

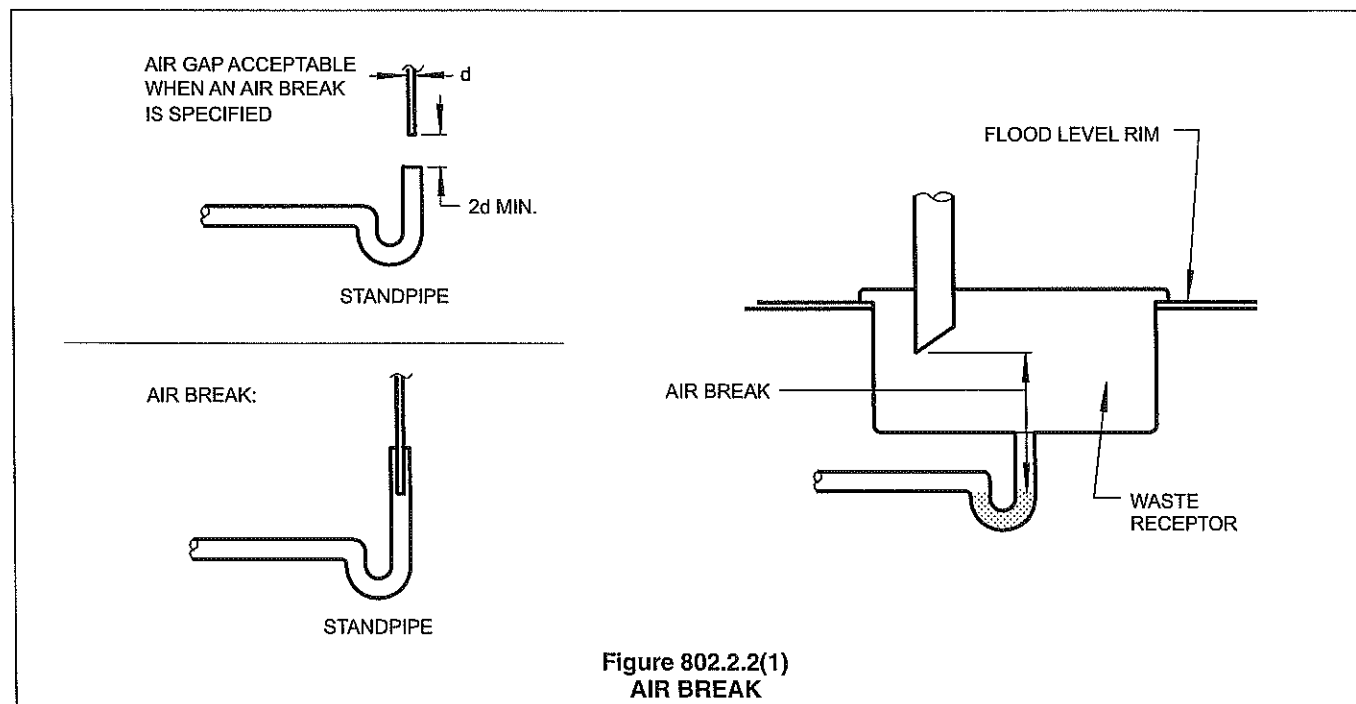
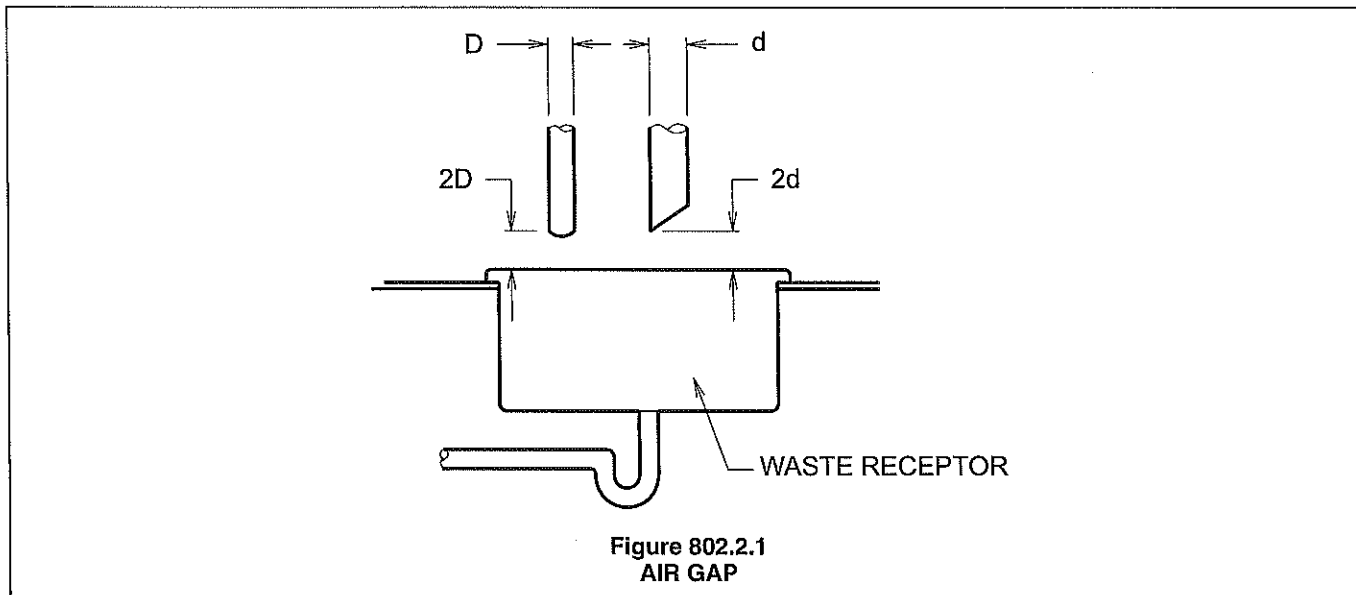
802.2.1 Air gap. The *air gap* between the indirect waste pipe and the *flood level rim* of the waste receptor shall be not less than twice the *effective opening* of the indirect waste pipe.

❖ An air gap is a drainage pipe that terminates above the flood level rim of the waste receptor. Any stoppage downstream of the waste receptor will result in waste overflowing the receptor without submerging the indirect waste pipe outlet. This type of indirect waste connection offers the highest level of protection by not allowing any possibility for backsiphoning of waste or sewage (see Commentary Figure 802.2.1). An air gap is always acceptable where an air break is specified.

802.2.2 Air break. An *air break* shall be provided between the indirect waste pipe and the trap seal of the waste receptor or standpipe.

❖ The indirect waste pipe is allowed to extend below the flood level rim, but it must terminate above the seal of the trap serving the waste receptor [see Commentary Figures 802.2.2(1) and 802.2.2(2)]. An air gap is always acceptable where an air break is specified.

802.3 Waste receptors. Waste receptors shall be of an approved type. A removable strainer or basket shall cover the waste outlet of waste receptors. Waste receptors shall be installed in ventilated spaces. Waste receptors shall not be installed in bathrooms, toilet rooms, plenums, crawl spaces,



tant screen of not less than 16 by 20 mesh per inch (630 by 787 mesh per m) and by 1/4-inch (6.4 mm) hardware cloth or shall terminate in a horizontal angle seat check valve. Drainage from overflow pipes shall be directed so as not to freeze on roof walks.

TABLE 606.5.4
SIZES FOR OVERFLOW PIPES FOR WATER SUPPLY TANKS

MAXIMUM CAPACITY OF WATER SUPPLY LINE TO TANK (gpm)	DIAMETER OF OVERFLOW PIPE (inches)
0 - 50	2
50 - 150	2 1/2
150 - 200	3
200 - 400	4
400 - 700	5
700 - 1,000	6
Over 1,000	8

For SI: 1 inch = 25.4 mm, 1 gallon per minute = 3.785 L/m.

606.5.5 Low-pressure cutoff required on booster pumps.

A low-pressure cutoff shall be installed on all booster pumps in a water pressure booster system to prevent creation of a vacuum or negative pressure on the suction side of the pump when a positive pressure of 10 psi (68.94 kPa) or less occurs on the suction side of the pump.

606.5.6 Potable water inlet control and location. Potable water inlets to gravity tanks shall be controlled by a fill valve or other automatic supply valve installed so as to prevent the tank from overflowing. The inlet shall be terminated so as to provide an *air gap* not less than 4 inches (102 mm) above the overflow.

606.5.7 Tank drain pipes. A valved pipe shall be provided at the lowest point of each tank to permit emptying of the tank. The tank drain pipe shall discharge as required for overflow pipes and shall not be smaller in size than specified in Table 606.5.7.

TABLE 606.5.7
SIZE OF DRAIN PIPES FOR WATER TANKS

TANK CAPACITY (gallons)	DRAIN PIPE (inches)
Up to 750	1
751 to 1,500	1 1/2
1,501 to 3,000	2
3,001 to 5,000	2 1/2
5,000 to 7,500	3
Over 7,500	4

For SI: 1 inch = 25.4 mm, 1 gallon = 3.785 L.

606.5.8 Prohibited location of potable supply tanks.

Potable water gravity tanks or manholes of potable water pressure tanks shall not be located directly under any soil or waste piping or any source of contamination.

606.5.9 Pressure tanks, vacuum relief. All water pressure tanks shall be provided with a vacuum relief valve at the top of the tank that will operate up to a maximum water pressure of 200 psi (1380 kPa) and up to a maximum temperature of 200°F (93°C). The minimum size of such vacuum relief valve shall be 1/2 inch (12.7 mm).

Exception: This section shall not apply to pressurized captive air diaphragm/bladder tanks.

606.5.10 Pressure relief for tanks. Every pressure tank in a hydropneumatic pressure booster system shall be protected with a pressure relief valve. The pressure relief valve shall be set at a maximum pressure equal to the rating of the tank. The relief valve shall be installed on the supply pipe to the tank or on the tank. The relief valve shall discharge by gravity to a safe place of disposal.

606.6 Water supply system test. Upon completion of a section of or the entire water supply system, the system, or portion completed, shall be tested in accordance with Section 312.

**SECTION 607
HOT WATER SUPPLY SYSTEM**

607.1 Where required. In residential *occupancies*, *hot water* shall be supplied to all plumbing fixtures and equipment utilized for bathing, washing, culinary purposes, cleansing, laundry or building maintenance. In nonresidential *occupancies*, *hot water* shall be supplied for culinary purposes, cleansing, laundry or building maintenance purposes. In nonresidential *occupancies*, *hot water* or *tempered water* shall be supplied for bathing and washing purposes. *Tempered water* shall be supplied through a water temperature limiting device that conforms to ASSE 1070 and shall limit the *tempered water* to a maximum of 110°F (43°C). This provision shall not supersede the requirement for protective shower valves in accordance with Section 424.3.

607.2 Hot water supply temperature maintenance. Where the *developed length* of hot water piping from the source of hot water supply to the farthest fixture exceeds 100 feet (30 480 mm), the hot water supply system shall be provided with a method of maintaining the temperature in accordance with the *International Energy Conservation Code*.

607.2.1 Piping insulation. Circulating hot water system piping shall be insulated in accordance with the *International Energy Conservation Code*.

[E] 607.2.2 Hot water system controls. Automatic circulating hot water system pumps or heat trace shall be arranged to be conveniently turned off, automatically or manually, when the hot water system is not in operation.

607.2.3 Recirculating pump. Where a thermostatic mixing valve is used in a system with a hot water recirculating pump, the *hot water* or *tempered water* return line shall be routed to the cold water inlet pipe of the water heater and the cold water inlet pipe or the hot water return connection of the thermostatic mixing valve.

608.8.3 Size. The size of the background color field and lettering shall comply with Table 608.8.3.

**TABLE 608.8.3
SIZE OF PIPE IDENTIFICATION**

PIPE DIAMETER (inches)	LENGTH BACKGROUND COLOR FIELD (inches)	SIZE OF LETTERS (inches)
3/4 to 1 1/4	8	0.5
1 1/2 to 2	8	0.75
2 1/2 to 6	12	1.25
8 to 10	24	2.5
over 10	32	3.5

For SI: 1 inch = 25.4 mm.

608.9 Reutilization prohibited. Water utilized for the cooling of equipment or other processes shall not be returned to the potable water system. Such water shall be discharged into a drainage system through an *air gap* or shall be utilized for non-potable purposes.

608.10 Reuse of piping. Piping that has been utilized for any purpose other than conveying potable water shall not be utilized for conveying potable water.

608.11 Painting of water tanks. The interior surface of a potable water tank shall not be lined, painted or repaired with any material that changes the taste, odor, color or potability of the water supply when the tank is placed in, or returned to, service.

608.12 Pumps and other appliances. Water pumps, filters, softeners, tanks and all other devices that handle or treat potable water shall be protected against contamination.

608.13 Backflow protection. Means of protection against backflow shall be provided in accordance with Sections 608.13.1 through 608.13.9.

608.13.1 Air gap. The minimum required *air gap* shall be measured vertically from the lowest end of a potable water outlet to the *flood level rim* of the fixture or receptacle into which such potable water outlet discharges. Air gaps shall comply with ASME A112.1.2 and *air gap* fittings shall comply with ASME A112.1.3.

608.13.2 Reduced pressure principle backflow preventers. Reduced pressure principle backflow preventers shall conform to ASSE 1013, AWWA C511, CAN/CSA B64.4 or CSA B64.4.1. Reduced pressure detector assembly backflow preventers shall conform to ASSE 1047. These devices shall be permitted to be installed where subject to continuous pressure conditions. The relief opening shall discharge by *air gap* and shall be prevented from being submerged.

608.13.3 Backflow preventer with intermediate atmospheric vent. Backflow preventers with intermediate atmospheric vents shall conform to ASSE 1012 or CAN/CSA B64.3. These devices shall be permitted to be installed where subject to continuous pressure conditions. The relief

opening shall discharge by *air gap* and shall be prevented from being submerged.

608.13.4 Barometric loop. Barometric loops shall precede the point of connection and shall extend vertically to a height of 35 feet (10 668 mm). A barometric loop shall only be utilized as an atmospheric-type or pressure-type vacuum breaker.

608.13.5 Pressure-type vacuum breakers. Pressure-type vacuum breakers shall conform to ASSE 1020 or CSA B64.1.2 and spillproof vacuum breakers shall comply with ASSE 1056. These devices are designed for installation under continuous pressure conditions when the critical level is installed at the required height. Pressure-type vacuum breakers shall not be installed in locations where spillage could cause damage to the structure.

608.13.6 Atmospheric-type vacuum breakers. Pipe-applied atmospheric-type vacuum breakers shall conform to ASSE 1001 or CAN/CSA B64.1.1. Hose-connection vacuum breakers shall conform to ASSE 1011, ASSE 1019, ASSE 1035, ASSE 1052, CAN/CSA B64.2, CSA B64.2.1, CSA B64.2.1.1, CAN/CSA B64.2.2 or CSA B64.7. These devices shall operate under normal atmospheric pressure when the critical level is installed at the required height.

608.13.7 Double check-valve assemblies. Double check-valve assemblies shall conform to ASSE 1015, CSA B64.5, CSA B64.5.1 or AWWA C510. Double-detector check-valve assemblies shall conform to ASSE 1048. These devices shall be capable of operating under continuous pressure conditions.

608.13.8 Spillproof vacuum breakers. Spillproof vacuum breakers (SVB) shall conform to ASSE 1056. These devices are designed for installation under continuous-pressure conditions when the critical level is installed at the required height.

608.13.9 Chemical dispenser backflow devices. Backflow devices for chemical dispensers shall comply with ASSE 1055 or shall be equipped with an *air gap* fitting.

608.14 Location of backflow preventers. *Access* shall be provided to backflow preventers as specified by the installation instructions of the *approved* manufacturer.

608.14.1 Outdoor enclosures for backflow prevention devices. Outdoor enclosures for backflow prevention devices shall comply with ASSE 1060.

608.14.2 Protection of backflow preventers. Backflow preventers shall not be located in areas subject to freezing except where they can be removed by means of unions or are protected from freezing by heat, insulation or both.

608.14.2.1 Relief port piping. The termination of the piping from the relief port or *air gap* fitting of a backflow preventer shall discharge to an *approved* indirect waste receptor or to the outdoors where it will not cause damage or create a nuisance.

608.15 Protection of potable water outlets. All potable water openings and outlets shall be protected against backflow in accordance with Section 608.15.1, 608.15.2, 608.15.3, 608.15.4, 608.15.4.1 or 608.15.4.2.