SECTION 22 11 00
FACILITY POTABLE WATER DISTIBUTION

PART 1 GENERAL

1.1 RELATED DOCUMENTS
- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.
- B. Division22 & 23 Basic Mechanical Materials and Methods sections apply to work of this section.

1.2 DESCRIPTION OF WORK
- A. The drawings, schedules, and specifications indicate the extent of potable water systems work.
- B. Refer to other Section 22 07 19 for insulation required in conjunction with potable water piping; not work of this section.
- C. The trenching and backfill requirements in conjunction with exterior water piping are in other Division 22 & 23 sections, and included as work of this section.
- D. The trenching and backfill requirements in conjunction with potable water piping inside of building foundations are in other Division 22 & 23 sections, and included as work of this section.

1.3 QUALITY ASSURANCE
- A. Manufacturer's Qualifications, firms regularly engaged in manufacture of potable water systems products, of types, materials, and sizes required, whose products have been in satisfactory use in similar service for not less than 5-years.
- B. Codes and Standards
  1. Plumbing Code Compliance, comply with applicable portions of the Florida Building Code pertaining to selection and installation of plumbing materials and products.

1.4 SUBMITTALS
- A. Product Data, submit manufacturer's technical product data and installation instructions for potable water systems materials and products.
- B. Show grooved joint couplings and fittings on drawings and product submittals, and specifically identify with the applicable manufacturer's style number.

PART 2 PRODUCTS

2.1 MATERIALS AND PRODUCTS
- A. General
  1. Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, temperature ratings, and capacities as indicated.
  2. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements.
  3. Provide materials and products complying with plumbing code where applicable.
  4. Provide sizes and types matching piping and equipment connections; provide fittings of materials that match pipe materials used in potable water systems.
  5. Where indicating more than one type of material or product, selection is Installer's option.

2.2 BASIC IDENTIFICATION
- A. General, provide identification complying with Division - 23 Basic Mechanical Materials and Methods section "Mechanical Identification".

2.3 BASIC PIPES AND PIPE FITTINGS
- A. General

1. Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, and capacities as indicated in section 22 10 00.
2. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements.
3. Provide sizes and types matching piping and equipment connections; provide fittings of materials, which match pipe materials used in potable water systems.
4. Where indicating more than one type of material or product, selection is Installer's option.

2.4 BASIC PIPING SPECIALTIES

A. General, provide piping specialties complying with Section 22 20 00, in accordance with the following listing:
   1. Pipe escutcheons
   2. Low-pressure Y-type pipeline strainers
   3. Dielectric unions
   4. Mechanical sleeve seals
   5. Fire Barrier penetration seals
   6. Water hammer arresters
   7. Pipe sleeves
   8. Sleeve seals

2.5 BASIC SUPPORTS AND ANCHORS

A. General, provide supports and anchors complying with Section 22 02 29, in accordance with the following listing:
   1. Adjustable steel clevises and adjustable pipe saddle supports for horizontal piping hangers and supports.
   2. Two-bolt riser clamps for vertical piping supports.
   3. Concrete inserts, C-clamps, and steel brackets for building attachments.
   4. Protection shields for insulated piping support in hangers.

2.6 BASIC VALVES

A. General, provide valves complying with Section 22 10 00, in accordance with the following listing.
   1. Sectional Valves
      a. 2" and Smaller, ball valves
      b. 2½ " and Larger, gate valves
   2. Shutoff Valves
      a. 2" and Smaller, ball valves
      b. 2½" and Larger, gate valves
   3. Drain Valves
      a. 2" and Smaller, gate valves or ball valves
      b. 2½" and Larger, gate valves
   4. Check Valves
      a. All Sizes, swing check valves

2.7 BALANCE COCKS

A. Threaded Ends 2" and Smaller, class 125, bronze body, bronze plug, screw driver operated, straight or angle pattern.
B. Soldered Ends 2" and Smaller, class 125, bronze body, bronze plug, screw driver operated, straight or angle pattern.

C. Manufacturer shall be subject to compliance with requirements, provide balance cocks of one of the following.
   1. Bell & Gossett ITT; Fluid Handling Div
   2. Hammond Valve Corp
   3. Milwaukee Valve Co., Inc
   4. Spirax Sarco
   5. Taco, Inc

D. Automatic Flow Control Valve for Drinking Water Applications: ½ and ¾" [15 and 20mm], NSF/ANSI 61-G rated for commercial hot water service (temperature rated to 180F), and certified by the NSF with all wetted parts stainless steel; lead-free construction in compliance with ANS/NSF-372; Series 300 stainless steel body, nickel plated brass union nut, and tamper-resistant flow cartridge 300 series stainless steel. Basis of Design: Victaulic "ICSS" Series 76X.

2.8 RELIEF VALVES

A. General, provide relief valves as indicated, of size and capacity as selected by Installer for proper relieving capacity, in accordance with ASME Boiler and Pressure Vessel Code.

B. Combined Pressure Temperature Relief Valves, provide bronze body, test lever, thermostat, complying with ANSI Z21.22 listing requirements for temperature discharge capacity. Provide temperature relief at 210°F (99°C), and pressure relief at 150 psi.

C. Manufacturer shall be subject to compliance with requirements, provide relief valves of one of the following.
   1. Cash Acme formerly Cash (A.W.) Valve Mfg. Corp
   2. Conbraco Industries, Inc
   3. Watts Regulator Co
   4. Zurn Industries, Inc

PART 3 EXECUTION

3.1 INSPECTION

A. General
   1. Examine installation areas and conditions under which potable water systems.
   2. Do not proceed with work until unsatisfactory conditions are corrected and acceptable to Installer.

3.2 INSTALLATION OF BASIC IDENTIFICATION

A. General, install mechanical identification in accordance with Division- 23 Basic Mechanical Materials and Methods section "Mechanical Identification".

3.3 INSTALLATION OF POTABLE WATER DISTRIBUTION PIPING

A. General, install water distribution piping in accordance with Section 22 10 00.
   1. Install piping level and plumb, unless specified otherwise.

B. Locate groups of pipes parallel to each other, spaced to permit applying full insulation and servicing of valves.

C. Electrical Equipment Rooms, do not run piping thru electrical equipment rooms or above electric panels.

3.4 INSTALLATION OF PIPING SPECIALTIES

A. Install piping specialties in accordance with Section 22 20 00.

3.5 INSTALLATION OF SUPPORTS AND ANCHORS

A. Install supports, anchors, and seals in accordance with Section 22 05 29.

3.6 INSTALLATION OF VALVES

A. Install valves in accordance with Section 22 10 00.
B. Sectional Valves, install on each branch and riser, close to main, where branch or riser serves two or more plumbing fixtures or equipment connections, and elsewhere as indicated.
C. Shutoff Valves, install on inlet of each plumbing equipment item, and on inlet of each plumbing fixture, and elsewhere as indicated.
D. Drain Valves
    1. Install on each plumbing equipment item located that completely drains equipment for service or repair.
    2. Install at base of each riser, at base of each rise or drop in piping system, and as indicated or required to completely drain potable water system.
E. Check Valves, install on discharge side of each pump, and elsewhere as indicated.
F. Balance Cocks, install in each hot water recirculating loop, and elsewhere as indicated.

3.7 EQUIPMENT CONNECTIONS

A. Piping Run outs to Fixtures, provide hot and cold water piping run outs to fixtures of sizes and indicated, but in no case smaller than required by the plumbing code.
B. Mechanical Equipment Connections, connect hot and cold water piping system to mechanical equipment as indicated, and comply with equipment manufacturer's installation instructions.
    1. Provide shutoff valve and union for each connection, provide drain valve on drain connection.
        a. Where grooved joint piping systems are utilized, unions are not required, grooved joint couplings shall serve as unions.

3.8 FIELD QUALITY CONTROL

A. TESTING
    1. Flush Out the piping systems with clean water before proceeding with required tests.
        a. Inspect each run of each system for completion of joints, supports, and accessory items.
    2. Hydraulically pressure test each section or segment of the system prior to backfilling, encasing, enclosing or otherwise preventing visual observation of the section or segment being tested.
        a. Backfill the underground systems, only after passing the required test
        b. Exposing joints only, permitted on all systems and required on systems having a pressure test exceeding 30 psig.
    3. Water test potable water system at 150% of design pressure, (100 psig minimum) for a period of 4 hours using a gage with a 0 psi to 200 psi and a minimum of 4 2 " dial.
    4. Disinfect potable water system: See “Plumbing Piping” for disinfection specification.

3.9 SPARE PARTS

A. Furnish to Owner, with receipt, one valve key for each key operated hydrant, bibb, or faucet installed.

END OF SECTION