - 1) Apply sealant in ample amounts in a continuous bead to form smooth, uniform beads; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 2) Apply sealant without removing factory installed case ends.
 - 3) Allow ample time for sealant to cure prior placing to case/system on line.
 - 4) Once equipment is set, do not shift or move without breaking and resealing joints.
 - b. Apply butyl rubber sealant at case joints.
 - c. After cases are set, apply silicone sealant to inner and outer case joints, including seam at bottom of cases.
 - 1) In the event that RL cases are back to back, apply sealant to joint area inside of case.
 - 2) Seal penetrations into cases with silicone sealant.
 - 3) Provide clear silicone sealant or same color of surrounding area.
5. Close off open spaces between case ends or kick plates with a material similar to case material.
6. Place refrigeration case shelving in the respective cases after start-up.

- a. Pegged product to have a stub shelf or baffle to preserve the cases air curtain.
 - b. Shelving with lights to be plugged and lamp operation verified.
 - c. Notify the Owner when complete.
7. Temp Tags: Install Owner supplied temp tags for Owners temperature monitoring system in every refrigerated case, cooler, freezer, and refrigerator. Install per the "Tag Placement Guide" pages 31-38 of the "Fast Alert System Facility Install Guide": www.sitefolio.net/Kroger/TeamPageHome.sf?idTeam=1104&idTeamPageGroup=25&idTargetFile=154558.
 8. Install and verify accuracy of the manufacturer provided loose thermometer per manufacturer's instructions in the warmest location of each case after it is merchandised to comply with NSF certification.
 9. Install case manufacturer provided dividers as follows:
 - a. Install and adjust clear acrylic dividers between like temperatures on separate circuits (i.e. frozen food next to frozen food).
 - b. Install and adjust insulated partitions on mixed temperature applications (i.e. frozen food next to ice cream).
 - c. Refer to the refrigeration schedule for exact application and location of partitions and dividers.
 10. Electrical Configuration: Configure cases as identified on the refrigeration schedule.
 - a. Configure cases for 208 volt, 1-phase single or 3-phase feeders from the defrost panel.
 - b. For 3-phase systems, cases will have case manufacturer's factory installed fuses.
 11. Install Owner provided misting system, misting system timers, and reverse osmosis filter (if required) for produce wall cases.

C. Walk-in Boxes and Preparation Areas

1. Install Owner supplied loose shipped evaporator coils by suspending from top chord of bar joist with **3/8 inch (9.5 mm)** plated or galvanized threaded steel rod.
2. For coils installed in the walk-in coolers/freezers, support above ceiling panel with slotted channel framing (Unistrut).
 - a. Cut slotted channel framing in lengths to span a full ceiling panel width plus a minimum of **6 inches (150 mm)** overlap on each adjacent panel.
 - b. Support coils from top chord of bar joist.
 - c. Seal cooler penetrations both inside and out with foam and silicone sealant.
3. Comb out any damaged fins on coils after installation
4. Install strip curtains on designated walk in freezers, meat and dairy coolers before startup.

END OF SECTION 11 41 22

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