

Internal Use Only

Installation Standard For ASBESTOS CEMENT PRESSURE PIPE FOR WATER SERVICE AND YARD PIPING

IAPMO IS 15-2006

1.0 SCOPE

- 1.1** This standard shall govern the installation of asbestos cement pressure pipe and fittings with elastomeric gasketed joints in hot and cold water building supply and yard piping. For allowable location and pressure, see Sections 2.4 and 2.5.2 of this standard. Installation, material, and inspection shall comply with the current edition of the Uniform Plumbing Code [UPC]TM published by the International Association of Plumbing and Mechanical Officials, and shall also comply with this standard.

Note: The following sections of the Uniform Plumbing Code apply to asbestos cement pressure piping systems.

Table 14-1	Materials
310.0	Workmanship
313.0	Protection of Piping, Materials and Structures
314.0	Hangers and Supports
315.0	Trenching, Excavation, and Backfill
Chapter 6	Water Supply and Distribution

Chapter 2 DEFINITIONS

202.0	AC	Asbestos Cement
Chapter 14	ASTM	American Society for Testing and Materials
	IAPMO	International Association of Plumbing and Mechanical Officials
	UPC	Uniform Plumbing Code published by IAPMO

2.0 PRODUCT REQUIREMENTS

2.1 Minimum Standards

- 2.1.1 Material.** Materials shall conform to the appropriate standard in Table 14-1 of the Uniform Plumbing Code.
- Applicable Standards
- | | |
|----------|------------------|
| AC Pipe | ASTM C296 |
| Fittings | AWWA/ANSI A21.10 |
| Rings | ASTM D1869 |
| Joints | AWWA/ANSI A21.11 |
- 2.1.2 Pipe.** Pipe is asbestos cement.

- 2.1.3 Fittings.** Fittings are cast iron or other listed materials.

2.1.4 Markings

- 2.1.4.1 Pipe.** Pipe markings shall be in accordance with C 296. [UPC 301.1.2]

- 2.1.4.2 Fittings.** Fitting markings shall be in accordance with A21.10. [UPC 301.1.2]

- 2.1.4.3 Couplings.** Couplings shall be marked with at least the following:

- (a) Manufacturers name or trademark;
- (b) Class and nominal size; and
- (c) Letter "T".

- 2.1.4.4 Position of Markings.** The identifying markings on pipe and fittings shall be visible for inspection without moving materials unless otherwise acceptable to the Administrative Authority.

2.2 Trenching, Cover, and Backfill

- 2.2.1 Trenching and Cover.** Trench bottoms shall be uniformly graded and shall be of either undisturbed soil or shall consist of a layer or layers of compacted backfill so that minimum settlement will take place. The trench bottoms shall be at least 12 inches (305 mm) below the average local frost depth. The minimum cover shall be 18 inches (458 mm) below the finish grade. [UPC 315.0]

- 2.2.2 Backfill.** After finishing pressure testing of the line, backfill a minimum of twelve (12) inches (305 mm) deep over the top of the pipe and fittings. Backfill should be select material placed around the pipe in a manner to provide a firm continuous support. Tamp well to secure proper compaction.

Note: All joints shall be exposed during test.

2.3 Joints

- 2.3.1** Joints in asbestos cement pipe shall be a sleeve coupling of the same composition as the pipe, or of other listed materials, and sealed with rubber rings or joined by other listed compression type coupling. [UPC 705.1.4]

- 2.3.2** Joints between asbestos cement pipe and other approved pipes shall be made by means of listed adapter couplings. Special

- heat resistant rings as recommended by the manufacturer must be used for temperatures in excess of 140°F (60°C).
- 2.3.3** Before assembling the joint, the coupling grooves, pipe ends, and rubber gasket must be cleaned. The rubber gaskets are then positioned in the grooves.
- 2.3.4** Use the pipe manufacturer's joint lubricant recommended for potable water application. Apply lubricant to the machined end of the pipe only, never to the rubber gasket or groove, unless specifically recommended otherwise by the manufacturer.
- 2.3.5** The end of the pipe and the coupling or fitting bell shall be assembled using a bar and wood block or a pipe puller. "Stabbing" or "popping" the pipe into the coupling (pipe is suspended and swung into the bell) is not recommended.
- 2.3.6** When a field cut is made, cut the pipe square, using hand pipe-cutters which use a cutting edge, or hand saws. To properly enter the rubber gasketed joint, the end of the pipe must be machined before insertion, using hand machining tools.
- 2.4 Materials**
- 2.4.1 Location.** Asbestos cement piping shall be installed only outside the foundation of any building or structure or parts thereof. It shall be buried in the ground for its entire length except vertical piping may be extended above grade per Section 313.0 of the Uniform Plumbing Code. It shall not be installed within or under any building or structure or mobile home or commercial coach or parts thereof. The term "building or structure or parts thereof" shall include structures such as porches and steps, roofed porte-cocheres, roofed patios, carports, covered walks, covered driveways, and similar structures or appurtenances. [UPC 604.1]
- 2.5 Installation, Testing, and Identification**
- 2.5.1 Alignment and Deflection.** Pipe and fittings shall be aligned properly without strain. Pipe may be deflected in accordance with the manufacturer's recommendations provided that it shall not be permanently staked or blocked to maintain this deflection. If soft soil conditions exist, deflected joints may be permanently blocked or staked to maintain the deflection. The amount of deflection shall be: 5° for sizes 4 inch

(101.6 mm) through 12 inch (305 mm); 4° for 14 inch (356 mm) and 16 inch (407 mm); 3-1/2° for 18 inch (457 mm) through 24 inch (610 mm) for pipe belled on the job site. For factory-belled couplings, one half (1/2) the above deflections by size shall be allowed.

- 2.5.2 Working Pressure.** Maximum working pressure shall be as follows:

MATERIALS, SIZES AND MAXIMUM WORKING PRESSURES

Pipe	Sizes	Maximum Pressure
Class 100	4 24 inch incl.	100 psi
	(102 610 mm incl.)	(689 kPa)
Class 150	4 24 inch incl.	150 psi
	(102 610 mm incl.)	(1033 kPa)
Class 200	4 24 inch incl.	200 psi
	(102 610 mm incl.)	(1378 kPa)

- 2.5.3 Laterals and Saddles.** Installation of laterals, saddles, or tapped couplings in AC piping shall be as required by their listings.

- 2.5.4 Thrust Blocking.** Thrust blocks shall be installed at:

- (a) Changes in direction, as at tees and bends;
- (b) Changes in size, as at reducers;
- (c) Stops, as at dead ends; and
- (d) Valves, where thrusts may be expected.

The size and type of thrust block shall be based on the pressure rating of the pipe (or line test pressure, if greater than piping rating), pipe size and kind of soil 2.5.4(b). Refer to Table 1 for thrust at fittings for a pressure of one hundred (100) pounds per square inch (689 kPa).

- 2.5.5** To determine the bearing area of thrust blocks, refer to Table 2 for the safe bearing load of the soil and divide the total thrust by this safe bearing load.

- 2.5.6** Thrust blocks shall be located as shown on Chart 1.

- 2.5.7 Testing**

- 2.5.7.1** The portion of the line being tested should be complete with thrust blocks or properly sized temporary thrust blocking. The line may be pressure tested immediately after installation, provided however, that if poured concrete thrust blocks have been utilized, they have had a 24-hour period to attain an initial cure. [UPC 609.4]

- 2.5.7.2** The entire system shall be filled with