

SECTION 11 41 34 - FIXTURES AND EQUIPMENT CONDENSATE DRAIN CONNECTIONS

PART 1 - GENERAL

1.1 SUMMARY

A. General:

1. This Section specifies condensate drain connections of fixtures and equipment furnished by the Kroger Co. 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. Condensate drain connections for the Owner furnished equipment and fixtures shown on the Drawings (Fixture Plan) include, but are not limited to the following:
 - a. Installer supplied items and Work:
 - b. Installation of condensate drain lines from refrigerated fixtures and equipment.
 - c. Any additional parts or materials required for a complete and working installation of Owner's fixtures and equipment.

C. Modifications and additions to this Section, if required, are indicated in Section 11 41 34.01 "Supplementary Fixture and Equipment Condensate Drain Connections." If Section 11 41 34.01 "Supplementary Fixture and Equipment Condensate Drain Connections" 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 34.01 "Supplementary Fixture and Equipment Condensate Drain Connections," the unaltered portions shall remain in effect.

D. Refer to Section 114133 "Fixture and Equipment Plumbing Connections" for drain connections to equipment other than refrigerated cases and coils.

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 for the condensate drain connections to the refrigerated equipment, as identified in this Section.
4. **Building Plumbing Contractor:** The contractor responsible for the installation of the building plumbing infrastructure to which the Installer of the work of this section will make their final connections.

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.

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 FIELD CONDITIONS

- A. Field Measurements: Before beginning work, inspect all building drains, field measure and verify all plumbing drain locations with respect to the building plumbing drawings and report in writing any discrepancies, variances, or defects to the Contractor and Owner.

1.8 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 INSTALLER FURNISHED PRODUCTS

- A. General Product Requirements: Furnish and install products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Substitutions: Comparable products shall match the specified product in every respect. Provide certificates of conformance for comparable products when required by the Owner.
- B. Tubing, Fittings and Insulation for Condensate Lines: Case drain tubing and fittings are not furnished with the cases. Products include but are not limited to:
 1. Metal Piping: ACR, Type M, hard copper.
 - a. Fittings and P-Traps:
 - 1) Manufacturers:
 - a) Mueller Industries, Inc.
 - b) Henry Technologies.
 - c) Superior Products LLC.
 2. Plastic Piping: Polyvinyl chloride (PVC), schedule 40 DWV. ASTM D-2665
 - a. PVC Pipe:
 - 1) Manufacturers:
 - a) Charlotte Pipe
 - b) Genova Products
 - c) U.S Plastic Corp.
 - b. PVC Fittings and P-Traps: ASTM D 2665, socket type, made to ASTM D- 2665,
 - 1) Manufacturers:
 - a) Lasco Fittings, Inc.
 - b) Genova Products
 - c) U.S Plastic Corp.
 3. Brazing Rods:
 - a. Products:
 - 1) Lucas-Milhaupt, Inc.; Sil-Fos
 - 2) Johnson Matthey Metal Joining; Easy-Flo.
 4. Piping Insulation: Closed cell polymeric foam insulation.
 - a. Products:
 - 1) Armacell, LLC; AP/Armaflex II.
 - 2) K-Flex, USA; Insul-Tube/K-Flex LS.
 5. Insulation joint sealant: Fast drying neoprene contact adhesive.
 - a. Products:

- 1) K-Flex, USA; K-Flex 320
 - 2) Armacell, LLC; #520 contact adhesive
 6. Foam Insulation: two-component, quick-cure polyurethane foam
 - a. Products:
 - 1) The Dow Chemical Company; Froth-Pak or approved substitution.
- C. Condensate Drain Piping Support: Material required to support and secure condensate drain piping, includes but is not limited to:
 1. Copper bell hanger, Copper Van Hanger, copper plated split ring pipe hangers
 - a. Manufacturers:
 - 1) Jones Stephens Corp.
 - 2) Carpenter & Paterson, Inc..
- D. Heat Tape.
 1. Basis of Design Product: Raychem, a division of Tyco Thermal Controls; # 5XL1-CR.
 - a. Furnish and install for piping exposed to freezing conditions indoors and outdoors.
 - b. Furnish and install RayClic Type Termination Kits with the system.
- E. Other Products: Furnish and install additional parts or materials as required for a complete system to the Owner's specifications.

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 fixtures and equipment condensate drains.
- B. Examine roughing-in for fixtures and equipment condensate drains 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 remodel projects perform work in a manner as to provide a minimum of annoyance and interference to Owner's operations, its customers and vendors.
 1. Do not perform any Work that voids a manufacturer's warranty.

3.3 DRAIN CONNECTIONS

A. Refrigerated Cases and Equipment Drains:

1. Refrigerated cases will be furnished with a trap, either built-in or supplied loose by the equipment manufacturer, for connection to case drains.
2. Run case drains to the nearest hub drain or floor sink with schedule 40 PVC pipe unless other material is required by code.
 - a. Furnish and install cleanout unions in the most accessible location for cleaning.
 - b. Run drains full size whenever possible. Cement and clean connections.
 - c. Drain lines to be cleaned and cemented.
 - d. Furnish and install PTFE tape (Teflon) for threaded fittings.
 - e. Cut the ends of drain pipe at angle to help ensure air gap.
3. Install pipe to one hub drain or floor sink for every two cases, or separate drain for each case. Drain each case independently all the way to the hub drain or floor sink.
 - a. Hussmann Impact Cases: One drain stub per case.
 - b. Hussmann Excel Cases: Two drain stubs per case.

B. Walk-in Cooler/Freezer and Prep Area Evaporator Drains:

1. Walk-in Coolers: Furnish and install copper drain lines and traps from coils to hub drain or floor sink outside walk-in boxes.
2. Low Temperature Walk-in Freezers: Furnish and install type M, hard copper drain lines from coils to hub drain or floor sink outside of freezer. Route drain lines to exit box as quick a possible reducing potential for freezing. Slope drain lines not less than 15 degrees. Insulate drain lines and wrap with heat tape inside of freezer. Hard wire electrical connections.
3. Refrigerated Preparation Areas: Furnish and install type M hard copper drain lines for coils. Run lines shall to condensate drain most practical for use
4. Verify drain line installation route with Owner prior to installation of condensate lines.
5. Do not install drain lines smaller than the coil drain and connection.
6. Install copper union at the bottom of the pan to permit removal of the drain line.
7. Install drain lines so as not to interfere with removal of the drain pan.
8. Install union fitting within **12 inches (305 mm)** of the drain pan.
9. Heat tape for freezer drain lines shall be installed by the Fixture Electrical Installer.
10. Seal wall penetrations with expanding foam and silicone sealant, inside and out.
11. Install walk-in's coil drain lines "P" traps immediately outside the walk-in boxes, tight against wall and not at the hub drain where it can be damaged. Do not install traps inside the walk-in box unless specifically required by authorities having jurisdiction

C. Other Condensate Drains:

1. Disconnect condensate pan heaters for self-contained equipment and install **1 inch (25 mm)** drain line piped to a nearby drain where possible.

END OF SECTION 11 41 34