

## SECTION 11 41 33 - FIXTURE AND EQUIPMENT PLUMBING CONNECTIONS

### PART 1 - GENERAL

#### 1.1 SUMMARY:

##### A. General:

1. This Section specifies supply water and drain connections of 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 Fixture and Building Plumbing 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 Fixture Drawings necessary for a complete and working installation of Owner's fixtures and equipment.
2. Installation piping and final connections for the Owner furnished equipment and fixtures shown on the Drawings (Fixture Plan) include, but are not limited to the following:
  - a. Installation of water supply lines and final connection to refrigerated and non-refrigerated fixtures and equipment.
  - b. Installation of water supply lines, drain lines and final connections to non-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 33.01 "Supplementary Fixture and Equipment Plumbing Connections." If Section 11 41 33.01 "Supplementary Fixture and Equipment Plumbing 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 33.01 "Supplementary Fixture and Equipment Plumbing Connections," the unaltered portions shall remain in effect.

##### D. Work performed by others (unless noted otherwise on the Drawings):

1. Prep area hand washing sinks.
2. Food prep and utensil washing sinks.
3. Water softening and conditioning equipment.

##### E. Refer to Section 114134 "Fixtures and Equipment Condensate Drain Connections" for drain connections to 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 of the final plumbing water and drain connections to the refrigerated and non-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: Verify dimensions of other construction by field measurements before beginning Work.

## 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 Water Lines: Products include but are not limited to:
  1. Water and Drain Metal Piping: ACR, Type L, hard copper.
    - a. Fittings and P-Traps:
      - 1) Manufacturers:
        - a) Mueller Industries, Inc.
        - b) Henry Technologies.
        - c) Superior Products LLC.
  2. 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.
  3. Bronze Fittings:
    - 1) Manufacturers:
      - a) Nibco Inc.
      - b) Conbraco Industries, Inc., Apollo Valves.
      - c) Viega Propress.
  4. Valves: Ball type, brass
    - a. Manufacturers:
      - 1) Watts Water Technologies.
      - 2) Apollo Valves.
      - 3) B & K Plumbing Valves, a Brand of Mueller Industries.
  5. Plastic Piping: Polyvinyl chloride (PVC), schedule 40 DWV. ASTM D-2665
  6. PVC Socket Fittings and P-Traps: ASTM D 2665, socket type, made to ASTM D 3311.
    - a. Manufacturers:
      - 1) Charlotte Pipe and Foundry Company.
      - 2) Genova Products, Inc.
      - 3) U.S Plastic Corp.
  7. PVC Fittings and P-Traps: ASTM D 2665, socket type, made to ASTM D- 2665,

- a. Manufacturers:
  - 1) Lasco Fittings, Inc.
  - 2) Genova Products, Inc.
  - 3) U.S Plastic Corp.
- 8. Brazing Rods:
  - a. Products:
    - 1) Lucas-Milhaupt, Inc.; Sil-Fos
    - 2) Johnson Matthey Metal Joining; Easy-Flo.
- 9. Piping Insulation: Closed cell polymeric foam insulation.
  - a. Products:
    - 1) Armacell, LLC; AP/Armaflex II.
    - 2) K-Flex, USA; Insul-Tube/K-Flex LS.
- 10. Insulation joint sealant: Fast drying neoprene contact adhesive.
  - a. Products:
    - 1) K-Flex, USA; K-Flex 320
    - 2) Armacell, LLC; #520 contact adhesive
- 11. Piping Insulation: Closed cell polymeric foam insulation.
  - a. Products:
    - 1) Armacell, LLC; AP/Armaflex II.
    - 2) K-Flex, USA; Insul-Tube/K-Flex LS.
- 12. Insulation joint sealant: Fast drying neoprene contact adhesive.
  - a. Products:
    - 1) K-Flex, USA; K-Flex 320
    - 2) Armacell, LLC; #520 contact adhesive
- 13. Foam Insulation: Two-component, quick-cure polyurethane foam
  - a. Products:
    - 1) The Dow Chemical Company; Froth-Pak or approved substitution.
- C. Water Piping Support: Material required to support and secure water 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. Water Filter: Water filters to be supplied and installed by the Building Plumbing Contractor. Refer to Section 22 11 00 "Facility Water Distribution."
- 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 fixture and equipment plumbing connections.
- B. Examine roughing-in for fixture and equipment plumbing connections to verify actual locations of piping connections before equipment installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 INSTALLATION, GENERAL**

- 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 in such a manner that voids a manufacturer's warranty.

#### **3.3 WATER SUPPLY AND DRAIN CONNECTIONS**

- A. Water Supply Connection Work by Installer
  - 1. All Store Equipment Requiring Water Connection:
    - a. Install cold water piping, pressure regulators, vacuum breaker, back check, and shut off valves.
    - b. Furnish and install piping as needed from the Building Plumbing Contractor furnished and installed shut off valve to the fixture and equipment indicated on the Drawings.
    - c. Install water piping free of leaks tested at maximum water service pressure.
  - 2. Misting System: Install water piping from the valves, located under the produce cases, to the misting system (supplied by Owner) located in the produce cases. Furnish and install type "L" soft copper tubing and soldered fittings. Insulate water lines inside the produce cases and protect from the suction line.

3. 5-Deck Produce Cases: Spray hose quick connection pre-installed in every other case (one per line-up minimum). Install RO water connection from stub near case or misting system.
4. Alto-Shaam Combi-Therm Oven: Connect **3/4 inch (19 mm)** flexible PVC water supply line (furnished with each oven) to **3/4 inch (19 mm)** supply valves for each oven.
5. Ice machines and Proofers: Install **1/2 inch (13 mm)** cold water line with a 'Y' type strainer, water filter, and pressure regulator (in that order) to ice machines. Insulate piping from the water valves to the ice machines.
6. Ice Machine Connections:
  - a. Assemble parts and controls supplied for ice machines with the bin remote from the ice making assembly.
  - b. Adjust pressure regulator to **15 psig (103 kPa)**.
  - c. Check ice machine for proper operation.
7. Hot Food Tables, Steamers, Steam Tables, Coffee Makers and Icemakers: Install soft copper water piping from water valves to equipment.
8. Pharmacy Reverse Osmosis (RO) Water Filtration Dispensing System: Install RO system equipment, water filters, backflow preventer (check valve), and PEX piping.
9. Store Equipment Requiring Filters: Install water filters and piping. Locate filters where not seen by customers but are in close proximity of the equipment and easily accessible by store personnel. Make final connections including but not limited to the following equipment:
  - a. Ice machines.
  - b. Coffee machines.
  - c. Steam tables.
  - d. Bakery oven.
  - e. Retarders.
  - f. Ice tea brewer.
  - g. Carbonated beverage dispensers.
  - h. Combi-therm ovens.
  - i. Steamers.
  - j. Hot food tables.
  - k. Proofers.
  - l. Salad bar.
  - m. Sterilox unit.
  - n. Meat and seafood case humidification system.
  - o. Other miscellaneous prep area equipment.
  - p. Pharmacy reverse osmosis water filtration dispensing system.
  - q. Produce misting system with special piping and components.

B. Drain Connection Work by Installer:

1. Drainage Piping for All High Temp Discharge Store Equipment: Drain connection above grade, trap from fixtures discharging **140 degree F. (60 degree C.)** or hotter water.
  - a. Equipment includes, but is not limited to the following:
    - 1) Pasta cooker.
    - 2) Proofers.

- 3) Steamers.
    - 4) Salad bar soup wells.
    - 5) Bakery ovens.
    - 6) Hot food tables.
    - 7) Alto-Shaam Combi-Therm ovens.
    - 8) Dish washing & utensil washing equipment.
  - b. Install with Type "L" hard drawn copper tubing, with wrought copper bronze fittings and 95/5 tin/antimony or 94/6 tin/silver solder for drain lines and fittings.
  - c. Install lines to drain most practical for use. Furnish and install air gap at drain in conformance with authorities having jurisdiction.
  - d. Install "P" traps as required by authorities having jurisdiction.
  - e. Install drain line for each Alto-Shaam Combi-Therm oven in accordance with installation instructions furnished with each unit.
2. Drainage Piping for All Non-High Temp Discharge Store Equipment:
- a. Equipment includes, but is not limited to the following:
    - 1) Quick chillers.
    - 2) Ice machines.
    - 3) Lobster tank.
  - b. Install with Type "M" hard drawn copper tubing and fittings.
  - c. Install lines to drain most practical for use. Furnish and install air gap at drain in conformance with authorities having jurisdiction.
  - d. Install "P" traps as required by authorities having jurisdiction.
  - e. Ice Machine Connections: Connect icemaker overflow to nearest drain. Install drain line from storage bin to nearest drain.
  - f. Drain for Carbonated Beverage Dispensers: Install PVC piping and fittings.

END OF SECTION 11 41 33