

(d) *Backflow valves.* Building storm drains subject to backflow or backwater at the time of installation shall be provided with adequate backwater valves, installed to prevent interference with the flow and be readily accessible.

(4) **AREA DRAINS.** (a) *Window well drains.* All window well areas not exceeding 50 square feet shall be properly drained. This area drain may discharge to a subsoil or foundation drain through a minimum 2 inch diameter pipe or to the building storm drain. The drain inlet should be provided with a strainer.

(b) *Area drains.* An area drain shall be provided for open sub-surface spaces 50 square feet or more in area. The drain shall discharge to the building storm drain, storm subdrain or storm sewer. If no storm sewer exists, the discharge shall be as specified in section H 62.12 (1) (b). The area drain shall have a minimum inside diameter of 2 inches and shall not discharge into a subsoil, footing or foundation drain.

(5) **RAINWATER CONNECTIONS.** (a) All roof conductors placed within a building, interior court, ventilating pipe or shaft shall be installed as specified for soil, waste and vent pipes except black iron or steel pipe may be used. Black iron or steel roof conductors shall not be embedded in masonry or concrete.

(b) When rainwater conductors installed outside a building discharge to a storm sewer or drain, the horizontal portion extending 2 feet inside the exterior wall and the vertical portion outside the wall shall terminate with the hub above grade and shall be made of cast iron pipe.

(c) *Roof drains.* Roof drains shall be made of cast iron, copper, lead or other material approved by the department.

1. Storm water inlets for use on sun decks, parking decks, surface areas and similar areas may be of the flat surface type and shall have an available inlet area of not less than 2 times the required area of the conductor.

2. Roof drains, other than those specified in section H 62.12 (5) (c) 1., shall be equipped with strainers extending not less than 4 inches above the surface of the roof immediately adjacent to the roof drain. Strainers shall have an available inlet area, above the roof, of not less than 1½ times the area of the conductor to which the drains connect.

(6) **TRAPS FOR STORM AND CLEAR WATER WASTES.** (a) Traps shall not be required for storm water conductors when the conductors extend to the roof of a building unless the drain inlet is within 8 feet of a door or openable window or within 20 feet of a fresh air inlet.

(b) Area drains will not require a trap unless such drain inlet is within 8 feet of a door, openable window or 20 feet from a fresh air intake. One or more drain inlets may be connected to a single trap which shall be located immediately inside the building.

(c) Footing, foundation and subsoil drains shall discharge into a trap or trapped drain tile receiver and be provided with a clean-out. A trap is not required when footing, foundation and subsoil drains discharge to a sump and pump which elevate the waste.

(d) Traps are required at all interior drain inlets receiving clear water wastes.

(e) Inlets of drains receiving clear water wastes shall terminate wherever possible at least 2 inches above the floor but in no case less than 1 inch.

(7) VENTS REQUIRED. (a) A trap receiving clear water wastes shall be supplied with a properly installed vent. Such vent or vents shall not connect to the sanitary plumbing system.

(b) Vents shall not be required for traps which receive storm water wastes exclusively.

(8) CLEANOUTS. (a) *Size*. Cleanouts shall conform to Wis. Adm. Code section H 62.10 (5) and (7).

(b) *Storm drain*. A cleanout with a brass screw cover or other type approved by the department shall be provided at a point where the drain leaves the building. This cleanout shall be extended from the building drain with cast iron soil pipe to the surface of the finished floor or grade and wherever practical shall be not less than 2 inches above the finished floor or grade. An additional cleanout located 28 to 30 inches above the floor shall be provided in all roof conductors. Cleanouts will not be required in roof conductors in a one story building provided the roof conductor does not exceed 25 feet in length and does not have an offset greater than 45° from the vertical.

(c) *Storm drain branches*. Cleanouts shall be provided in all storm drain branches exceeding 25 feet in length.

(d) *Storm sewer access*. Building storm sewer cleanouts shall be installed as required in Wis. Adm. Code section H 62.04 (4) (h).

(9) PROHIBITED CONNECTIONS. Rainwater conductors shall not be used as soil, waste or vent pipes; nor shall any soil, waste or vent pipes or clear water waste piping be used as rainwater conductors.

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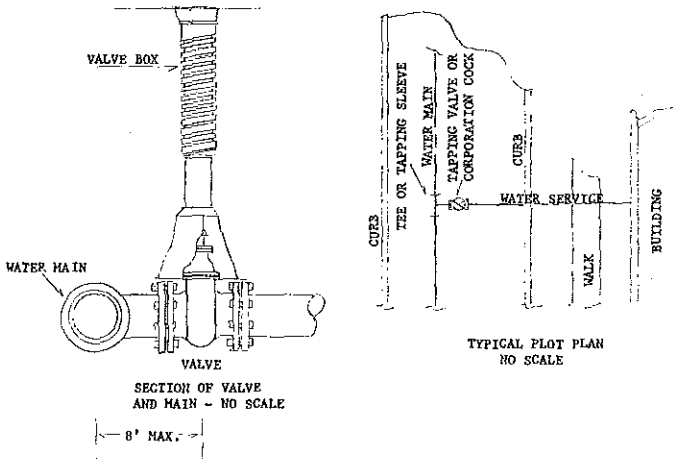
H 62.13 Water distribution systems. (1) **GENERAL REQUIREMENTS.** Every building equipped with plumbing fixtures and used for human occupancy or habitation shall be provided with a potable supply of cold water. In residences and buildings serving the public and places of employment, hot water shall be provided.

(2) **WATER SERVICES.** (a) *Size*. The water service pipe shall be of sufficient size to furnish water to the building in the quantities and at the pressures required in section H 62.13 (4) (d) and (h) 3. The minimum inside diameter of the service pipe shall be $\frac{3}{4}$ inch. Methods for sizing the water service are described in section H 62.13 (4) (d), table 13.

(b) *Materials*. The water service to any building shall be type K copper, lead, brass, cast iron water pipe, galvanized wrought iron, galvanized open hearth iron, galvanized steel, plastic, asbestos cement or other materials approved by the department. Any of the above materials used shall be acceptable to the local or municipal water utility.

(c) *Valve controls*. Service controls shall include a valve or shut-off at the main, curb or private water supply system and inside the foundation wall of each building and on the building side of the water meter of each building.

1. Curb stop. A curb stop shall be an approved gate valve or ground key stopcock or ball valve which shall be installed between the property line and curb. The valve or stopcock shall be provided with an approved curb valve box. One valve may serve as the shut-off at the main and curb stop for water services 3 inches and larger. See following sketch.



2. Stop and waste valves prohibited. Combination stop and waste valves shall not be installed underground in water service piping. Frostproof yard hydrants shall be approved by the department.

3. Building valves. Each water supply service shall be provided with a gate valve or other full way valve, one to be located inside the building near the point where the water service enters and the other on the water distribution side of the meter. A bypass valve shall be provided for all 2 inch or larger water meters. The bypass shall be no smaller than one nominal pipe size of the water meter. When parallel meters are installed, a bypass shall not be required provided the other meter(s) adequately serve the building water distribution requirements.

(d) *Separation of water service and building sewers.* 1. Except as permitted below, the underground water service pipe and building sewer shall not be less than 10 feet apart horizontally and shall be separated by undisturbed or compacted earth. The water service pipe may be placed in the same trench with the building sewer under the following conditions:

a. The water service and the building sewer are installed concurrently.

b. The bottom of the water service pipe at all points shall be at least 12 inches above the top of the sewer line.

c. The water service pipe shall be placed on the solid shelf excavated at one side of the common trench.

d. The number of joints in the water service pipe shall be kept to a minimum.

e. The materials and joints of water service pipe shall be installed in such a manner and shall possess the necessary strength and dura-

bility to prevent the escape of liquids and gases therefrom, under all known adverse conditions such as corrosion, strain due to temperature changes, settlement, vibrations and super imposed loads.

2. Where the building sewer is existing, the water service pipe shall be installed in a separated trench pursuant to section H 62.13 (2) (d) 1., excepting a replaced water service may be installed pursuant to section H 62.13 (2) (d) 1. b' and c'.

(e) *Water service pipe through walls.* 1. Clearance shall be provided around a water service pipe passing through walls to protect it against:

a. Chemical action from direct contact with concrete.

b. Distortion or rupture of water service piping from shearing action due to settlement.

c. Distortion or rupture of water service pipe caused by expansion or contraction.

2. Clearance shall not be less than $\frac{1}{2}$ inch between the outside of the pipe and the wall. Sleeves or arches may be used to provide the wall opening. The space between the pipe and wall structure shall be carefully packed or caulked with lead or waterproof, vermin and rodent resistant material.

(3) **FIXTURE SUPPLY.** (a) *Potable water.* Only potable water shall be permitted to serve plumbing fixtures for drinking, bathing, culinary use or the processing of food, medical or pharmaceutical products.

(b) *Identification.* 1. Where 2 or more distribution systems are installed, each system shall be identified either by color marking, metal tags or other methods as may be approved by the department.

a. Color marking. When color marking is used, potable water lines should be painted green and non-potable water lines should be painted yellow. This requirement may be met by painting 3 inch wide bands at intervals of not more than 25 feet and at points where piping passes through walls, floors, or roofs in which case the bands shall be applied to the piping on both sides of the walls and both above and below the floor or roof. Points of outlets for non-potable water shall be marked with a tag or color coded.

b. Metal tags. When tags are used, potable water lines shall be identified by 3 inch diameter metal tags bearing the legend **SAFE WATER** in letters not less than $\frac{1}{2}$ inch in height. Non-potable water lines shall be identified by firmly attached metal tags having the shape of a 4 inch equilateral triangle bearing the legend **WATER UNSAFE** in letters not less than $\frac{7}{16}$ inch in height. As in the use of color bands, tags shall be attached to pipes at intervals of not more than 25 feet and at either side of points where pipes pass through walls and above and below points where pipes pass through floors or roofs.

(4) **BUILDING DISTRIBUTION SYSTEMS.** (a) *Design.* Water piping systems shall be designed and installed so that the maximum velocity at any time shall not exceed 8 feet per second.

(b) *Materials.* All water distribution pipes within a building shall be of lead, galvanized wrought iron, galvanized steel, brass, or cast iron, with brass or galvanized malleable iron fittings, type K or L copper water tube with copper or brass fittings or other materials approved by the department. Copper water tube used underground

shall be type K. No pipe or fittings that have been used for other purposes shall be used for distributing potable water.

(c) *Supports.* All piping shall be supported to prevent undue strains upon connections or fixtures and shall be so aligned and graded that the entire system or parts thereof can be controlled and drained. The formation of traps or sags in water piping shall be avoided where possible. When unavoidable such sags, traps or inverts shall have provisions for properly draining same.

(d) *Supply demand.* The supply demand in gallons per minute in the building water distribution system shall be determined on the basis of the load in terms of supply fixture units and of the relationship between load and supply demand as shown in tables 13 and 14.

Table 13
SIZING THE WATER DISTRIBUTION SYSTEM

Fixture	Occupancy	Type of Supply Control	Load in Fixture Supply Units
Bathroom group.....	Private	Flush valve for closet	8
Bathroom group.....	Private	Flush tank for closet	6
Bath tub.....	Private	Faucet	2
Bath tub.....	Public	Faucet	4
Clothes washer.....	Private	Faucet	2
Clothes washer.....	Public	Faucet	4
Combination fixture.....	Private	Faucet	3
Kitchen sink.....	Private	Faucet	2
Kitchen sink.....	Hotel, restaurant	Faucet	4
Laundry trays (1 to 3).....	Private	Faucet	3
Lavatory.....	Private	Faucet	1
Lavatory.....	Public	Faucet	2
Separate shower.....	Private	Mixing valve	2
Service sink.....	Office, etc.	Faucet	3
Shower head.....	Private	Mixing valve	2
Shower head.....	Public	Mixing valve	4
Urinal—stall or wall.....	Public	Flush valve	5
Urinal—stall or wall.....	Public	Flush tank	3
Water closet.....	Private	Flush valve	6
Water closet.....	Private	Flush tank	3
Water closet.....	Public	Flush valve	10
Water closet.....	Public	Flush tank	5

Water supply outlets for items not listed above shall be computed at their maximum demand, but in no case less than:

Fixture	Number of Fixture Units	
	Private Use	Public Use
$\frac{3}{8}$ inch.....	1	2
$\frac{1}{2}$ inch.....	2	4
$\frac{3}{4}$ inch.....	3	6
1 inch.....	6	10

1. For supply outlets likely to impose continuous demands, estimate continuous supply separately and add to total demand for fixtures.

2. The given weights are for total demand. For fixtures with both hot and cold water supplies, the weights for maximum separate demands may be taken as $\frac{3}{4}$ the listed demand for the supply.

3. Compute flush valve demand separately.

Table 14
ESTIMATING DEMAND

Supply Systems Predominantly For Flush Tanks		Supply Systems Predominantly For Flush Valves	
Load (Water Supply Fixture Units)	Demand GPM	Load (Water Supply Fixture Units)	Demand GPM
6	5		
8	6.5		
10	8	10	27
12	9.2	12	28.6
14	10.4	14	30.2
16	11.6	16	31.8
18	12.8	18	33.4
20	14	20	35
25	17	25	38
30	20	30	41
35	22.5	35	43.8
40	24.8	40	46.5
45	27	45	49
50	29	50	51.5
60	32	60	55
70	35	70	58.5
80	38	80	62
90	41	90	64.8
100	43.5	100	67.5
120	48	120	72.5
140	52.5	140	77.5
160	57	160	82.5
180	61	180	87
200	65	200	91.5
225	70	225	97
250	75	250	101
275	80	275	105.5
300	85	300	110
400	105	400	126
500	125	500	142
750	170	750	178
1,000	208	1,000	208
1,250	240	1,250	240
1,500	267	1,500	267
1,750	294	1,750	294
2,000	321	2,000	321
2,250	343	2,250	343
2,500	375	2,500	375
2,750	402	2,750	402
3,000	432	3,000	432
4,000	525	4,000	525
5,000	593	5,000	593
6,000	643	6,000	643
7,000	685	7,000	685
8,000	718	8,000	718
9,000	745	9,000	745
10,000	769	10,000	769

(e) *Variable street pressures.* Where street water main pressures fluctuate, the building water distribution system shall be designed for the minimum pressure available.

(f) *Excessive pressures.* When street main pressures exceed 80 pounds per square inch (p.s.i.), an approved pressure reducing valve shall be installed in the water distribution system where the water service enters the building to reduce the water pressure to 80 p.s.i. or lower except where the water service pipe supplies water directly to a water pressure booster system, elevated water gravity tank or to pumps provided in connection with a hydropneumatic or elevated gravity water supply tank system. Pressure at any fixture shall be limited to no more than 80 p.s.i. under no flow conditions.

(g) *Inadequate water pressure.* Whenever water pressure from the street main or other sources of supply is insufficient to provide flow pressures at fixture outlets as required, a booster pump and pressure tank or other approved means shall be installed in the building water supply system.

(h) *Size.* 1. The diameter of any pipe serving more than one plumbing fixture or appliance shall not be less than $\frac{3}{4}$ inch inside diameter.

2. The minimum size of a fixture supply pipe shall be as shown in table 15. The fixture supply pipe shall be extended to within at least 18 inches of the point of connection to the fixture.

Table 15
MINIMUM SIZES OF FIXTURE WATER SUPPLY PIPES

Type of Fixture or Device	I. D. Pipe Size (Inches)	Type of Fixture or Device	I. D. Pipe Size (Inches)
Bathtubs.....	$\frac{1}{2}$	Shower (single head).....	$\frac{1}{2}$
Combination sink and tray.....	$\frac{3}{4}$	Sinks (service, slop).....	$\frac{1}{2}$
Drinking fountain.....	$\frac{3}{4}$	Sinks (flushing rim).....	$\frac{3}{4}$
Dishwasher (domestic).....	$\frac{3}{4}$	Urinal (flush tank).....	$\frac{3}{4}$
Electric drinking water cooler.....	$\frac{3}{4}$	Urinal (direct flush valve).....	$\frac{3}{4}$
Kitchen sink, residential.....	$\frac{3}{4}$	Water closet (tank type).....	$\frac{3}{4}$
Kitchen sink, commercial.....	$\frac{3}{4}$	Water closet (flush valve type).....	1
Lavatory.....	$\frac{3}{8}$	Hose bibbs.....	$\frac{1}{2}$
Laundry tray 1, 2 or 3 compartments.....	$\frac{1}{2}$	Wall hydrant.....	$\frac{1}{2}$

3. Based on the minimum hydrostatic pressure available, pipe sizes shall be selected so that under conditions of peak demand a minimum flow pressure at the point of discharge shall be not less than required to maintain minimum flow rates listed in table 16. Pipe sizes for flush valve water closets and urinals shall be adequate to maintain flow pressures of 25 pounds per square inch for blowout action and 20 pounds per square inch for jet action fixtures.

Table 16
MINIMUM FLOW RATES PER OUTLET

Fixture	Flow Rate Minimum GPM
Lavatory.....	2
Sink.....	4
Bathtub.....	6
Laundry tray.....	5
Shower.....	3
Water closets	
Tank type.....	3
Blowout action.....	Depends on flow pressure
Jet action.....	Depends on flow pressure
Drinking fountain.....	0.75
Wall hydrant.....	5

(i) *Hot water distribution.* 1. Hot water supply system. In residences, buildings serving the public and places of employment, hot water shall be supplied to all plumbing fixtures and equipment used for bathing, washing, culinary purposes, cleansing, laundry or building maintenance.

2. Water temperature control. Temperature of mixed water to multiple or gang showers shall be controlled by a master thermostatic blender or such showers may be individually regulated by balance pressure mixing valves. Individual showers in commercial and public buildings subject to rapid rise of mixed water temperature due to system pressure fluctuation shall have balance pressure mixing valves in addition to flow regulation as indicated in table 16.

3. Return circulation where required. Hot water supply risers in buildings 5 or more stories in height or in buildings where developed length of hot water piping from the source of the hot water supply to the farthest fixture exceeds 100 feet, shall be of the return circulation type and no uncirculated branch line shall exceed 25 feet in length. Valves shall be provided on the inlet and outlet of the return circulation pump.

4. Minimum requirements for hot water storage tanks. Hot water storage tanks shall be adequate in size when combined with the B.T.U. input of the water heating equipment to provide the necessary rise in temperature. The water heater and storage tank shall be sized to provide sufficient hot water to provide both daily requirements and hourly peak loads for the occupants of the building. Hot water storage tanks shall meet the construction requirements of A.S.M.E., A.N.S.I., or U.L. as appropriate. Storage tanks less in volume than those requirements specified by A.S.M.E., shall be of durable materials and constructed to withstand 125 p.s.i. with a safety factor of 2. The size of the water inlets and outlets of the hot water storage tank shall be not less than the hot water distribution pipe served or adjacent manifold piping. All storage tanks shall be protected against excessive temperature and pressure conditions as specified in this code.

5. Hot water storage tank drain valves. a. Location. A drain valve shall be installed at the lowest point of each hot water storage tank and be readily accessible.

b. The drain valve shall be hand operable without the use of tools.

c. The drain valve inlet shall be a minimum $\frac{3}{4}$ inch nominal iron pipe size and the outlet end shall be equipped with a minimum standard $\frac{3}{4}$ inch male hose thread.

6. Safety devices. a. Pressure relief valves, temperature relief valves and energy cut-off devices required. Equipment used for heating water or storing hot water shall be protected by approved safety devices in accordance with one of the following methods:

1. A separate pressure relief valve and separate temperature relief valve.

2. A combination pressure and temperature relief valve.

3. A combination of either 1. or 2. above and an energy cut-off device.

b. Safety devices shall meet the requirements of the A.S.M.E. or U.L. Listing by U.L., A.G.A. or National Board of Boiler and Pressure Vessel Inspectors shall constitute evidence as conformance with these standards. Where a device is not listed by any of these, it must have certification by a recognized laboratory as having complied with these requirements.

(j) *Pressure relief valves.* Pressure relief valves shall meet the A.S.M.E. standards. The valves shall have a relief rating adequate

to meet the pressure conditions in the equipment served. They shall be installed either directly in a top tank tapping or in the hot water outlet line close to the tank. There shall be no shut-off valve between the pressure relief valve and the tank. The pressure relief valve must be set to open at not less than 25 p.s.i. above the street main pressure or not less than 25 p.s.i. above the setting of any building water pressure regulating valve. The setting shall not exceed the tank rated working pressure.

(k) *Temperature relief valves.* Temperature relief valves shall be of adequate relief rating expressed in B.T.U./H.R. for the equipment served. They shall be installed so that the temperature sensing element is immersed within the top 6 inches of the tank. The valve shall be set to open when the stored water temperature is 210° F. (or less).

(l) *Combination pressure temperature relief valves.* Combination pressure temperature relief valves shall comply with all the requirements of the separate pressure and temperature relief valves.

(m) *Energy cut-off devices.* Energy cut-off devices shall be of adequate performance rating for the equipment served. Immersion type energy cut-off devices shall be located so that the temperature sensing element is immersed in the water within the tank and controls the temperature of the water within the top 6 inches of the tank. When approved by the department, contact types shall be installed so that the sensing element is responsive to the highest water temperature within the equipment served and is securely fastened in place. When an energy cut-off device is used, it shall be factory applied by the heater manufacturer and comply fully with the appropriate standards of A.N.S.I. or U.L. They shall be installed in a manner that will isolate them from ambient flue gas temperatures and other conditions not indicative of the temperature of the water within the heater.

(n) *Installation of relief valves.* Every relief valve shall have a discharge pipe the same size as the outlet drain on the relief valve which shall terminate not more than 10 inches above the floor as close as possible to a drain properly connected to the building drain or sewer. Such discharge pipe shall be galvanized wrought iron or steel, copper or brass, installed with approved fittings. The relief valve discharge pipe shall be pointed and drained downward in such a manner to allow the drain and discharge pipe to drain dry. The base or end of such discharge pipe shall not be threaded. No discharge pipe shall terminate into an open fixture such as a sink, laundry tub, bathtub, or supply tank, etc., or installed in a freezing area. No check valve or shut-off valve shall be installed between any safety device and the hot water equipment used, nor shall there be any shut-off valves in the discharge pipe from the relief valve.

(o) *Vacuum relief valves.* Where a hot water storage tank or an indirect water heater is located at an elevation above the fixture outlets in the hot water system, a vacuum relief valve shall be installed on the storage tank or heater.

(p) *Pressure marking of hot water storage tank.* Hot water storage tanks shall be permanently marked in an accessible place with the maximum allowable working pressure.

(q) *Water hammer suppressors.* 1. Water hammer suppressors. All water supply systems, water distribution systems and components

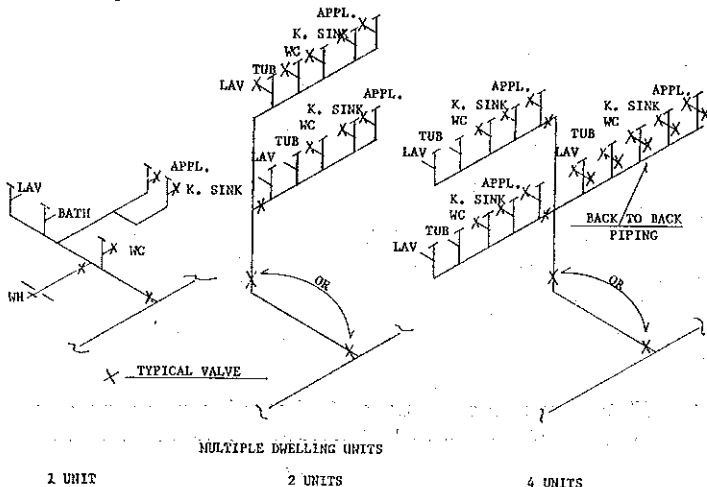
connected thereto, shall be provided with approved shock absorbing devices located and sized to suppress water hammer.

2. Air chamber. Water supply risers of three or more floors shall terminate with an air chamber. Water supply pipes serving fixtures, appliances, equipment, devices and appurtenances shall terminate with an air chamber. For $\frac{3}{8}$ and $\frac{1}{2}$ inch inside diameter pipe, the air chamber shall be $\frac{1}{2}$ inch X 1 inch X 14 inches. For $\frac{3}{4}$ inch inside diameter pipe, the air chamber shall be $\frac{1}{2}$ inch X $1\frac{1}{2}$ inches X 18 inches. For 1 inch inside diameter pipe the air chamber shall be $\frac{3}{4}$ inch X $1\frac{1}{2}$ inches X 30 inches or $\frac{3}{4}$ inch X 2 inches X 18 inches. For pipe sizes greater than 1 inch inside diameter, the volume, length and diameter of the air chamber shall be in accord with the hydraulic design of the piping system served and the connection shall be one nominal inside diameter smaller than the pipe served. Excessively high air chambers should not be used. For the purpose of this rule, the length of an air chamber will be determined by measuring from the bottom of the restriction to the top of the air chamber with the length of the restricted portion no greater than $1\frac{1}{2}$ inches.

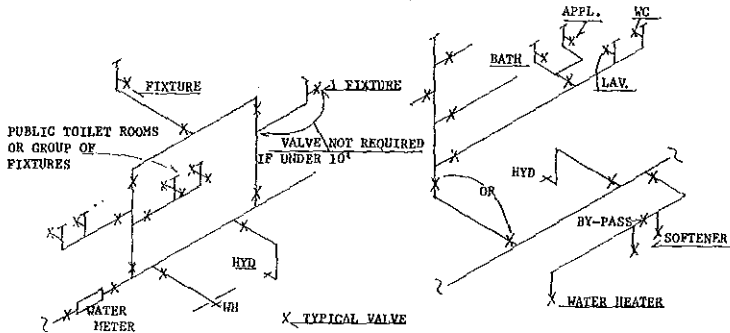
3. Mechanical suppressor. Approved mechanical water hammer suppressors may be installed in lieu of air chambers. The size and location of the suppressors shall be in accord with the hydraulic design of the piping system served. All mechanical water hammer suppressors shall be accessible.

(r) *Water distribution control valves.* 1. Single family dwellings. Controls within a single family dwelling unit shall include a valve for each lawn sprinkler faucet, water heater, water closet, point of entrance of the water service, discharge side of the water meter and each appliance or appurtenance.

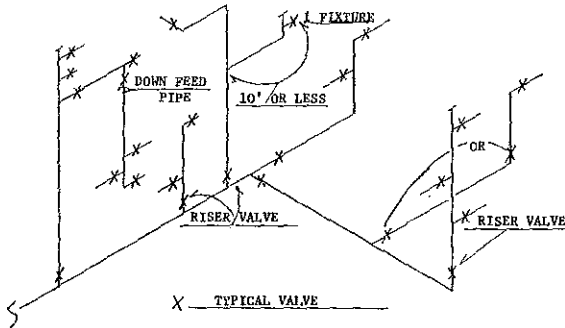
2. Multiple dwellings and public buildings. a. In dwellings other than single family, one or more control valves shall be provided so that the water to any one plumbing fixture or group of fixtures may be shut off without stopping flow of water to fixtures in other dwelling units. Four or less dwelling units may be served with one branch control valve provided each dwelling unit is valved or each individual fixture is valved. All water closets, lawn sprinkler faucets, appliances, wall hydrants and kitchen sinks shall be valved in dwelling units. See following sketch.



b. In all public buildings other than dwelling units, each hot and cold water main, main branch, branch serving a group of fixtures and a branch exceeding 10 feet in length serving a single fixture shall be valved. All fixtures, appliances, appurtenances, lawn sprinkler faucets and wall hydrants in a public building shall be valved. See following sketch.



c. Riser valves. A valve shall be installed at the foot of each water supply riser or in the branch serving a single riser. In multiple story buildings, a valve shall be installed at the top of each water supply down feed pipe and also at the base where required to isolate this riser for servicing. See Wis. Adm. Code section H 62.15 (10) (b). See following sketch.



d. Water heating equipment valve. The cold water branch to each hot water storage tank or water heater shall be provided with a valve located in the same room near the equipment and serving only this equipment. Each tank or heater shall be equipped with an approved safety relief valve as specified in section H 62.13.

e. Softener bypass. All commercial water softeners shall be provided with a bypass.

f. Valves to be accessible. All water supply control valves shall be placed so as to be accessible for service and maintenance.

g. Control valve design. Control valves on all water lines shall, when fully opened, have a cross-sectional area not less than 85% of the cross-sectional area of the line in which they are installed. Fix-

ture supply valves shall have a cross-sectional area large enough to provide the supply demand in accord with section H 62.13 (4).

h. Tank controls. Supply lines from pressure or gravity tanks shall be valved in the same room at or near the tanks.

i. Hospital and nursing home valving requirements. See Wis. Adm. Code section H 62.15 (10) (b).

(5) WATER PRESSURE BOOSTER SYSTEMS. (a) *Where required.* When the water pressure in the public water main or individual water supply system is insufficient to supply the probable peak demand flow to all plumbing fixtures and other water needs freely and continuously within the minimum pressures and quantities specified in section H 62.13 (4) (d) and (h) 3, or elsewhere in this section and in accordance with good practice, the rate of supply shall be supplemented by an elevated water tank, a hydropneumatic pressure booster system, or a water pressure booster pump.

(b) *Overflows for water supply tanks.* Each gravity or unpressurized water supply tank shall be provided with an overflow having a diameter not less than shown in table 17. The overflow outlet shall discharge above and within 6 inches of a roof drain or site drain which terminates in a storm sewer. The overflow outlet shall be covered by a corrosion resistant screen of not less than 16×20 mesh to the inch and by $\frac{1}{4}$ inch 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 walkways.

Table 17
SIZES FOR OVERFLOW PIPES FOR WATER SUPPLY TANKS

Maximum Capacity of Water Supply Line of Tank	Diameter of Overflow Pipe (Inches I. D.)	Maximum Capacity of Water Supply Line to Tank	Diameter of Overflow Pipe (Inches I. D.)
0- 13 gpm.....	1½	166- 355 gpm.....	4
14- 55 gpm.....	2	356- 640 gpm.....	5
56-100 gpm.....	2½	641-1040 gpm.....	6
101-165 gpm.....	3	over 1040 gpm.....	8

(c) *Covers.* All gravity and unpressurized water supply tanks shall have a locked overlapping cover. The covers of these tanks shall be vented with a return bend vent pipe having an area not less than the area of the down feed riser pipe and the vent shall be screened with corrosion resistant screening having not less than 14 and not more than 20 openings per linear inch.

(d) *Potable water inlet control and location.* Potable water inlets to gravity and unpressurized tanks shall be controlled by an automatic supply valve so installed as to prevent the tank from overflowing. The inlet shall be terminated so as to provide an approved air-gap, but in no case less than 6 inches above the overflow.

(e) *Tank drain pipes.* Each tank shall be provided at its lowest point with a valved pipe to permit emptying the tank which shall discharge as required for overflow pipes and not smaller in size than shown in table 18.

Table 18
SIZE OF DRAIN PIPES FOR WATER TANKS

Tank Capacity (gallons)	Drain Pipe (inches)	Tank Capacity (gallons)	Drain Pipe (inches)
Up to 750.....	1	3001 to 5000.....	2½
751 to 1500.....	1½	5001 to 7500.....	3
1501 to 3000.....	2	over 7500.....	4

(f) *Low pressure cut-off required on booster pumps.* When a booster pump is used on a water pressure booster system, there shall be installed a low pressure cut-off on the booster pump to prevent the creation of a vacuum or negative pressure on the suction side of the pump, thus cutting off water to other outlets.

(g) *Pressure tanks, vacuum relief.* All water pressure tanks shall be provided with a vacuum relief valve at the top of the tank which will operate up to a maximum water pressure of 200 p.s.i. and to maximum water temperature of 200° F. The minimum size of such vacuum relief valves shall be ½ inch.

(6) **DISINFECTION OF POTABLE WATER SYSTEM.** (a) *Procedure.* New or repaired potable water systems shall be disinfected prior to use. The method to be followed shall be as follows.

1. The pipe system shall be flushed with clean, potable water until no dirty water appears at the points of outlet.

2. The system or part thereof shall be filled with a water chlorine solution containing at least 50 parts per million of chlorine and the system or part thereof shall be valved off and allowed to stand for 24 hours or the system or part thereof shall be filled with a water chlorine solution containing at least 200 parts per million of chlorine and allowed to stand for 3 hours.

3. Following the allowed standing time, the system shall be flushed with clean potable water until no chlorine remains in the water coming from the system.

4. The procedures shall be repeated if it is shown by a bacteriological examination that contamination still exists in the system.

(7) **SPECIAL EQUIPMENT.** (a) *Separate piping for each source.* A water supply that meets accepted standards for purity for human consumption shall be distributed through a piping system entirely independent of any piping system conveying another water supply.

(b) *Piping by plumber.* Only persons licensed by the department as master or journeyman plumbers shall install water supply piping to any system designed for steam power, heating, temperature regulation, automatic fire protection, air-conditioning, comfort cooling, process piping, hydraulic power or for any special water usage for industrial or manufacturing purposes. All such piping for supplying water for any of the above listed uses shall be brought by the licensed plumber to a point within the building or structure and within 10 feet of the point of entry to any of the above systems where it shall terminate with an air-gap or other method approved by the department.

(c) *Piping by equipment/installers.* Connection of systems specified in section H 62.13 (7) (b) to the water supply pipe and the discharge

therefrom through an air-gap into a trap, fixture, receptacle or interceptor installed by the licensed plumber, as prescribed by rules and regulations, may be made by the person installing such systems.

History: 1-2-56; r. and recr. Register, November, 1972, No. 203, eff. 12-1-72.

H 62.14 Back-siphonage, cross-connections and potability control.

(1) PROTECTION OF POTABLE WATER SUPPLY. (a) *General.* Potable water supply systems shall be designed, installed and maintained in such manner as to prevent contamination from non-potable liquids, solids or gases from being introduced into the potable water supply through cross-connections or any other piping connections to the system.

(b) *Interconnections.* Interconnections of water services between 2 or more public water systems, water distribution systems, or a private and public supply shall be permitted only with approval of the department.

(c) *Cross-connection control.* Cross-connections are prohibited except as approved by the department when suitable protective devices such as the reduced pressure zone backflow preventer or equal are installed, tested and maintained to insure proper operation on a continuing basis.

(d) *Water treatment.* All water treatment compounds approved by the department for introduction into the potable water distribution system shall be by a positive displacement pump.

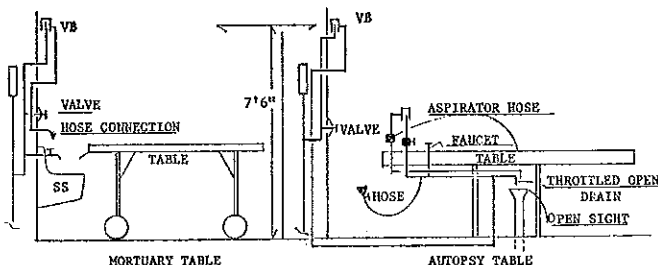
(e) *Painting of water tanks.* The interior surface of the potable water tank shall not be lined, coated, painted or repaired with any material which will affect either the taste, odor, color or potability of the water supply when the tank is placed in or returned to service.

(f) *Used piping.* Piping which has been used for any other purpose than conveying potable water shall not be used for conveying potable water.

(g) *Water supply to boilers.* Potable water supply to boilers or boiler feed water systems shall be through an air-gap or approved backflow preventer.

(h) *Prohibited connections to fixtures and equipment.* Connection to the potable water supply system for the following shall be protected against backflow or back-siphonage.

1. Operating, dissection, embalming and mortuary tables or similar equipment. In such installations the hose used for water supply shall terminate at least 12 inches away from every point of the table or attachments. See following sketch.



2. No closet bowl or other fixture equipped with a flushometer valve or with flushing tanks shall be installed with a side or rear spud located below the lower part of the flush rim of the bowl.
3. Seat acting water closets.
4. Bedpan washers.
5. Bidets.
6. Sterilizers with water supply connections.
7. Therapeutic baths with inlets below the rim of the fixture.
8. Water operated waste ejectors.
9. Bathtubs with inlets below the rim of the fixture.
10. Wash basins with inlets below the rim of the fixture.
11. Bar, soda fountain or other sinks with submerged inlets.
12. Laundry trays with faucets below the rim.
13. Sinks with faucets or water inlets below the rim and sinks with loose hose connections.
14. Dishwashing sinks or machines with water inlets below the rim.
15. Cuspidors with water supply connections.
16. Dental cuspidors with water supply connections.
17. Hospital appliances. See Wis. Adm. Code section H 62.15.
18. Frostproof hydrants with underground bleed or an automatic livestock water device.
19. Industrial vats, tanks, etc., of a description which have an inverted water supply connection or a water supply connection below the top of the spill rim or in which a hose filler is used.
20. Industrial water supplied process appliance with direct water connections.
21. A rubber hose with hand control or self-closing faucets attached as used in connection with baths, industrial vats, canneries, etc.
22. Pressure water supplied sealing rings on sewage and sludge pumps.
23. Water supply for priming connections.
24. Water supply (hot or cold) to laundry equipment.
25. Condenser cooling connections for refrigeration and air-conditioning machinery.
26. Drains from fire sprinklers connected direct to sewer or waste.
27. Steam tables.
28. Condensers.
29. Stills.
30. Aspirators.
31. Chlorinators.
32. Photographic developing tanks.
33. Fixture inlets or valve outlets with hose attachments which constitute a cross-connection shall be protected by an approved vacuum breaker installed at least 6 inches above the highest point of usage and located on the discharge side of the last valve. Manufactured fixtures with integral vacuum breakers shall be approved by the department.
34. Laboratory water faucets and cocks with serrated nipples or hose connections.
35. Lawn sprinkling faucets.
36. Any other fixture or installation creating a backflow or back-siphonage hazard.

(i) *Used water return prohibited.* Water used for cooling of equipment, space heating 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 may be used for non-potable purposes on written approval of the department.

(j) *Water outlets.* A potable water system shall be protected against the backflow and back-siphonage by providing at each water outlet:

1. An air-gap as specified herein between the potable water outlet and the flood level rim of the fixture it supplies or between the water outlet and any other source of contamination or,

2. Where an air-gap is impractical, a backflow preventer device or vacuum breaker approved by the department.

(k) *Minimum required air-gap.* Minimum required air-gap shall be measured vertically from the lowest end of a potable water outlet to the flood rim or line of the fixture or receptacle into which it is discharged. The minimum required air-gap shall be twice the effective opening of a potable water outlet unless the outlet is a distance less than 3 times the effective opening away from a wall or similar vertical surface in which case the minimum required air-gap shall be 3 times the effective openings of the outlet. In no case shall the minimum required air-gap be less than shown in table 19.

Table 19
MINIMUM AIR-GAPS FOR PLUMBING FIXTURES

Fixture	Minimum Air-Gap	
	When Not Affected By Near Wall (Inches)	When Affected By Near Wall (Inches)
Lavatories and other fixtures with effective opening not greater than $\frac{1}{2}$ inch diameter.....	1	$1\frac{1}{2}$
Sink, laundry trays, goose-neck bath faucets and other fixtures with effective openings not greater than $\frac{3}{4}$ inch diameter.....	$1\frac{1}{2}$	$2\frac{1}{4}$
Over rim bath fillers and other fixtures with effective openings not greater than 1 inch diameter	2	3
Drinking water fountains—single orifice not greater than $\frac{3}{8}$ (0.437) inch diameter or multiple orifices having total area of 0.150 square inches (area of circle $\frac{3}{8}$ inch diameter).....	1	$1\frac{1}{2}$
Effective openings greater than one inch.....	$2 \times$ diameter of effective opening	$3 \times$ diameter of effective opening

(l) *Devices for the protection of potable water supply.* Approved backflow preventers or vacuum breakers shall be installed with any plumbing fixture or equipment, the potable water supply outlet of which may be submerged and which cannot be protected by a minimum air-gap.

(m) *Approval of devices.* Before any device for the prevention of backflow or back-siphonage is installed, it shall be approved by the department. In its determination, the department may use the results of a recognized testing laboratory. Devices installed in the building potable water supply distribution system for protection

against backflow or back-siphonage shall be maintained in good working condition by the person or persons responsible for the maintenance of the system.

(n) *Protective devices required.* In the installation of the following list of fixtures and devices where an air-gap is not provided or is impractical, approved protective devices shall be installed in all supply lines according to table 20.

Table 20
CROSS-CONNECTIONS WHERE PROTECTIVE DEVICES ARE
REQUIRED AND CRITICAL LEVEL (C-L) SETTINGS
FOR BACKFLOW PREVENTERS¹

Fixture or Equipment	Method of Installation
Aspirators and ejectors.....	C-L at least 6 inches above flood level of receptacle
Cup beverage vending machines....	C-L at least 12 inches above flood level of machine
Dental units.....	On models without built-in vacuum breakers C-L at least 6 inches above flood level rim of bowl
Dishwashing machines.....	C-L at least 6 inches above flood level of machine
Flushometers (closet and urinal)...	C-L at least 6 inches above top of fixture supplied
Garbage can cleaning machines.....	C-L at least 6 inches above flood level of machine
Hose outlets.....	C-L at least 6 inches above highest point on hose line
Laundry machines.....	C-L at least 6 inches above flood level of machine
Turf irrigation systems.....	C-L at least 12 inches above highest sprinkler or discharge outlet
Steam tables.....	C-L at least 6 inches above flood level
Tanks and vats.....	C-L at least 6 inches above flood level rim or line
Flush tanks.....	Equip with an approved ballcock. In all cases the ballcock should be located above the overflow level of the tank and the outlet terminated one inch above the overflow or provided with a backflow preventer located at least one inch above the overflow
Hose bibbs (where aspirators or ejectors could be connected)....	C-L at least 6 inches above flood level of receptacle served

¹Critical Level (C-L) is defined as the level to which the backflow preventer (vacuum breaker) may be submerged before backflow will occur. Where C-L marking is not shown on the preventer, the bottom of the device shall be taken as the C-L.

(o) *Connections subject to back pressure.* Where a potable water connection is made to a pipe line, fixture, tank, vat, pump or other equipment with a hazard of backflow or back-siphonage and where the water connection is subject to back pressure and an air-gap cannot be installed, the department shall require the use of an approved reduced pressure zone backflow preventer. A partial list of such connections is shown in table 21.

Table 21
PARTIAL LIST OF CROSS-CONNECTIONS SUBJECT
TO BACK PRESSURE

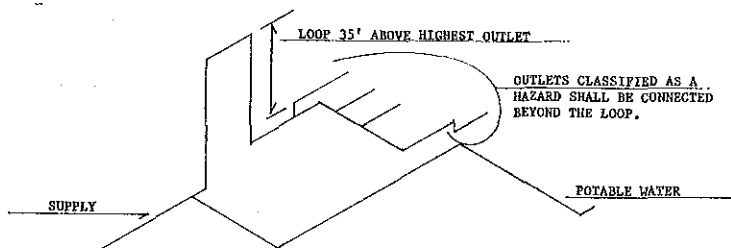
Chemical lines Cup beverage vending machines Dock water outlets Individual water supplies Industrial process water lines Pressure tanks	Pumps Steam lines Swimming pools Tanks and vats—bottom inlets Hose bibbs
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(p) *Installation of devices.* 1. Vacuum breakers. Vacuum breakers shall be installed with the critical level at least 6 inches above the flood level rim of the fixture they serve and on the discharge side of the last control valve to the fixture. No shut-off valve or faucet shall be installed beyond the vacuum breaker.

2. Reduced pressure zone backflow preventer. A reduced pressure zone type backflow preventer may be installed subject to full static pressure.

3. Devices of all types. Backflow and back-siphonage preventing devices shall be accessibly located, preferably in the same room with the fixture they serve. Installation in utility or service spaces, provided they are readily accessible is also permitted.

4. Barometric loop. Water connections not subject to back pressure where an actual or potential backflow or back-siphonage hazard exists may in lieu of devices specified, be provided with a barometric loop. See following sketch.



(q) *Turf sprinklers.* Turf sprinkler systems, when connected to a potable water system, shall be installed in accordance with these regulations. Adequate and proper provisions shall be made for control and drainage and to prevent back-siphonage or backflow. Water shall not be turned on to any turf sprinkler system until it has been inspected and approved. Materials used in turf sprinkler systems shall be submitted for evaluation and approval prior to installation.

(2) IMPROPER LOCATION OF SEWERS AND DRAINS AND OTHER PIPING.

(a) Sewer or drain pipes, wherever possible, shall not pass directly over areas where food, ice or potable liquids are prepared, handled, stored or displayed. Where building design requires that soil or drain pipes be located below the ceiling of such areas, the installation shall be made with the least possible number of joints and shall be installed so as to connect to a vertical stack at the nearest wall or vertical building support and the construction shall be performed as follows:

1. All openings through floors over such areas shall be provided with sleeves securely bonded to the floor construction and projecting

not less than $\frac{3}{4}$ inch above top of finished floor with space between sleeve and pipe or duct sealed.

2. Floor and shower drains installed above such areas shall be equipped with integral seepage pans.

3. Plumbing fixtures in rooms located above such areas shall be of the wall mounted type except bathtubs. Tubs shall have waste and overflow connections made above the floor and piped to trap below floor. All connections through floor and to trap shall conform with all other provisions of this regulation. No floor openings other than sleeve for waste pipe will be permitted for tubs.

4. All other soil or drain pipes shall be galvanized steel or cast iron with screwed joints sealed with litharge and glycerine or copper tube with soldered joints. Cleanouts shall be extended through the floor construction above.

5. All soil and drain pipes located above such areas shall be subjected to a standing water test of not less than 25 feet.

6. All piping subject to operation at temperatures that will form condensation on the exterior of the pipe shall be thermally insulated.

7. Where pipes are run in ceilings above such areas, the ceiling shall be of the removable type, or shall be provided with access panels in order to form a ready access for inspection of piping unless a lath and plaster ceiling is provided.

8. In lieu of the above, other methods may be approved by the department.

(b) Exposed soil, waste and other drainage pipe lines in a pool or equipment room shall not pass over the pool, surge tank or open filter.

History: 1-2-56; r. (2) through (7), Register, October, 1971, No. 190, eff. 11-1-71; r. and rec. Register, November, 1972, No. 203, eff. 12-1-72.

H 62.15 Health care and related facilities. (1) **PLAN APPROVAL REQUIRED.** Plans for plumbing and equipment for health care facilities shall be approved by the department.

(2) **SCOPE.** The scope of this section shall cover devices, fixtures and equipment which are installed and maintained in health care facilities such as hospitals, nursing or rest homes, homes for the aged, infirmaries, residential care facilities, orphanages, sanitariums, sanatoriums, clinics, mortuaries, and schools of medicine, surgery, dentistry, and research and testing laboratories whether enumerated or not. This section may also apply to offices of dentists and doctors.

(3) **INTENT.** The primary intent of the following minimum requirements is to protect public health by eliminating either potential health or safety hazards to patients and institutional personnel, and to promote the efficient use, operation and maintenance of the equipment used in the institution or establishment. Fixtures, devices and/or equipment in addition to those prescribed herein may be required dependent upon the type of occupancy, treatment, care or layout. Such additional facilities shall be installed in accord with the provisions of this chapter.

(4) **PLUMBING IN MENTAL HOSPITALS.** Special consideration shall be given to the design and installation of plumbing fixtures in areas where disturbed patients are housed. No pipes or traps shall be exposed and all fixtures shall be securely bolted through walls or floors.

(5) **SPECIAL FIXTURES AND EQUIPMENT ACCEPTABILITY.** (a) *Special fixtures.* Fixtures which are designed for any special use such as, therapy, special cleansing and/or disposal of waste materials shall be smooth, impervious, corrosion resistant materials and, if subject to temperatures in excess of 180° F., shall be able to withstand without damage, higher temperatures as may be specified. Scrub-up sinks, lavatories and sinks in patient care areas, and fixtures used by medical and nursing staff, shall have the water supply spout terminate a minimum of 5 inches above the rim of the fixture. These fixtures shall be equipped with valves or faucets which can be operated without use of the hands.

(b) *Special equipment.* All devices, appurtenances, appliances and apparatus intended to serve a special function such as sterilization, distillation, processing, cooling, storage of ice or foods, etc., which may be connected to either the water supply distribution or drainage systems or both, shall be provided with protection against back-siphonage, backflow, flooding, fouling, or any possibility of contaminating any portion of the water supply system, or equipment, or the misuse of any drain.

(c) *Therapeutic equipment.* Therapeutic equipment shall not be counted as a patient bathing fixture to meet the required patient bath ratio.

(6) **FIXTURE AND EQUIPMENT INSTALLATION.** (a) *Clinic sinks.* Such fixtures shall have an integral trap in which the upper portion of a visible trap seal provides a water surface. The fixture shall be designed so as to permit complete removal of the contents by siphonic and/or blow-out action, and to reseal the trap in a single flushing operation. A flushing rim shall provide water to cleanse the interior surface. The fixtures shall have flushing and cleansing characteristics similar to a water closet.

(b) *Prohibited use of clinic sinks and service sinks.* A clinic sink shall not be used as a janitor's service sink. A janitor's service sink shall not be used for the disposal of urine, fecal matter, or other human wastes.

(c) *Special requirement for ice manufacture and storage.* 1. No machines for manufacturing ice, or any device for handling or storing ice, shall be located in a room containing a bedpan hopper, clinic sink, bedpan washer, or similar fixture. Machines for manufacturing ice, or devices for handling or storing ice intended for either human consumption or packs, shall be located in a clean utility room, a floor pantry, a diet kitchen, or in other similar locations.

2. Each drain serving an ice chest or box shall discharge into an indirect waste receptor. Each drain shall discharge through an air-break above the receptor. The end of the drain shall be covered with a removable 10 mesh per inch noncorrosive screen.

(7) **STERILIZERS.** (a) *Descaling prohibited.* The interior of water sterilizers, stills, or similar equipment shall not be descaled or otherwise treated by acid or other chemical solutions while the equipment is connected to the water and/or drainage systems.

(b) *Compliance with boiler and unfired pressure vessel code.* Pressure sterilizers and pressure type instrument washer sterilizers installed after the effective date of this code shall be constructed and stamped in accordance with the provisions of Wis. Adm. Code

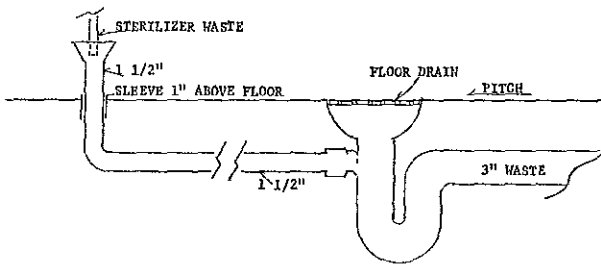
section Ind 41.50 (1) (e). All pressure sterilizers and pressure type instrument washer sterilizers regardless of size shall be equipped with pressure relief devices in accordance with the provisions of Wis. Adm. Code section Ind 41.50 (1) (e).

(c) *Sterilizer piping.* The connecting piping and/or devices for sterilizers shall be accessible for inspection and maintenance.

(d) *Bedpan washers and clinic sinks.* Bedpan washers and clinic sinks shall be connected to the sanitary drainage system and vented in accordance with the requirements for water closets. Vapor vents serving bedpan washers shall not connect to the plumbing system.

(8) DRAINAGE AND VENTING. (a) *Sterilizer wastes.* 1. Indirect wastes required. All sterilizers shall be provided with individual and separate indirect wastes, with air-gaps of not less than 2 diameters of the waste tailpiece. The upper rim of the receptor, funnel, or basket type waste fitting shall be not less than 2 inches below the vessel or piping, whichever is lower. Except as provided in sections H 62.15 (8) (a) 3. and 5., a "P" trap shall be installed on the discharge side of and immediately below the indirect waste connection serving each sterilizer.

2. Floor drain required. In any room containing the recessed, or concealed portions of sterilizers, not less than one acceptable floor drain, connecting to the drainage system, shall be installed in a manner to drain the entire floor area. The floor drain waste and trap shall be a minimum diameter of 3 inches. It shall receive the drainage from at least one sterilizer within the room to assure maintenance of the floor drain trap seal. The sterilizer drain may be installed on a branch taken off between the floor drain trap and the strainer. No individual sterilizer waste trap shall be required on this type of installation. See following sketch.



3. Battery assemblies. A battery assembly of not more than 3 sterilizer wastes may drain to one trap, provided the trap and waste are sized according to the combined fixture unit rating; the trap is located immediately below one of the indirect waste connections; the developed distance of a branch does not exceed 8 feet; and the branches change direction through a tee-wye or wye pattern fitting.

4. Bedpan steamers, additional trap required. A trap with a minimum seal of 3 inches shall be provided in a bedpan steamer drain located between the fixture and the indirect waste connection.

5. Pressure sterilizer. Except when an exhaust condenser is used, a pressure sterilizer chamber drain may be connected to the exhaust drip tube before terminating at the indirect waste connection. If a

vapor trap is used, it shall be designed and installed to prevent moisture being aspirated into the sterilizer chamber. The jacket steam condensate return, if not connected to a gravity steam condensate return, shall be separately and indirectly wasted. If necessary to cool a high temperature discharge, a cooling receiver, trapped on its discharge side, may serve as the fixture trap.

6. Pressure sterilizer exhaust condensers. The drain from the condenser shall be installed with an indirect waste. If condensers are used on pressure sterilizers, the chamber drain shall have a separate indirect waste connection.

7. Water sterilizer. All water sterilizer drains, including tank, valve leakage, condenser, filter and cooling, shall be installed with indirect waste or according to section H 62.15 (8) (a) 2.

8. Pressure instrument washer-sterilizer. The pressure instrument washer-sterilizer chamber drain and overflow may be interconnected. Also, they may be interconnected with the condenser.

(b) *Vapor vent material.* Material for vapor vents serving bedpan washers and sterilizer vents serving sterilizers shall be materials approved for vent piping.

(c) *Vent connections prohibited.* Connections between vapor vents serving bedpan washers, sterilizing apparatus, and/or normal sanitary plumbing systems, are prohibited.

(d) *Vapor vents and stacks.* 1. Bedpan washers shall be vented to the outer atmosphere above the roof by means of one or more vapor vents. The vapor vent for a bedpan washer shall be not less than a 2-inch diameter pipe. A vapor vent serving a single bedpan washer may drain to the fixture served.

2. Multiple installations. Where bedpan washers are located above each other on more than one floor, a vapor vent stack may be installed to receive the vapor vent on the various floors. Not more than 3 bedpan washers shall be connected to a 2-inch vapor vent stack, 6 to a 3-inch vapor vent stack, and 12 to a 4-inch vapor vent stack. In multiple installations, the connections between a bedpan washer vapor vent and a vapor vent stack shall be made by use of a tee or tee-wye sanitary pattern drainage fittings, installed in an upright position.

3. Trap required. The bottom of the vapor vent stack, except when serving only one bedpan washer, shall be drained by means of a trapped and vented waste connection to the plumbing sanitary drainage system. The trap and waste shall be the same size as the vapor vent stack.

4. Trap seal maintenance. A water supply of not less than $\frac{1}{4}$ inch minimum tubing shall be taken from the flush supply of each bedpan washer on the discharge or fixture side of the vacuum breaker, trapped to form not less than a 3-inch seal, and connected to the vapor vent stack on each floor. The water supply shall be so installed as to provide a supply of water to the vapor vent stack for cleansing and drain trap seal maintenance each time a bedpan washer is flushed.

(e) *Sterilizer vapor vent and stacks.* 1. Connections. Multiple installations of pressure and nonpressure sterilizers shall have their vent connections to the sterilizer vent stack made by means of inverted wye fittings. Such vent connections shall be accessible for inspection and maintenance.

2. Drainage. The connection between sterilizer vent and/or exhaust openings and the sterilizer vent stack shall be designed and installed to drain to the funnel or basket-type waste fitting. In multiple installations, the sterilizer vent stack shall be drained separately to the lowest sterilizer funnel or basket-type waste fitting or receptor.

(f) *Sterilizer vapor vent stack sizes.* 1. Bedpan steamers. The minimum size of a sterilizer vent serving a bedpan steamer shall be 1½ inches in diameter. Multiple installation shall be sized according to table 22.

Table 22
VAPOR VENT STACK SIZES FOR BEDPAN STEAMERS
AND BOILING TYPE STERILIZERS

(Number of connections of various sizes permitted to various sized sterilizer vent stacks)

Stack size	Connection size	
	1½"	2"
1½-inch ¹	1 or	0
2-inch ¹	2 or	1
2-inch ²	1 and	1
3-inch ¹	4 or	2
3-inch ²	2 and	2
4-inch ¹	8 or	4
4-inch ²	4 and	4

¹Total of each size.

²Combination of sizes.

2. Boiling type sterilizers. The minimum size of a sterilizer vent stack shall be 2 inches in diameter when serving a utensil sterilizer, and 1½ inches in diameter when serving an instrument sterilizer. Combinations of boiling type sterilizer vent connections shall be based on table 22.

3. Pressure sterilizers. Sterilizer vent stacks shall be 2½ inches minimum; those serving combinations of pressure sterilizer exhaust connections shall be sized according to table 23.

Table 23
VAPOR VENT STACK SIZES FOR PRESSURE STERILIZERS

(Number of connections of various sizes permitted to various sized vent stacks)

Stack size	Connection size			
	¾"	1"	1¼"	1½"
1½-inch ¹	3 or	2 or	1	-----
1½-inch ²	2 and	1	-----	-----
2-inch ¹	6 or	3 or	2 or	1
2-inch ²	3 and	2	-----	-----
2-inch ²	2 and	1 and	1	-----
2-inch ²	1 and	1 and	-----	1
3-inch ¹	15 or	7 or	5 or	3
3-inch ²	-----	1 and	2 and	2
3-inch ²	1 and	5 and	-----	1

¹Combination of sizes.

²Total of each size.

4. Pressure instrument washer-sterilizer sizes. The minimum size of a sterilizer vent stack serving an instrument washer-sterilizer

shall be 2 inches in diameter. Not more than two sterilizers shall be installed on a 2-inch stack, and not more than four on a 3-inch stack.

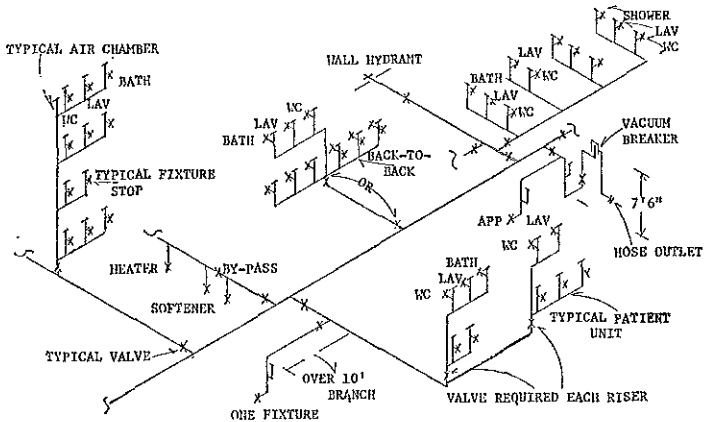
(9) FLOOR DRAINS PROHIBITED. Floor drains shall not be installed in operating or delivery rooms.

(10) WATER SUPPLY. (a) *Water services.* All hospitals shall be provided with at least 2 water service connections and whenever more than one street main is available, the connections shall be made to different street mains.

1. The water service pipe for all other health care facilities shall be of sufficient size to furnish water to the building in the quantities and at the pressures required in Wis. Adm. Code sections H 62.13 (4) (d) and (h) 3. and H 62.15 (10) (c).

2. Water services shall be in accord with the requirements of Wis. Adm. Code section H 62.13 (2).

(b) *Water distribution control valves.* 1. Four or less patient care units, containing not more than two persons per unit exclusive of intensive care coronary units, may be served with one branch control valve. All fixtures, appliances, appurtenances, lawn sprinkler faucets and wall hydrants shall be valved. See following sketch.



2. Control valves for risers, water heating equipment, water softeners and tank controls shall be in accord with Wis. Adm. Code section H 62.13 (4) (c), (d), (e) and (h). Control valve accessibility and design shall be in accord with section H 62.13 (4) (f) and (g), Wis. Adm. Code. See above sketch.

(c) *Velocities and flow capacities.* Water supply piping shall be designed to provide service to upper floor installations at a minimum pressure of 15 (p.s.i.) pounds per square inch during maximum demand periods. Velocities shall not exceed 8 (f.p.s.) feet per second. Where static pressure exceeds 80 (p.s.i.) pounds per square inch, pressure reducing controls shall be installed to avoid fracture or other damage to the system. The supply demand in gallons per minute in the building water distribution system shall be determined on the basis of the load in terms of supply fixture units and of the relationship between load and supply demand as shown in table 24 and pertinent portions of tables 13 and 14.

Table 24
DATA FOR ESTIMATING WATER SUPPLY DEMAND AND WASTE REQUIREMENTS

Fixture	Fixture Units		Minimum Pipe Sizes, Inches					Remarks
	Water	Waste	Waste	Trap	Vent	Cold Water	Hot Water	
Water closet (tank).....	6	6	3	2	2	½	½	H. W. required with bedpan washer hose only
Water closet (flush valve).....	10	8	3	2	2	1	½	
Lavatory.....	2	1	1½	1¼	1¼	½	½	
Urinal (tank).....	3	4	2	2	1½	½	½	
Urinal (flush valve).....	5	4				1		
Shower.....	4	2	3 FD	3		½	½	
Patient bath (public).....	4	3	1½	1½	1½	½	½	
Patient bath (pvt.).....	2	3	1½	1½	1½	½	½	
Drinking fountain.....	1	½	1¼	1¼	1¼	½	½	
Sitz bath.....	4	3	1½	1½	1½	½	½	
Clinical sink.....	10	6	3	3	2	1	¾	
(Flushing rim)	4 HW							
Scrub sink.....	4	3	2	2	1½	¾	¾	2, 3 or 4 place sink
Single sink for misc. hospital use.....	3	3	1½	1½	1½	½	½	
Double sink for misc. hospital use.....	4	4	2	2	1½	¾	¾	
Laboratory sink.....	2	2	1½	1½	1½	½	½	
Ice machine.....	1	1	2 SD	2	1½	¾	¾	
Plaster sink.....	6	4	2	2	1½	¾	¾	Use with plaster trap Based on 18 x 30 x 22-inch tank ½-inch STM connection
X-ray tank.....	4	2	1½	1½	1½	½	½	
Bedpan sanitizer.....	10	6	3	2	2	1	½	
Autopsy table.....	4	4	1½	1½	1½	½	½	
Animal area sinks.....	4	4	2	2	1½	¾	¾	
Cup sink.....	1	1	1¼	1¼	1¼	½	½	

(d) *Piping insulation.* Circulating, hot, cold and chilled water piping shall be insulated. Cold and chilled water pipe insulation shall have an integral or separate vapor barrier.

(e) *Special piping systems.* Distilled water, ionized water, laboratory and other special piping systems shall be included in the plans submitted. The plans shall incorporate sufficient detail to clearly establish the installation proposed.

(f) *Water supply protection.* The installation of the water supply shall meet all the applicable requirements prescribed in Wis. Adm. Code sections H 62.13 and H 62.14, and as provided in table 25 including the corresponding reference number.

Table 25

Equipment	Protective Device	Location	Reference No.
Bath with shampoo nozzle	Vacuum breaker	6'0" above bottom of tub	1
Bedpan sanitlzer	Vacuum breaker	Part of flush valve	1
Bedpan washer hose	Vacuum breaker	5'9" above floor	1
Hose and faucet at service sink	Vacuum breaker	6" above normal use of hose	1
Sterilizer condenser	Vacuum breaker	6" above unit	1
Flash washer	Vacuum breaker	6" above unit	1
Glove washer	Vacuum breaker	6" above unit	1
Still	Air-gap	On discharge	5
Ultrasonic cleaner	Vacuum breaker	6" above unit	1
Developing tank	Vacuum breaker	6" above unit	1
Dental unit	Vacuum breaker	Part of unit	1
Hydrotherapy bath	Vacuum breaker	6" above unit	1
Radiology cooling coil (water bath)	Air-gap	On discharge	5
Pipette washer	Vacuum breaker	6" above unit	1
Laboratory spout	Vacuum breaker	At threaded discharge	2
Cage washer	Vacuum breaker	6" above unit	1
Tube washer	Vacuum breaker	Part of control valve	1
Bottle washer	Vacuum breaker	6" above unit	1
Food waste grinder	Vacuum breaker	6" above unit	1
Peeler	Air-gap	On supply	4
Dishwasher	Vacuum breaker	6" above unit	1
Can washer	Vacuum breaker	6" above unit	1
Ice machine	Air-gap	On discharge	5
Pot washer	Vacuum breaker	6" above unit	1
Coffee urn	Vacuum breaker	6" above unit	1
Glass washer	Vacuum breaker	6" above unit	1
Refrigeration condenser	Air-gap	On discharge	5
Clothes washer	Vacuum breaker	6" above unit	1
Soap and brine tanks	Vacuum breaker	6" above unit	1
Autopsy table	Vacuum breaker	6'0" above floor	1
Aspirator	Vacuum breaker	6'0" above floor	1
Hose station	Vacuum breaker	At threaded discharge	2
Flush rim floor drain	Vacuum breaker	5'9" above floor	1
Incinerator gas washer	Air-gap	On water supply	5
Lawn sprinklers	Vacuum breaker	Outdoor type	1
Wall hydrant	Vacuum breaker	At threaded discharge	2
Hose bibb	Vacuum breaker	At threaded discharge	2
Package air-conditioner	Air-gap	On discharge	5
Cooling tower	Backflow preventer	On water supply	3
Boiler make-up water	Backflow preventer	On water supply	3
Vacuum pumps and air washing	Air-gap	On water supply	4
Spray coil for air washing	Vacuum breaker	6" above unit	1
Expansion tank	Backflow preventer	On water supply	3

1. The designation "vacuum breaker" means a non-pressure, atmospheric type device. The installation elevation means the distance above the spill level of the fixture or equipment served, or the height to which a connected discharge may be raised to cause gravity backflow to reach the device. The designated installation shall be measured from the bottom of the device, or the critical level marking

if indicated on the device. The installation and elevation shall permit the vacuum breaker to drain and actuate each time the control valve is operated. No shut-off valve shall be permitted downstream from the vacuum breaker. The vacuum breaker shall not be installed in a manner so as to be under continuous pressure.

2. The location "at the threaded discharge" means the location where an aerator would normally be installed. The vacuum breaker is the in-line type and for the laboratory faucet the serrated nozzle is then screwed into the discharge end of the vacuum breaker. When this vacuum breaker is used with a hose bibb, it is threaded onto the male end and the hose is connected to the vacuum breaker.

3. The designation "backflow preventer" means the reduced pressure type backflow preventer which includes two spring loaded check valves, a broken connection to a drain and usually two gate valves. The use of this device requires that adequate and rapid drainage be available.

4. An air-gap on the water supply means that the air-gap shall be located at the supply opening to the fixture or equipment it serves. An air-gap is the minimum vertical distance between the supply discharge orifice and the spill level of the receptor, fixture or equipment served. This minimum vertical distance shall be at least two diameters of the discharge orifice, or a minimum of one inch, whichever is the greatest.

5. An air-gap on the waste line means an indirect connection between the fixture or equipment and the waste receptor. The waste discharge orifice governs the minimum distance according to section H 62.15 (10) (f) 4.

(g) *Hot water supply control.* Hot water supply to patients' showers, therapeutic equipment, and continuous baths shall be provided with control valves automatically regulating the temperature of the water supply to the fixture. The valve shall fail in a closed position when the tempered water supply to the fixture exceeds 110° F.

(h) *Hot water supply.* The water supply distribution system shall be designed to provide hot water at each applicable fixture at all times. The system shall be of a circulating type. The circulating pumps shall be arranged for continuous operation or shall be controlled by an aquastat in the circulating piping. See Wis. Adm. Code section H 62.13 (4) (i) 3.

(i) *Water heaters and tanks.* Storage tanks when provided shall be fabricated of non-corrosive metal or be lined with non-corrosive material. The water heating equipment shall have a sufficient capacity to supply water at the temperature and amounts in table 26.

Table 26

	Patient Areas	Clinical	Dietary	Laundry (2 gals. per lb. of laundry)
Gal/hr/bed.....	6½	6½	4	4½
Temp. °F. (Maximum).....	110°	125°	180°	180°

(11) **ASPIRATORS.** The use of water aspirators shall be limited to those units approved by the department.

(12) **SPOUTS AND ACTIONS—HOSPITAL AND NURSING HOME FIXTURES.**

(a) The selection of spouts and actions for hospital and nursing home plumbing fixtures shall comply with section H 62.15 (12) (b) and table 27.

(b) Lavatories and sinks required in patient care areas shall have the water supply spout mounted so that its discharge point is a minimum distance of 5 inches above the rim of the fixture. All fixtures used by medical and nursing staff, and all lavatories used by patients and food handlers shall be trimmed with valves which can be operated without the use of hands. Where blade handles are used for this purpose they shall not exceed 4½ inches in length, except that handles on scrub sinks and clinical sinks shall be not less than 6 inches long.

Table 27
SPOUTS AND ACTIONS FOR HOSPITAL AND NURSING HOME FIXTURES

Location	Type of Spout	Type of Action Minimum
NURSING DEPARTMENT		
Patient toilet room.....	Gooseneck	Wrist
Patient toilet room— isolation.....	Gooseneck	Knee
Utility room.....	Gooseneck	Wrist
Treatment room.....	Gooseneck	Wrist
Medicine room.....	Gooseneck	Wrist
Lavatory in floor kitchen.....	Gooseneck	Wrist
Sink in floor kitchen.....	Sink faucet	Wrist
Nurses toilet room.....	Lavatory supply	Hand
Floor laboratory.....	Laboratory gooseneck	Vertical hand
NURSERY		
Nursery.....	Gooseneck	Wrist
Suspect nursery.....	Gooseneck	Wrist
Examination and treatment.....	Gooseneck	Wrist
Premature nursery.....	Gooseneck	Foot
Formula room.....	Gooseneck	Wrist
Labor room.....	Gooseneck	Wrist
SURGICAL		
Scrub room.....	Gooseneck with spray head	Knee
Sub-sterile room.....	Sink faucet	Wrist
Clean-up room.....	Sink faucet	Wrist
Frozen sections room.....	Laboratory gooseneck	Vertical hand
Surgical supply room.....	Gooseneck	Wrist
Work room.....	Sink faucet	Wrist
Cystoscopic room.....	Gooseneck with spray head	Knee
Fracture room.....	Sink faucet	Wrist
Recovery room.....	Gooseneck	Foot
CENTRAL SUPPLY		
Work room.....	Sink faucet	Wrist
Solutions room.....	Sink faucet	Wrist
Needle and syringe room.....	Sink faucet	Wrist
Glove room.....	Gooseneck	Wrist
Pharmacy.....	Laboratory gooseneck	Vertical hand
Manufacturing.....	Gooseneck	Wrist
EMERGENCY DEPARTMENT		
Observation bedroom.....	Gooseneck	Wrist
Utility room.....	Gooseneck	Wrist
Operating room.....	Gooseneck with spray head	Knee
D. O. A. room.....	Gooseneck	Wrist
Examination room.....	Gooseneck	Wrist

Table 27—continued
SPOUTS AND ACTIONS FOR HOSPITAL AND NURSING
HOME FIXTURES

Location	Type of Spout	Type of Action Minimum
DIAGNOSTIC AND TREATMENT		
Occupational therapy.....	Gooseneck	Wrist
Hydro-therapy room.....	Gooseneck	Wrist
Examination room.....	Gooseneck	Wrist
Deep therapy.....	Gooseneck	Wrist
Superficial therapy.....	Gooseneck	Wrist
Radium treatment and exam.....	Gooseneck	Wrist
Toilet room.....	Gooseneck	Wrist
Dark room.....	Sink faucet	Hand
Autopsy.....	Gooseneck with spray head	Knee
Lavatory in autopsy shower room.....	Gooseneck	Wrist
Laboratories.....	Laboratory gooseneck	Vertical hand
OUTPATIENT DEPARTMENT		
Examination and treatment room.....	Gooseneck	Wrist
Dental operating.....	Gooseneck	Knee
Dental laboratory.....	Laboratory gooseneck	Vertical hand
Dental recovery.....	Gooseneck	Wrist
Surgical room.....	Gooseneck with spray head	Knee
Eye examination room.....	Gooseneck	Knee
Ear, nose and throat room.....	Gooseneck	Knee
SERVICE DEPARTMENT		
Lavatory in kitchen.....	Lavatory supply	Wrist

(13) **RADIOACTIVE MATERIALS.** See Wis. Adm. Code chapter H 57.

History: 1-2-56; am. (3) (4) and (5), Register, August, 1961, No. 68, eff. 9-1-61; r. and recr. Register, November, 1972, No. 203, eff. 12-1-72.

H 62.16 Mobile homes. (1) **GENERAL.** (a) *Code compliance.* The plumbing system installed in a mobile home shall conform with the provisions of this section. Provisions not indicated in this section are referred to applicable Wis. Adm. Code sections of chapter H 62.

(b) *Workmanship.* All design, construction and workmanship shall conform with accepted engineering practices and shall be of such character as to secure the results sought to be obtained by this section.

(2) **PROHIBITED FITTINGS AND PRACTICES.** (a) Drainage or vent piping shall not be drilled and tapped for the purpose of making connections.

(b) Except as specifically provided elsewhere in this section, vent pipes shall not be used as soil or waste pipes.

(c) Fittings, connections, devices, or methods of installation that obstruct or retard the flow of sewage or air in the drainage or venting systems in an amount greater than the normal frictional resistance to flow shall not be used unless approved by the department.

(d) Cracks, holes or other imperfections in materials shall not be concealed by welding, brazing or soldering or by paint, wax, tar or other leak-sealing or repairing agents.

(e) Piping, fixtures or equipment shall be located so as not to interfere with the normal use or with the normal operation and use of windows, doors or other required facilities.

(f) All valves, pipes and fittings shall be installed in correct relationship to the direction of flow.

(3) **PROTECTIVE REQUIREMENTS.** (a) *Cutting structural members.* Structural members shall not be unnecessarily or carelessly weakened by cutting or notching.

(b) *Exposed piping.* All piping, pipe threads, hangers, and supports exposed to the weather, water, mud, and road hazard, and subject to damage therefrom, shall be painted, coated, wrapped, or otherwise protected from deterioration.

(c) *Road damage.* Pipes, supports, drains, outlets, or drain hoses shall not extend or protrude in a manner where they could be unduly subjected to damage during transit.

(d) *Rodent resistance.* All exterior openings around piping and equipment shall be sealed to resist the entrance of rodents.

(e) *Freezing.* All piping and fixtures subject to freezing temperatures shall be insulated or protected to prevent freezing under normal occupancy. All water distribution piping shall be aligned and graded to permit draining.

(4) **MATERIALS—QUALITY AND WEIGHT.** (a) *Minimum standards.* Materials, fixtures, or devices used or entering into the construction of plumbing systems in any mobile home shall be free from defects and shall conform to Wis. Adm. Code section H 62.19, or materials approved by the department.

(b) *Specific usage.* Each of the following subsections indicates specifically the type of material permitted for use in the various parts of the plumbing system.

(5) **JOINTS AND CONNECTIONS.** (a) *Tightness.* Joints and connections in the plumbing system shall be gastight and watertight for the pressures required under testing procedures. See Wis. Adm. Code section H 62.23.

(b) *Assembling of pipe.* All joints and connections shall be correctly assembled for tightness. Pipe threads shall be fully engaged with the threads of the fitting. Plastic pipe and copper tubing shall be inserted to the full depth of the welding sockets or solder cup of each fitting. Pipe threads and slip joints shall not be wrapped with string, paper, putty, or similar fillers.

(c) *Threaded joints.* All burrs shall be removed. Pipe ends shall be reamed out to size of bore, and all chips and cutting oil shall be removed. Pipe joint thread compound shall be applied to male threads only.

(d) *Solder joints.* Solder joints for tubing shall be made with approved solder type fittings. Surfaces to be soldered shall be cleaned bright. The joints shall be properly fluxed with noncorrosive paste type flux and made with approved 50-50 solder or an approved solder having a higher melting temperature.

(e) *Plastic pipe and fittings.* Plastic pipe and fittings shall be joined by installation methods approved by the department.

(f) *Union joints.* Metal unions shall have metal-to-metal ground seats.

(g) *Flared joints.* Flared joints for soft copper water tubing shall be made with approved fittings. The tubing shall be expanded with a proper flaring tool.

(6) **TRAPS.** (a) *Traps required.* Each plumbing fixture shall be separately trapped by an approved water seal "P" trap. All traps shall be vented.

(b) *Two compartment sink.* A 2-compartment sink may be connected to one "P" trap and may be considered as a single fixture for the purpose of drainage and vent.

(c) *Prohibited traps.* A trap which depends for its seal upon concealed interior partitions shall not be used. Full "S" traps, bell traps, drum traps, crown-vented traps, and running traps are prohibited. Fixtures shall not be double trapped.

(d) *Material and design.* 1. Material. Traps shall be manufactured of cast iron, cast brass, or drawn brass tubing of not less than No. 17 Brown and Sharpe gauge, or approved plastic, or other approved material.

2. Design. a. Each trap shall be self-cleaning with a smooth and uniform interior waterway. Union joints for a trap shall be beaded to provide a shoulder for the union nut. Each trap shall have the manufacturer's name stamped or cast on the trap. Each tubing trap shall show the gauge of the tubing.

b. Trap cleanouts. All fixture traps shall be so designed and installed that stoppages may be removed. All small fixture traps shall be provided with cleanouts of the screw plug or removable dip type. Where the "U" or dip is removable the coupling nut on the discharge side shall be within the dip of the trap. Traps for urinals rising from the floor and traps serving shower baths and floor drains, when inaccessible, shall be so installed as to make the removable inlet serve as a cleanout.

(e) *Trap seal.* Each "P" trap shall have a water seal of not less than 2 inches and not more than 4 inches and shall be set true to its seal.

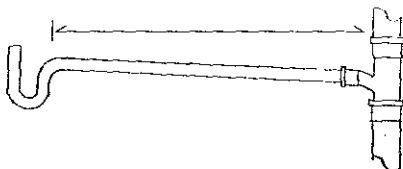
(f) *Size.* Traps shall be not less than $1\frac{1}{4}$ inches in diameter. A trap shall not be larger than the waste pipe to which it is connected. See Wis. Adm. Code section H 62.03 (1), table 1, for proper trap size.

(g) *Location.* Each trap shall be located as close as possible to its fixture outlet.

(h) *Distance from trap to vent.* The distance between a "P" trap and its vent or vented waste line shall be in accordance with table 28. See sketch following table 28.

Table 28
DISTANCE OF FIXTURE TRAP FROM VENT

Size of Fixture Drain (Inches)	Distance Trap to Vent
$1\frac{1}{2}$	3 feet
2	4 feet
3	6 feet



(i) *Length of tailpiece.* The vertical distance of any waste connection between the top of the fixture strainer or opening to the center line of the horizontal waste pipe shall be as close as possible but shall not exceed 15 inches, except floor drains shall not exceed 24 inches. Floor outlet water closets may have a distance of 36 inches between the water level of the fixture and the center line of the horizontal soil pipe serving same.

(j) *Installation.* 1. Grade of trap arm. The piping between a "P" trap and the fixture tee or the vented waste line shall be graded $\frac{1}{4}$ inch per foot towards the vent and in no event shall have a slope greater than its diameter. The vent opening at fixture tees shall not be below the invert of the "P" trap outlet.

2. Trap arm offset. The piping between the "P" trap and vent may change direction or be offset horizontally with the equivalent of no more than 180 degrees.

3. Concealed "P" traps. "P" traps with slip joint connections shall be readily accessible for repair and inspection.

(7) **CLEANOUTS.** (a) *When installed.* Cleanouts shall be installed if the drainage system cannot be cleaned through fixtures, drains, or vents. Cleanouts shall also be provided when fittings of more than 45 degrees are used to effect an offset except where long turn ells are used which provide sufficient "sweep" for cleaning.

(b) *Cleaning tool.* A cleaning tool shall not be required to pass through more than 360 degrees of fittings, excluding removable "P" traps, to reach any part of the drainage system.

(c) *Access to cleanouts.* Cleanouts shall be accessible through an unobstructed minimum clearance of 12 inches directly in front of the opening. Each cleanout fitting shall open in a direction opposite to the flow or at right angles to the pipe. Concealed cleanouts that are not provided with access covers shall be extended to a point above the floor or outside of the mobile home, with pipe and fittings installed, as required, for drainage piping without sags and pockets.

(d) *Material.* Plugs shall be brass or approved plastic with screw pipe threads.

(e) *Design.* Cleanout plugs shall have raised heads except that plugs at floor level shall have inverted sockets.

(8) **PLUMBING FIXTURES.** (a) *Quality of fixtures.* Plumbing fixtures shall have smooth impervious finishes, be free from defects and concealed fouling surfaces, be capable of resisting road shock and vibration and shall conform in quality and design to approved standards.

(b) *Strainers.* The waste outlet of all plumbing fixtures, other than water closets, shall be equipped with a drain fitting that will provide an adequate unobstructed waterway.

(c) *Fixture connections.* Fixture tailpieces and continuous wastes in exposed or accessible locations shall be not less than No. 17 Brown and Sharpe gauge seamless drawn-brass tubing or other approved pipe or tubing materials. Inaccessible fixture connections shall be constructed according to the requirements for drainage piping. Each fixture tailpiece, continuous waste, or waste and overflow shall be not less than $1\frac{1}{2}$ inches for sinks of two or more compartments,

dishwashers, clothes washing machines, laundry tubs, bathtubs, and not less than $1\frac{1}{4}$ inches for lavatories.

(d) *Concealed connections.* Approved concealed slip joint connections shall be provided with adequately sized unobstructed access panels and shall be accessible for inspection and repair.

(e) *Directional fitting.* An approved "Y" or other directional type branch fitting shall be installed in every tailpiece or continuous waste that receives the discharge from food waste disposal units, dishwashing, or other force-discharge fixture or appliance. See section H 62.16 (8) (h) 2.

(f) *Water closets.* 1. Each water closet shall be designed and manufactured according to approved standards and shall be equipped with a water flushing device capable of adequately flushing and cleaning the bowl at each operation of the flushing mechanism. See Wis. Adm. Code section H 62.19.

2. Water closet flushing devices shall be designed to replace the water seal in the bowl after each operation. Flush valves, flushometer valves, and ballcocks shall operate automatically to shut off at the end of each flush or when the tank is filled to operating capacity.

3. Flush tanks shall be fitted with an overflow pipe large enough to prevent flooding at the maximum flow rate of the ballcock. Overflow pipes shall discharge into the water closet through the tank.

4. Water closets that have fouling surfaces that are not thoroughly washed at each discharge shall be prohibited. Any water closet that might permit the contents of the bowl to be siphoned back into the water system shall be prohibited.

5. Floor connection. Water closets shall be securely bolted to the floor by means of an approved flange or other approved fitting. Bolts and screws, when used, shall be of solid brass or other corrosive resistant materials approved by the department and shall be not less than $\frac{1}{4}$ inch in diameter. A watertight seal shall be made between the water closet and flange or other approved fitting by use of a gasket or sealing compound.

(g) *Shower stalls.* 1. Each shower stall shall be provided with an approved watertight receptor with sides and back extending one inch above the finished dam or threshold. In no case shall the depth of a shower receptor be less than 2 inches or more than 9 inches measured from the top of the finished dam or threshold to the top of the drain. The wall area in shower compartments shall be constructed of smooth, noncorrosive, and nonabsorbent waterproof materials to a height not less than 6 feet above the floor level. Such walls shall form a watertight joint with each other and with the receptor or shower floor. The floor shall slope uniformly to the drain at not less than $\frac{1}{4}$ nor more than $\frac{1}{2}$ inch per foot.

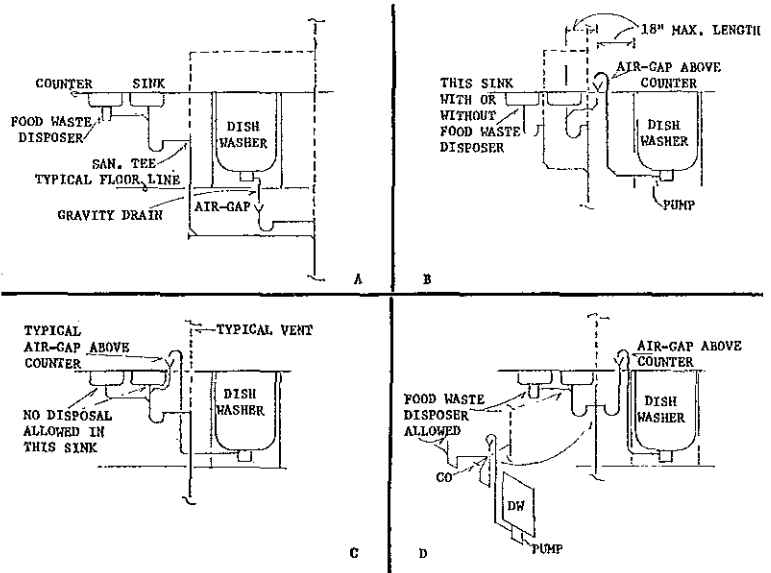
2. The joint around the drain connection and around the water closet outlet in combination compartments shall be made watertight by a flange, clamping ring, or other approved means.

3. Shower doors and tub and shower enclosures shall be constructed so as to be waterproof and, if glazed, glazing shall comply with A.N.S.I. Z97.1—1966.

4. Prefabricated shower stalls shall be approved and shall comply with all the requirements of this chapter relating to plumbing fixtures and shower stalls.

(h) *Dishwashing machines.* 1. Dishwashing machines shall not be directly connected to any waste piping, but shall discharge its waste through a fixed air-gap installed above the machine. The drain connection from the air-gap may connect to an individual trap or to a directional fitting installed in the sink tailpiece.

2. The drain from a dishwashing machine shall not be connected to a food waste disposal unit, sink tailpiece or continuous waste on the discharge side of a food waste disposal unit. Two traps shall be used when a sink, food waste disposal, and dishwashing machine are installed. See following sketches.



(i) *Clothes washing machines.* 1. Clothes washing machines shall drain either into a properly vented trap, into a properly vented and trapped open standpipe, or over the rim of a laundry tub.

2. Standpipes shall be $1\frac{1}{2}$ inches minimum inside diameter pipe size or $1\frac{1}{2}$ inches brass tubing not less than No. 17 Brown and Sharpe gauge. Standpipes shall discharge into a vented trap. Each standpipe shall extend not less than 18 inches or more than 30 inches above its trap and shall terminate in an accessible location not less than 6 inches above the highest water level of the clothes washing machine.

3. A clothes washing machine drain shall not be connected to the tailpiece, continuous waste, or trap of any sink or dishwashing machine.

(j) *Installation.* 1. Access. Each plumbing fixture shall be located and installed in a manner to provide easy access for cleaning and repair.

2. Alignment. Fixtures shall be set level and in true alignment with adjacent walls. Where practical, piping from fixtures shall extend to the nearest wall.

3. Brackets. Wall-hung fixtures shall be rigidly attached to walls by metal brackets or supports without any strain being transmitted to the piping connections. Flush tanks shall be securely fastened to water closets or to the wall with approved corrosive resistant materials.

(9) HANGERS AND SUPPORTS. (a) 1. *Strains and stresses.* Piping in the plumbing system shall be installed without undue strains and stresses, and provision shall be made for expansion, contraction, and structural settlement.

2. Piping supports. Piping shall be secured at sufficiently close intervals to keep the pipe in alignment and carry the weight of the pipe and contents.

(b) *Hangers and anchors.* 1. Hangers and anchors shall be of sufficient strength to support their proportional share of the pipe alignments and prevent rattling.

2. Piping shall be securely attached to the structure by proper hangers, clamps, or brackets which provide protection against motion, vibration, road shock, torque in the chassis, or other unusual conditions.

(10) WATER DISTRIBUTION SYSTEM. (a) *Water supply.* 1. Supply piping. Piping systems shall be sized to provide an adequate quantity of water to each plumbing fixture at a flow rate sufficient to keep the fixture in a clean and sanitary condition without any danger of backflow or back-siphonage. See table 29.

2. Hot water supply. Each mobile home equipped with a kitchen sink, and bathtub and/or shower shall be provided with a hot water supply system including a water heater.

(b) *Water outlets and supply connections.* 1. Water connection. Each mobile home with a water distribution system shall be equipped with a $\frac{3}{4}$ inch inlet coupling located within the rear half of the length of the mobile home. This inlet should be located as near as possible to a point 30 feet from the front of the mobile home, and left (road side) of the center line. This connection shall be tagged or marked "Fresh Water Connection" or "Fresh Water Fill". A matching cap or plug shall be provided to seal the water inlet when it is not in use, and shall be attached with a substantial chain.

2. The installation of potable water supply piping or fixture or appliance connections shall be made in a manner to preclude the possibility of backflow or back-siphonage. No part of the water system shall be connected to any drainage or vent piping. Wis. Adm. Code section H 62.14 shall also be applicable.

3. Rim outlets. The outlets of faucets, spouts, and similar devices shall be spaced at least one inch above the flood level of the fixture.

4. Appliance connections. Water supplies connected to clothes washing or dishwashing machines shall be protected by an approved fixed air-gap provided within the appliance by the manufacturer.

5. Flushometer valves or manually operated flush valves. A department approved vacuum breaker shall be installed and maintained in the water supply line on the discharge side of a water closet flushometer valve or manually operated flush valve. Vacuum breakers shall have a minimum clearance of 6 inches above the flood level of the fixture to the critical level mark unless otherwise permitted in their approval.

6. Flush tanks. Water closet flush tanks shall be equipped with an approved anti-siphon ballcock which shall be installed and maintained with its outlet or critical level mark not less than one inch above the full opening of the overflow pipe.

(c) *Water heater safety devices.* 1. Relief valves. All water heaters shall be installed with approved fully automatic valve or valves designed to provide temperature and pressure relief.

2. Any temperature relief valve or combined pressure and temperature relief valve installed for this purpose shall have the temperature sensing element immersed in the hottest water within the upper 6 inches of the tank. It shall be set to start relieving at a pressure not exceeding the rated working pressure of the tank and at or below a water temperature of 210 degrees F.

3. Relief valves shall be provided with full-sized drains and the drain outlets shall be directed downward. When the drain is terminated within the mobile home, the outlet shall be located within 6 inches of the floor. Drain lines shall drain fully by gravity, shall be protected from freezing and plugging, shall not be trapped, nor their outlets threaded.

(d) *Water heaters.* Each storage water heater shall be provided with a $\frac{3}{4}$ inch pipe tapping for a temperature relief valve within the top 6 inches of the tank. The tapping shall be in a location which will permit easy access for installing, testing and maintenance of the valve. This tapping may also be used for a combined pressure temperature relief valve.

(e) *Materials.* 1. Piping material. Water pipe shall be of standard weight brass, galvanized wrought iron, galvanized steel, type K or L copper tubing or other material approved by the department.

2. Fittings. Appropriate fittings shall be used for all changes in direction or size and where pipes are joined. The material and design of fittings shall conform to the type of piping used.

3. Fittings for screw piping shall be standard weight galvanized iron for galvanized iron and steel pipe, and of brass for brass piping. They shall be installed where required for change in direction, reduction of size, or where pipes are joined together.

4. Fittings for copper tubing shall be cast brass or drawn copper sweat solder pattern or flare type.

5. Prohibited material. Used piping materials shall not be permitted. Pipe dope, solder flux, oils, solvents, chemicals, or other substances that are toxic, corrosive, or otherwise detrimental to the water system shall not be used.

(f) *Installation of piping.* 1. Minimum requirement. All piping equipment, appurtenances, and devices shall be installed in workman-like manner and shall conform with the provisions and intent of this chapter.

2. Screw pipe. Iron pipe size brass or galvanized iron or steel pipe and fittings shall be joined with approved standard pipe threads fully engaged in the fittings. Pipe ends shall be reamed to the full bore of the pipe. Pipe-joint compound shall be insoluble in water, shall be nontoxic and shall be applied to male threads only.

3. Solder fittings. Joints in copper water tube shall be made by the appropriate use of approved cast brass or wrought copper fittings, properly soldered together. The surface to be soldered shall

be thoroughly cleaned bright by mechanical methods. The joints shall be properly fluxed and made with approved solder.

4. Flared fittings. A flaring tool shall be used to shape the ends of flared tubing to match the flare of fittings.

(g) *Size of water supply piping.* 1. Minimum size. The size of water supply piping and branch lines shall not be less than sizes shown in table 29.

Table 29
MINIMUM SIZE TUBING AND PIPE FOR WATER
DISTRIBUTION SYSTEMS*

Number of Fixtures	Tubing		Pipe
	Inside Diameter (Inches)	Outside Diameter (Inches)	Iron Pipe Size Inside Diameter (Inches)
1.....	$\frac{1}{4}$ †	$\frac{3}{8}$	$\frac{1}{2}$
2.....	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$
3.....	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$
4.....	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$
5 or more.....	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$

†6 feet maximum length for $\frac{1}{4}$ inch ID tubing.

*Exceptions to table: $\frac{3}{8}$ inch ID nominal or $\frac{1}{2}$ inch OD minimum size for clothes washing or dishwashing machines, unless larger size is recommended by the fixture manufacturer.

* $\frac{3}{4}$ inch ID nominal or $\frac{3}{4}$ inch OD minimum size for flushometer or metering type valves unless otherwise specified in their listing.

*No galvanized screw piping shall be less than $\frac{1}{2}$ inch inside diameter iron pipe size.

2. Sizing procedure. Both hot and cold water piping systems shall be computed by the following method:

Start at the most remote outlet on any branch of the hot or cold water piping and progressively count towards the water service connection, computing the total number of fixtures supplied along each section of piping. Where branches are joined together, the number of fixtures on each branch shall be totaled so that no fixture is counted twice. Following down the left-hand column of table 29, a corresponding number of fixtures will be found. The required pipe or tubing size is indicated in the other columns on the same line.

3. A water heater or food waste disposal unit shall not be counted as a water-using fixture when computing pipe sizes.

4. Line valves. Valves, when installed in the water supply distribution system (except those immediately controlling one fixture supply) and when fully opened, shall have a cross-sectional area of the smallest orifice or opening, through which the water flows, at least equal to the cross-sectional area of the inside diameter size of the pipe in which the valve is installed.

(11) DRAINAGE SYSTEMS. (a) *Materials.* 1. Piping. Drainage piping shall be standard weight galvanized steel; wrought iron; cast iron; brass; K, M, L, or DWV type copper; ABS or PVC plastic or other materials approved by the department.

a. ABS plastic pipe and fitting materials shall be type 1, grade 2, schedule 40 DWV or heavier, as defined in A.S.T.M. specifications D 1788-68 and D 2661-68. They shall also bear the NSF[®] (National Sanitation Foundation) Seal of Approval for drain, waste and vent systems.

b. PVC plastic pipe and fitting materials shall be type 1, grade 1, schedule 40 DWV or heavier, as defined in A.S.T.M. specifications D 1784-69 and D 2665-68. They shall also bear the NSF (National Sanitation Foundation) Seal of Approval for drain, waste and vent systems.

2. Fittings. Drainage fittings shall be recessed drainage pattern with smooth interior waterways of the same diameter as the piping and shall be of a material conforming to the type of piping used. Drainage fittings shall be designed to provide for a $\frac{1}{4}$ inch per foot grade in horizontal piping.

3. Fittings for screw pipe shall be cast iron, malleable iron, brass, or approved plastic with standard pipe threads.

4. Fittings for copper tubing shall be cast brass or wrought copper.

5. Socket-type fittings for plastic piping shall comply with standards approved in this section.

6. Brass or bronze adaptor or wrought copper fittings shall be used to join copper tubing to threaded pipe.

(b) *Drain outlets.* 1. Location of drain. Each mobile home shall have only one drain outlet which shall terminate in the rear half section. This outlet should be located as close as possible to a point 40 feet from the front of the mobile home.

2. Clearance from drain outlet. The drainage outlet and couplers shall be provided with a minimum clearance of 3 inches in any direction from all parts of the structure or appurtenances and with not less than 18 inches unrestricted clearance directly in front of the drainage outlet.

(c) *Hose couplers and caps.* 1. Hose couplers for drain outlets shall be a quick disconnect type not requiring any special tools or knowledge to make the connection or remove the drain hose.

2. Hose couplers and drain connectors shall not be smaller than the piping to which they are connected and shall be equipped with a watertight cap or plug matching the drainage outlet or coupler. The cap or plug shall be permanently attached to the structure by means of a substantial chain.

3. Drain outlet or attached drain connectors for drain piping connected to a mobile home shall be 3 inches minimum inside diameter.

4. Preassembly of drain lines. Drain lines, provided by the manufacturer, located under the mobile home, designed to bring the drain system to one distribution point and which may be damaged in transit, must be designed for proper site assembly.

5. Fixture connections. Drainage piping shall be provided with approved inlet fittings for fixture connections, correctly located according to the size and type of fixture to be connected.

6. Water closet connection. The drain connection for each water closet shall be 4 inches minimum inside diameter. The 4 inch soil pipe shall be fitted with an iron, brass, or approved plastic floor flange adaptor ring securely screwed, soldered or otherwise permanently attached to the drain piping, in an approved manner and securely fastened to the floor.

(d) *Size of drainage piping.* 1. Fixture load. The number of fixture units connected to any stack or branch or vent and the size and length of piping shall not exceed that shown in tables 1 and 2, Wis. Adm. Code section H 62.03.

2. Wet vented drainage system. Plumbing fixture traps may connect into a wet vented drainage system which shall be designed and installed to accommodate the passage of air and waste in the same pipe.

3. Horizontal piping. All parts of a wet vented drainage system, including the connected fixture drains, shall be horizontal except for wet vented vertical risers which shall terminate with a $1\frac{1}{2}$ inch minimum inside diameter continuous vent. Where required by structural design, wet vented drain piping may be offset vertically when other vented fixture drains or relief vents are connected to the drain piping below the vertical offsets.

4. Size. A wet vented drain pipe shall be 2 inches minimum inside diameter and at least one pipe size larger than the largest connected trap or fixture drain. Not more than one fixture may connect to a 2 inch inside diameter wet vented drain system. See section H 62.16 (12) (f).

5. Length of trap arm. Fixture traps shall be located within the distance given in table 28, section H 62.16 (6) (h). Not more than one trap shall connect to a trap arm except for two compartment sinks which are considered as one fixture.

(e) *Offsets and branch fittings.* 1. Changes in direction. Changes in direction of drainage piping shall be made by the appropriate use of approved fittings, and shall be of the following angles: $11\frac{1}{4}$, $22\frac{1}{2}$, 45, 60, or 90 degrees; or other approved fittings or combination of fittings with equivalent radius or sweep.

2. Horizontal to vertical. Horizontal drainage lines, connecting with a vertical pipe shall enter through 45 degree "Y" branches, 60 degree "Y" branches, long-turn "TY" branches, sanitary "T" branches, or other approved fittings or combination of fittings having equivalent sweep. Fittings having more than one branch at the same level shall not be used unless the fitting is constructed so that the discharge from any one branch cannot readily enter any other branch. However, a double sanitary "T" may be used when the drain line is increased not less than two pipe sizes.

3. Horizontal to horizontal and vertical to horizontal. Horizontal drainage lines connecting with other horizontal drainage lines or vertical drainage lines connected with horizontal drainage lines shall enter through 45 degree "Y" branches, long-turn "TY" branches, or other department approved or combination of fittings having equivalent sweep.

4. Slope of horizontal drainage piping. Horizontal drainage piping shall be run in practical alignment and have a uniform slope of not less than $\frac{1}{4}$ inch per foot toward the mobile home drain outlet. Where it is impractical, due to the structural features or arrangement of any mobile home, to obtain a slope of $\frac{1}{4}$ inch per foot, the pipe or piping may have a slope of not less than $\frac{1}{8}$ inch per foot, when a full size cleanout is installed at the upper end.

(12) **VENTS AND VENTING.** (a) *General.* Each plumbing fixture trap shall be protected against siphonage and back pressure, and air circulation shall be ensured throughout all parts of the drainage system by means of vents installed in accordance with the requirements of this section.

(b) *Back vent.* A back vent or continuous vent pipe shall be provided to serve each trap except as otherwise specified in this chapter.

(c) *Crown vent.* In no case shall a vent be connected to the crown of a trap.

(d) *Main soil or waste vent.* Every mobile home having plumbing fixtures or a plumbing system shall have installed therein at least one main soil or waste vent (stack vent) of at least 2 inches inside diameter.

(e) *Unit vent.* Two identical fixtures located on the same floor level discharging through the same approved drainage pattern fitting into a vertical soil or waste pipe may be served by a unit vent pipe as hereafter indicated. (Also referred to as a common vent.)

(f) *Wet vent.* Fixtures with a unit value of only one or less may be used to wet vent floor outlet fixtures located on the same floor level as the fixture creating the wet vent.

(g) *Vent installation.* 1. Vent relocation. Where fixtures are afterwards installed on a soil or waste pipe above existing vent connections to the main soil or waste vent, the vent piping system shall be rearranged to conform to the provisions of this chapter.

2. Vent pipe grades. All vent pipes shall be free from drops or sags and shall be so graded and connected as to drain back to the soil or waste pipe by gravity. Whenever it becomes necessary to trap a horizontal vent pipe, it shall be drained back into a waste pipe by gravity with a 1½ inch minimum inside diameter drip pipe.

3. Vent connections. All vent pipes shall be run separately through the roof, be connected to other vent pipes or vent stacks a minimum of 4 inches below the roof, or be reconnected to the main vent pipe not less than 38 inches above the highest floor on which fixtures are installed. All changes in direction from vertical to horizontal on any vent shall be made above the overflow rim of the fixture, but not less than 36 inches above the floor wherever possible. No fitting or fittings for future waste connections shall be placed in any soil or waste pipe above the point of revent connection.

4. Alternate venting systems. Design of venting arrangements other than set forth in this section shall be submitted to the department for approval prior to installation.

5. Materials. Vent piping shall be standard weight galvanized steel; wrought iron; cast iron; brass; K, M, L, or DWV type copper; ABS or PVC plastic; or other materials approved by the department.

a. ABS plastic pipe and fitting materials shall be type 1, grade 2, schedule 40 DWV or heavier, as defined in A.S.T.M. specifications D 1788-68 and D 2661-68. They shall also bear the NSF (National Sanitation Foundation) Seal of Approval for drain, waste and vent systems.

b. PVC plastic pipe and fitting materials shall be type 1, grade 1, schedule 40 DWV or heavier as defined in A.S.T.M. specifications D 1784-69 and D 2665-68. They shall also bear the NSF (National Sanitation Foundation) Seal of Approval for drain, waste and vent systems.

c. Fittings. Appropriate fittings shall be used for all changes in direction or size and where pipes are joined. The material and design of vent fittings shall conform to the type of piping used.

d. Fittings for screw pipe shall be cast iron, malleable iron, plastic, or brass, with standard pipe threads.

e. Fittings for copper tubing shall be cast brass or wrought copper.

f. Brass adaptor or wrought copper fittings shall be used to join copper tubing to threaded pipe.

(h) *Vent terminal*. 1. Roof extension. Each soil, waste or vent stack shall be increased to at least 4 inches inside diameter or terminate with a department approved frostproof flashing. No vent shall terminate less than 2 inches above the roof. Vent openings shall not be less than 3 feet from any motor driven air intake that opens into habitable areas.

2. Flashing. The opening around each vent pipe shall be made watertight by an adequate flashing or flashing material.

(13) TEST AND INSPECTION. (a) *Water system*. All water piping in the water distribution system shall be subjected to a pressure test before any portion is covered or concealed. The test shall be made by subjecting the system to air or water at 100 psi for 15 minutes without leakage or loss of pressure. An adequate and accurate pressure gauge shall be used on all tests.

(b) *Drainage and vent system and plumbing fixtures*. The waste and vent system shall be tested by one of the following methods for evidence or indication of leakage.

1. Water test. Before plumbing fixtures are connected, all of the openings into the piping shall be plugged and the entire piping system subjected to a static water test for 5 minutes by filling it with water to the highest opening above the roof. There shall be no evidence of leakage.

2. Air test. After all fixtures have been installed, the traps filled with water, and the remaining openings securely plugged, the entire system shall be subjected to a 2 inch (manometer) water column air pressure test. If the system loses pressure, leaks may be located with smoke pumped into the system, or with soap suds spread on the exterior of the piping (bubble test).

(c) *Flood level test*. The mobile home shall be in a level position, all fixtures shall be connected, and the entire system shall be filled with water to the rim of the water closet bowl. (Tub and shower drains shall be plugged.) After all trapped air has been released, the test shall be sustained for not less than 5 minutes without evidence of leaks. Then the system shall be unplugged and emptied. The waste piping above the level of the water closet bowl shall then be tested and show no indication of leakage when the high fixtures are filled with water and emptied simultaneously to obtain the maximum possible flow in the drain piping.

(d) *Fixture test*. The plumbing fixtures and connections shall be subjected to a flow test by filling them with water and checking for leaks and retarded flow while they are being emptied.

(e) *Shower stalls*. Nonmetallic shower stalls and receptors shall be tested for leaks prior to being covered by finish material. Each pan shall be filled with water to the top of the dam for not less than 15 minutes.

Note: Copies of standards promulgated by the following technical societies referred to above are on file in the offices of secretary of state, health and social services and revisor of statutes and may be obtained for personal use from the following addresses:

American National Standards Institute, Inc.
1430 Broadway, New York, New York 10018

American Society for Testing and Material
1916 Race St., Philadelphia, Pa. 19103

National Sanitation Foundation
Testing Laboratory, Inc., P. O. Box 1468
Ann Arbor, Michigan 48106

History: 1-2-56; r. and recr. (1) and (2), Register, August, 1961, No. 68, eff. 9-1-61; r. and recr. Register, November, 1972, No. 203, eff. 12-1-72.

H 62.17 Mobile home parks. (1) **PLAN APPROVAL.** (a) *Plans and specifications.* Complete plans and specifications shall be submitted to the department and written approval received before letting contracts or commencing work for all mobile home park sewerage, mobile home park water main and water services and for the addition to or replacement of existing systems.

(b) *Local approval.* The approval by county or other local governmental agency shall not exempt the requirements for state approval for the installation of sewerage and water systems serving mobile home parks.

(c) *Submission of plans and specifications.* All plans and specifications shall be submitted in triplicate and shall include the following:

1. Detailed plan of the proposed sewerage and water system showing mobile home site and service building location with all building sewers and water services indicated.
2. Legal description of the property on which the park is to be constructed.
3. Availability of plans. There shall be maintained at the project site one set of plans bearing the department's stamp of approval.
4. Plans and specifications submitted for private sewage disposal systems shall meet the criteria set forth in Wis. Adm. Code section H 62.20. ✓

(2) **MOBILE HOME PARK SEWERAGE SYSTEM.** (a) *General.* The park main sewerage system shall be constructed of materials approved by the department, and installed to limit infiltration of surface or subsoil waters. The infiltration of surface or subsurface waters shall not exceed 200 gallons per inch of diameter per mile per day. See Wis. Adm. Code section H 62.23 (2) (h). ✓

(b) *Design and construction.* 1. Main sewer size and gradient. The main sewers shall be sized and graded in accordance with table 30. Main sewers 8 inches or larger shall be designed and constructed to give mean velocity, when flowing full, of not less than 2.0 feet per second, based on Kutter's formula using an "n" value of 0.013. Use of other practical "n" values may be permitted by the department, if deemed justifiable on the basis of research or field data presented.