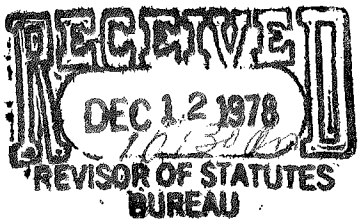
H 62



C E R T I F I C A T E

STATE OF WISCONSIN)
)SS
DEPT. OF HEALTH & SOCIAL SERVICES)

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

I, Donald E. Percy, Secretary of the Department of Health and Social Services and custodian of the official records of said department do hereby certify that the annexed rules relating to Water Distribution, Adjusting the Plan Examination Fee Schedules and On-sight Waste Disposal were duly approved and adopted by this department on December 12, 1978.

I further certify that said copy has been compared by me with the original on file in this department and that the same is a true copy thereof, and of the whole of such original.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the official seal of the department at the State Office Building in the City of Madison, this 12th day of December A. D. 1978.

DONALD E. PERCY, SECRETARY
DEPARTMENT OF HEALTH AND SOCIAL SERVICES

Seal:

ORDER OF THE DEPARTMENT OF HEALTH AND SOCIAL SERVICES REPEALING, RECREATING, AMENDING AND ADOPTING RULES

Pursuant to authority vested in the Department of Health and Social Services by section 227.014(2), Wis. Stats., and sections 145.02(1), (2), & (3), Wis. Stats., the Department of Health and Social Services hereby repeals, recreates, amends and adopts rules set forth in the attachment hereto marked Attachment "A", incorporated herein and made a part hereof:

ATTACHMENT "A"
FINAL DRAFT

Repeal and recreate section H 62.02 (88) (a) 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 15, 16, 17, 18, 19 and 20

(88) SEWAGE SYSTEM (PRIVATE). (a) A system comprised of a septic tank and effluent absorption area designed for the purpose of processing sewage wherever public sewer facilities are not available.

1. Annular space. The area between the seepage pit chamber wall exterior and the unexcavated earth wall.

2. Bedrock. Any solid exposed rock or overlain by unconsolidated material.

3. Detailed soil map. A map prepared by a state or federal agency showing soil series, type and phases at a scale of not more than 2,000 feet to the inch.

4. Distribution pipe. A conduit of perforated clay tile, bituminous fiber, concrete, cement asbestos or plastic.

5. Effluent. Liquid flowing from a septic or treatment tank.

6. Flood plain. That portion of the land flooded by the highest known flood water elevation or that portion of the land that would be flooded by the regional flood elevation established by a state or federal agency.

7. High groundwater. The upper limit of the portion of soil or underlying material that is saturated with water. (In some instances an upper or perched water table may be separated from a lower one by an impervious zone.)

8. High water level. The highest known flood water elevation of any lake, stream, pond or flowage or the regional flood elevation established by a state or federal agency.

9. Holding tank. An approved watertight receptacle for the retention of sewage.

10. Legal description. An accurate Metes and Bounds description or a lot and block number in a recorded subdivision or recorded assessor's plat or a public land survey description to the nearest 40 acres.

11. Mottled soil. A soil that is marked with spots or blotches of contrasting color which is usually caused by saturation for some period during a normal year.

12. Percolation test. A method of testing absorption qualities of the soils.

13. Reservoir. A watertight receptacle basin or vault constructed above ground surface or underground for the storage of water intended for domestic use.

14. Seepage pit. An underground receptacle so constructed as to permit disposal of effluent or clear wastes by soil absorption through its walls.

15. Seepage bed. An excavated area similar to a seepage trench but more than 5 feet in width and containing more than one distribution line.

16. Seepage trench. An area excavated 1 to 5 feet in width which contains a bedding of aggregate and a single distribution line.

17. Septic tank. A watertight tank which receives sewage.

18. Soil boring. A method of augering, boring or excavating through the ground surface to obtain samples of various stratum of earth to determine the characteristics and absorptive qualities of the soil, bedrock and ground water elevations.

19. Vent cap. An appurtenance of approved type used for covering the vent terminal of an effluent disposal system so as to avoid closure by mischief or debris and still permit circulation of air within the system.

20. Washed grade hard rock (aggregate). Washed graded hard rock is aggregate that has been washed with water under pressure over a screen during or after grading to permit fine material to be washed through the screen and has a hardness value of 3 or greater on the Moh's Scale of Hardness. Aggregate that can scratch a copper penny without leaving any residual rock material on the coin would have a hardness of 3 or more on the Moh's Scale of Hardness.

PROPOSED AMENDMENTS

WISCONSIN ADMINISTRATIVE CODE CHAPTER H 62

Section H 62.02 (112) is renumbered (113).

Section H 62.02 (112) is created to read:

(112) WATER HEATERS AND RELATED ITEMS. (a) Water heater. A closed vessel in which water is heated by the combustion of fuels, electricity or any other source and withdrawn for use external to the system at pressures not exceeding 160 p.s.i.g. and shall include the apparatus by which heat is generated and all controls and devices necessary to prevent water temperatures from exceeding 210°F.

(b) Hot water storage tank. A hot water storage tank is a tank used to store water that is heated indirectly by a circulating water heater or by steam or hot water circulating through coils or by other heat exchange methods internal or external to the tank.

(c) Hot water supply boiler. A boiler completely filled with water that furnishes hot water to be used externally to itself at pressures not exceeding 160 p.s.i.g. or at temperatures not exceeding 250°F.

(113) WATER CONDITIONER. An appliance, appurtenance or device used for the purpose of ion exchange, demineralizing water or other methods of water treatment.

Subsection (113) is renumbered (114).

Subsection (114) is renumbered (115).

Subsection (115) is renumbered (116) and is repealed and recreated to read:

(116) WATER DISTRIBUTION SYSTEM. (a) Piping which conveys water from the service to the plumbing fixtures, appliances, appurtenances, equipment, devices or other systems served including fittings and control valves.

1. Water distribution main. The principal water distribution pipe to which risers, branch mains or branches are connected.

2. Water distribution riser. A water distribution pipe which extends vertically one full story or more to convey water to mains, branch mains, branches or a group(s) of fixtures.

3. Water distribution branch main. A water distribution pipe to convey water to a riser, a pipe serving two or more branches with or without other branch mains.

4. Water distribution branch. Any part of the water distribution piping system other than a main, riser or branch main to within 18 inches or less of one or more fixtures.

5. Fixture supply connections. That part of the piping system within 18 inches or less from the fixture supply branch to the fixture.

Subsection (116) is renumbered (117).

Subsection (117) is renumbered (118).

Subsection (118) is renumbered (119).

Subsection (119) is renumbered (120).

FINAL DRAFT

Repeal and recreate section H 62.08 (11) (b) 1. and 2. 12/29/78

(b) 2. Wall type. a. Wall-hung urinals may be installed in all buildings except elementary schools (kindergarten through 8th grade).

Note 1: The definitions and general classifications for schools are found in section 115.01, Wis. Stats.

Note 2: The department recommends that wall-hung urinals be installed at a height between 22 and 24 inches above the floor.

(b) Men's urinals. 1. Stall type urinals shall be set into the floor and the floor shall be graded toward the fixture. All urinals shall be flushed by way of an approved flushing device which is limited to 1.5 gallons per flush per fixture. Every water supply to a urinal shall be protected by an approved type vacuum breaker or other acceptable method.

3. 2. Batteries of urinals shall be spaced not less than 30 inches center to center. The center line of a single urinal shall be at least 16 inches from the nearest side wall or partition. When the space between stall type urinals or a urinal and a sidewall is less than 12 inches, such space shall be filled in flush with the front and top of the urinal with nonabsorbent material.

b. c. Wall hanging urinals shall be supported by a carrier fitting.

c. d. Combinations of stall type and wall hanging urinals may be installed.

d. e. A floor drain located not more than 12 inches from the wall supporting wall hanging urinals, or a stall urinal shall be provided for each group of 4 or less urinals and each toilet room containing a single wall hanging urinal.

e. f. Fixture unit values, trap, waste and vent sizes shall be the same as men's stall urinals.

Repeal and recreate section H 62.09 (8) (a)

(8) SHOWERS. (a) Compartments. Shower compartments shall have at least 1,024 square inches of floor area, measured wall to wall, curb at least 3 inches in height and shall be at least 30 inches in minimum dimensions at any given side or angular shape or as the diameter of a circle except when a bathtub is used as the shower compartment. The wall area above built-in tub showers and in shower compartments shall be constructed of smooth, noncorrodible, nonabsorbent, waterproof materials to a height of at least 6 feet above the floor level. The walls shall form a watertight joint with each other and with either the tub, receptor or shower floor. The floor of the shower or compartment shall be of slip-resistant finish. Preformed and prefabricated units shall comply with this subsection.

PROPOSED AMENDMENT

WISCONSIN ADMINISTRATIVE CODE

SECTION H 62.09

Section H 62.09 (12) is hereby repealed.

8/16/78

SECTION H 62.13

WATER SERVICE AND WATER DISTRIBUTION SYSTEMS

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. No water service shall pass under or through a building to serve another building. In residences and buildings serving the public and places of employment, hot water shall be provided.

(2) WATER SERVICE. (a) Size. The minimum inside diameter of a water service pipe shall be 3/4-inch. The minimum size water service pipe may be increased by the local government or the utility by published ordinance or rule approved by the department. The size of the water service shall be determined by the requirements of subsection H 62.13 (4) (b) or H 62.13 (4) (c). When subsection H 62.13 (4) (c) is used, the minimum pressures specified in H 62.13 (4) (c) 1. g., shall be included in the calculations.

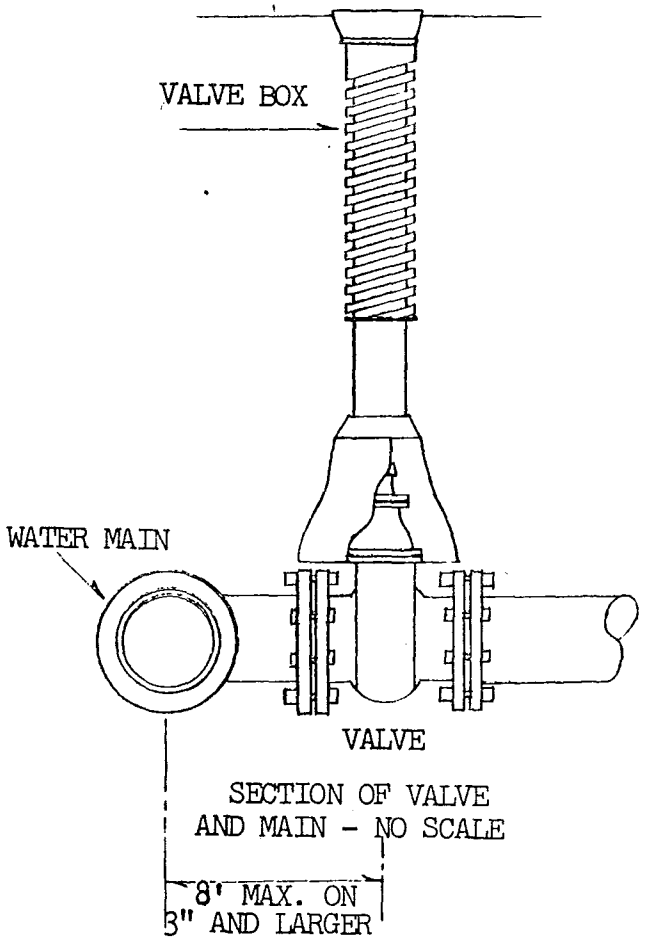
(b) Materials. The water service including pipe and fittings to any building shall be type K copper with copper or brass fittings, brass, cast iron, ductile iron, galvanized open hearth iron, galvanized steel, plastic, asbestos cement or other materials approved by the department. Any of the above materials used within bounds of, or beneath an area subject to easement for highway or street purposes or public service right-of-ways shall be subject to acceptance by the local government or the utility by published ordinance or rule approved by the department. See sections H 62.19 and H 62.24, Wis. Adm. Code for material standards.

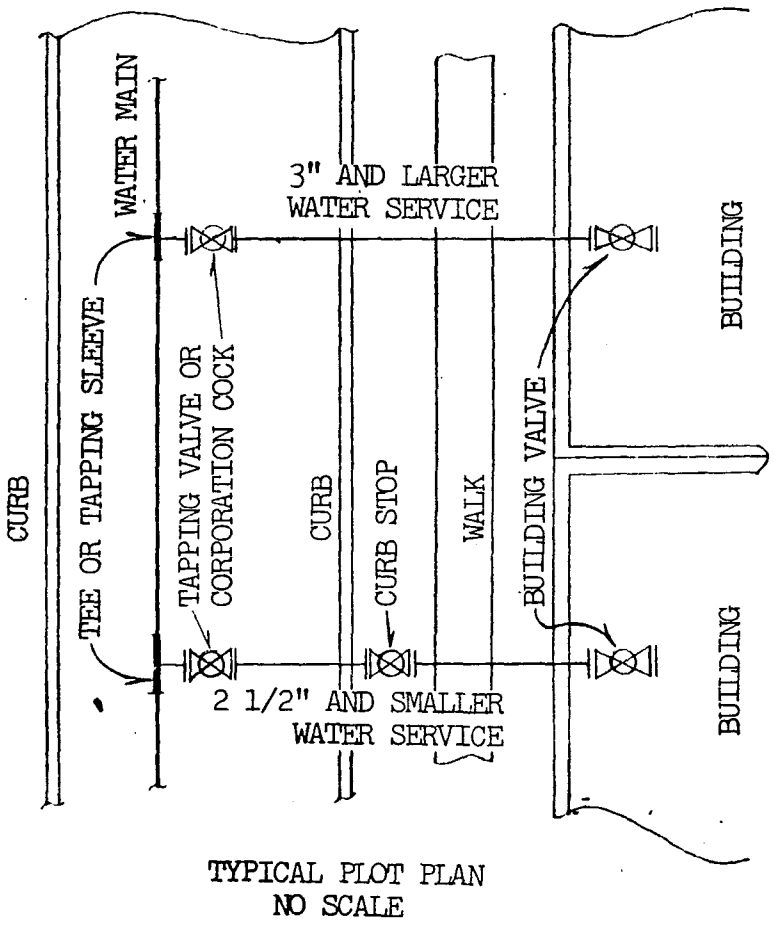
(c) Valve controls. Water service controls shall include a corporation cock or valve at the main, a curb stop at or near the property line and inside the wall of each building and on the water distribution side of the water meter.

Note: The water service terminates at the meter valve or within 3 feet where the pipe penetrates the building floor or wall.

1. The corporation cock or valve at the main shall be a ground key stop-cock. An approved gate valve may be used for services 3 inches or larger.

2. The curb stop shall be an approved gate valve, ground key stop-cock or a ball valve which shall be installed between the curb and the property line. When a private water supply serves more than one building a curb stop is required for each building. For a water service 3 inches or larger, one valve may serve as the shut off at the main and for the curb stop. See following sketch.





3. Building and meter valves. An approved valve shall be provided at the meter or at a point not more than 3 feet inside where the service penetrates the building floor or wall and another on the water distribution side of the meter. A valved bypass shall be provided for all 1-1/2-inch or larger water meters. The bypass may be a minimum of one nominal pipe size smaller than the water service. When parallel meters are installed, a bypass may not be required provided the other meter(s) adequately serve the building water distribution requirements.

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

(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 8 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 or the water service be installed at the side of the common trench with the 12 inches of bedding material meeting the following criteria. The initial backfill on the sides of the sewer pipe and to the 12-inch depth above the sewer shall be well tamped prior to installing the water service pipe. The bedding material shall be of medium to coarse sand, pea gravel or rock screenings.

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

e. The water service shall be located a minimum of 10 feet from a septic tank or soil absorption site.

f. The materials and joints of water service pipe shall be installed in such a manner and shall possess the necessary strength and durability to prevent the escape of liquids and gases therefrom under adverse conditions such as corrosion, strain due to temperature changes, settlement, vibrations and superimposed loads.

2. Where the building sewer is existing, the water service pipe shall be installed in a separated trench pursuant to subsection H 62.13 (2) (d) 1.,

excepting a replaced water service may be installed pursuant to subsection H 62.13 (2) (d) 1. b. and c.

(3) FIXTURE SUPPLY. (a) Potable water. Only potable water shall be used in the processing of food, medical or pharmaceutical products, serving plumbing fixtures, appliances and appurtenances.

(b) Identification. Where two 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. All valves shall be tagged potable or nonpotable water.

1. Color marking. When color marking is used, potable water lines should be painted green and nonpotable 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 nonpotable water shall be marked with a tag or color coded.

2. Metal tags. When tags are used, potable water lines and valves shall be identified by 3-inch diameter metal tags bearing the legend SAFE WATER in letters not less than 1/2-inch in height. Nonpotable water lines and valves 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 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) WATER SERVICE AND DISTRIBUTION DESIGN. (a) Design. Water distribution piping systems shall be designed and installed so the maximum velocity through the piping shall not exceed 8 feet per second. Sizing of the water service and

distribution system may be calculated and designed in accord with subsections H 62.13 (4) (b) or (c), whichever is applicable. Where street main pressures fluctuate, the water service, water meter and building distribution shall be designed for the minimum pressure available.

(b) Sizing the water service and water distribution system by tables.

1. Limitations. Where the total developed length of the water service is 75 feet or less and the total developed length of the water service and water distribution piping is 250 feet or less and the quantity of the water supply demand in total water supply fixture units, as determined from table 13 does not exceed the fixture units listed in tables 13a, 13b or 13c, the minimum size of the water service shall be determined from table 13a, 13b or 13c.

2. The following information is required. a. Pressures and elevations.

1) Maximum and minimum pressure at the water main or other supply source. The minimum pressure at the main is used for design purposes. The maximum design pressure of the water distribution system is 80 p.s.i.g.

2) The difference in elevation between the street main or other source and the highest fixture or outlet and the pressure loss through any equipment such as a water conditioner, water meter, water heater, water filter, pressure regulator, pressure reducing valves, reduced pressure backflow preventer or similar devices.

b. Length. The total developed length of the piping from the water main or other source of supply to the furthermost fixture.

c. Supply demand. The number of total water supply fixture (s.f.u.) units for all fixtures and other water uses as specified in table 13.

Note: See section H 62.13 (4) (b) 2. d., for sizing the water service and distribution when flush valves are installed.

d. Supply demand. Flush valves. Branches, mains and risers serving water closet or similar flush valves may be sized from table 13a, 13b or 13c, when the following values are assigned to each flushometer valve by beginning with the most remote valve on each branch.

First	flushometer valve	40 fixture units
Second	" "	30 " "
Third	" "	20 " "
Fourth	" "	15 " "
Fifth	" "	10 " "

Five fixture unit value flushometer valves may be computed at half the above values. After the fifth flushometer valve on any main, branch or riser, fixture loadings may be computed using the values given in table 13. No piping supplying a flushometer valve shall be less than the valve inlet.

3. Sizing the water service. a. Table selection. After determining the minimum water pressure at the source as specified in 2. a. 1), subtract 1/2 pound per square inch of pressure for each 1 foot of difference in elevation between the source and the highest fixture and any pressure loss through equipment as specified in subsection H 62.13 (4) (b) 2. a. 2). Select table 13a, 13b or 13c with the pressure ranges that contain the calculated pressure.

b. Length column selection. Select the length column that is equal to or greater than the total developed length.

c. Size column selection. Follow down the column to a fixture unit value (s.f.u.) equal to or greater than the total number of fixture units required for the installation. The size of the water service will be found in the column labeled water service.

4. Sizing the water distribution system. Starting at the most remote fixture on the cold water supply and the hot water supply, apply the cold water or hot water fixture supply demand units as applicable from table 13 to the cold water or hot water supply adding the fixture units as additional fixtures are connected. Using table 13a, 13b or 13c, as selected in Section H 62.13 (4) (b) 3. a., and the length column selected in section H 62.13 (4) (b) 3. b.,

select a horizontal line that meets or exceeds the fixture unit demand of that section of piping. Except for the minimum requirements in subsections H 62.13 (4) (c) 1. e., f. and table 15, the size of the water distribution main, water distribution branch, fixture supply branches and risers will be found in the column labeled building distribution. The water distribution main serving water heaters and the cold water demand shall be sized to deliver the above required hot water demand, plus all required cold water demands but in no case need the piping be larger than that required for the total building supply as computed in section H 62.13 (4) (b) 4.

TABLE 13

WATER SUPPLY FIXTURE DEMAND UNITS

Fixture	Occupancy	Type Control	Weight in Fixture Units		
			Hot	Cold	Total
Water Closet	Public	FL. Valve		10.	10.
Water Closet	Public	FL. Tank		5.	5.
Urinal	Public	1/2" FL. Valve		5.	5.
Urinal	Public	3/4" FL. Valve		5.	5.
Lavatory	Public	Faucet	1.5	1.5	2.
Bathtub or Shower Head	Public	Faucet	3.	3.	4.
Service Sink	Offices, etc.	Faucet	2.25	2.25	3.
Kitchen Sink	Hotels - Restaurants	Faucet	3.	3.	4.
Drinking Fountain	Offices, etc.	3/8 Valve		0.25	0.25
Water Closet	Private	FL. Valve		6.	6.
Water Closet	Private	FL. Tank		3.	3.
Lavatory	Private	Faucet	0.75	0.75	1.
Lavatory - Treatment or Clinical	Public	Faucet	1.	1.	1.5
Bathtub or Shower Head	Private	Mixing Valve	1.5	1.5	2.
Kitchen Sink	Private	Faucet	1.5	1.5	2.
Laundry Trays (1 to 3 compartments)	Private	Faucet	2.25	2.25	3.
Combination Fixture	Private	Faucet	2.25	2.25	3.
Dishwashing Machine	Private	Automatic	1.		1.
Emergency Eyewash	Public	Faucet		1.	1.
Laundry Machine (8#)	Private	Automatic	1.5	1.5	2.
Laundry Machine (8#)	Public or General	Automatic	2.25	2.25	3.
Laundry Machine (Large)	Refer to Manufacturer's Requirements				
Bathroom Group	Private	FL. Valve	2.25	8.25	9.
Bathroom Group	Private	FL. Tank	2.25	5.25	6.
Bidet	Public	Variable	3.00	3.00	4.
Coffee Urn Stand	Public	Variable		2.	2.
Food Waste Grinder	Public	Variable		Manufacturer's Require.	
Hose-Pre-Rinse	Public	Variable	2.5	2.5	3.
Hose Station	Public	Variable	3.0	3.0	4.
Ice Maker	Public	Variable		1.	1.
Sink - Baker's Pan	Public	Variable	2.5	2.5	3.
Sink - Back Bar	Public	Variable	1.5	1.5	2.
Sink - Barber and Shampoo	Public	Faucet	1.5	1.5	2.
Sink - Cook's	Public	Variable	2.5	2.5	3.
Sink - Cup	Public	Variable		1.	1.
Sink - Diet Kitchen	Public	Variable	1.5	1.5	2.
Sink - Laboratory	Public	Variable	1.5	1.5	2.
Sink - Laboratory and Trough	Public	Variable	1.5	2.5	3.
Sink - Meat Preparation	Public	Variable	2.5	2.5	3.
Sink - Pot and Pan (Per Faucet)	Public	Variable	3.	3.	4.
Sink - Salad Preparation	Public	Variable	2.5	2.5	3.
Sink - Silver Soak	Public	Variable	2.5	2.5	3.
Sink - Treatment or Exam	Public	Variable	1.5	1.5	2.
Sink - Vegetable	Public	Variable	2.5	2.5	3.
Ice Cuber & Flakers	Public	Variable		1.	1.
Hosebibb - Wall Hydrant	Public and Private	Variable		4.	4.
Wall Hydrant C.W. & H.W.	Public and Private	Variable	3.	3.	4.
Wash Fountain - Factory Wash-up (20" = 1 Lav Space)	Public	Variable	1.5	1.5	2.

"Private" fixtures are those in residential areas not freely accessible, such as in private homes, residential apartments, hotel guest rooms, private rooms or apartments in residential hotels, dormitories or executive suites and the like.

Table 13a

MAXIMUM FIXTURE UNITS (s.f.u.)
WATER SERVICE AND DISTRIBUTION SIZING
CALCULATED PRESSURE RANGE 30 THROUGH 45 PSI

Water Service Not to Exceed 75 Feet	Building Distribution	Maximum Total Developed Allowable Length In Feet 75	100	150	200	250
3/4"	3/4"	20	18	15	12	9
3/4"	1"	20	18	16	16	15
1"	1"	30	27	24	21	20
1"	1-1/4"	39	36	32	30	28
1-1/4"	1"	32	32	32	28	23
1-1/4"	1-1/4"	56	49	44	35	32
1-1/4"	1-1/2"	56	56	56	51	48
1-1/2"	1-1/4"	56	56	56	56	56
1-1/2"	1-1/2"	109	103	84	63	56
1-1/2"	2"	127	123	111	103	86
2"	1-1/2"	111	111	111	78	66
2"	2"	275	264	186	175	146

Table 13b

MAXIMUM FIXTURE UNITS (s.f.u.)
WATER SERVICE AND DISTRIBUTION SIZING
CALCULATED PRESSURE RANGE 46 THROUGH 60 PSI

Water Service Not to Exceed 75 Feet	Building Distribution	Maximum Total Developed Allowable Length In Feet 75	100	150	200	250
3/4"	3/4"	20	18	18	18	16
3/4"	1"	30	28	26	24	22
1"	1"	34	34	34	34	30
1"	1-1/4"	58	56	54	49	46
1-1/4"	1"	34	34	34	34	34
1-1/4"	1-1/4"	58	58	58	58	54
1-1/4"	1-1/2"	111	95	86	78	69
1-1/2"	1-1/4"	58	58	58	58	58
1-1/2"	1-1/2"	111	111	111	111	99
1-1/2"	2"	225	220	196	175	170
2"	1-1/2"	111	111	111	111	111
2"	2"	275	275	275	275	250

Table 13c

MAXIMUM FIXTURE UNITS (s.f.u.)
WATER SERVICE AND DISTRIBUTION SIZING
CALCULATED PRESSURE RANGE OVER 60 PSI
(but not to exceed 80 PSI)

Water Service Not to Exceed 75 Feet	Building Distribution	Maximum Total Developed Allowable Length In Feet 75	100	150	200	250
3/4"	3/4"	20	18	18	18	18
3/4"	1"	34	32	30	28	26
1"	1"	34	34	34	34	34
1"	1-1/4"	58	58	58	58	54
1-1/4"	1"	34	34	34	34	34
1-1/4"	1-1/4"	58	58	58	58	58
1-1/4"	1-1/2"	111	111	111	111	98
1-1/2"	1-1/4"	58	58	58	58	58
1-1/2"	1-1/2"	111	111	111	111	111
1-1/2"	2"	275	275	250	235	215
2"	1-1/2"	111	111	111	111	111
2"	2"	275	275	275	275	275

(c) Friction loss method for sizing the water service and distribution system. 1. 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. Water supply outlets for items not listed in table 13 shall be computed at their maximum demand but in no case less than:

Fixture	Number of Fixture Units Private Use	Public Use
3/8-inch pipe	1	2
1/2-inch pipe	2	4
3/4-inch pipe	3	6
1 inch pipe	6	10

a. For supply outlets likely to impose continuous demands, estimate continuous supply separately in gallons per minute and add to total demand in gallons per minute for fixtures.

b. The given weights in table 13 are for total demand and for fixtures with both hot and cold water supplies. The weights for maximum separate demands are taken as 3/4 the listed total demand for the hot water supply and the cold water supply.

c. Compute flush valve demand separately.

d. Demand (GPM) Corresponding to Fixture Load (WSFU). To determine the demand in gallons per minute corresponding to any given load in water supply fixture units, reference must be made to table 14, Table for Estimating Demand.

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	348	2,250	348
2,500	375	2,500	375
2,750	402	2,750	402

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
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. Size. The diameter of any pipe serving more than one plumbing fixture or appliance shall not be less than 3/4-inch inside diameter.

f. Minimum size. The minimum size of a water distribution branch serving no more than one fixture shall be as shown in table 15. The water distribution branch shall be extended to within at least 18 inches of the point of connection to the fixture.

Table 15

MINIMUM SIZES OF WATER DISTRIBUTION BRANCHES

Type of Fixture or device	I.D. Pipe Size (Inches)	Type of Fixture or device	I.D. Pipe Size (Inches)
Bathtubs	1/2	Shower (single head)	1/2
Combination sink and tray	1/2	Sinks (service, mop)	1/2
Drinking fountain	3/8 (1'max)	Sinks (flushing rim)	3/4
Dishwasher (domestic)	1/2	Urinal (direct flush valve)	3/4
Electric drinking water cooler	3/8 (1'max)	Urinal (direct flush valve)	1/2 (1'max)
Kitchen sink, residential	1/2	Water closet (tank type)	3/8 (1'max)
Kitchen sink, commercial	3/4	Water closet (flush valve type)	1 (1'max)
Lavatory	3/8 (1'max)	Hose bibb	1/2
Laundry tray 1, 2 or 3 compartments	1/2	Wall hydrant	1/2

g. Minimum hydrostatic pressure. 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 20 pounds per square inch for blowout action and jet action fixtures. For fixtures other than those supplied by flush valves, a minimum pressure of 8 pounds per square inch at the highest fixture shall be included in the calculations.

Table 16

MINIMUM AND MAXIMUM FLOW RATES TO FIXTURES AND APPURTENANCES

Fixture	Flow Rate Minimum GPM	Flow Rate Maximum GPM
Lavatory - Residential		3
Lavatory - Public		1 after handle release
Sink	4	4
Bathtub	6	
Laundry tray	5	
Shower except for safety - each head		3
Water closets		
Tank type		4 gal. per flush
Blowout action		4 gal. per flush
Jet action		4 gal. per flush
Drinking fountain	0.75	
Wall hydrant	5	
Urinal		1.5 gal. per flush

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

i. Location and size of water supply source. Location and size of the public water main, where available, should be obtained from the local water authority.

j. Elevations. The relative elevations of the source of water supply and the highest water supply outlets in the building must be determined. In the case of a public main, the elevation of the point where the water service connection is to be made to the public main must be obtained from the local water authority.

k. Maximum total developed length of system. Information shall be obtained regarding the total developed length of the water service piping from the source of water supply to the water service control valve of the building. Determine the total developed length of the distribution piping from the service control valve to the highest and most remote water outlet on the system.

l. Friction loss. Calculate the permissible uniform pressure loss for friction in the system. The amount of pressure available for dissipation as friction loss due to pipe, fittings, valves and appurtenances or devices in the system, must be divided by the maximum total developed length of the water service and water distribution system. This establishes the pipe friction limit for the circuit or system in terms of pressure loss, in psi, per foot of total pipe length. Multiply this value by 100 in order to express the pipe friction unit in terms of psi per 100 feet of length. If specifications for pressure loss due to fittings and valves are not furnished, add 50% of the maximum total developed length for friction loss.

m. Size all parts of the basic design circuit or system, and all other main lines in accordance with tables 16a, 16b, 16c, 16d or 16e. The table selected shall correspond with the type of material approved for the water service, water distribution or both.

TABLE 16a

PRESSURE LOSS DUE TO FRICTION--
COPPER WATER TUBE, TYPE K (ASTM B88)
Surface Condition: "Fairly Smooth"
$q = 4.57\ p^{0.546}\ d^{2.64}$

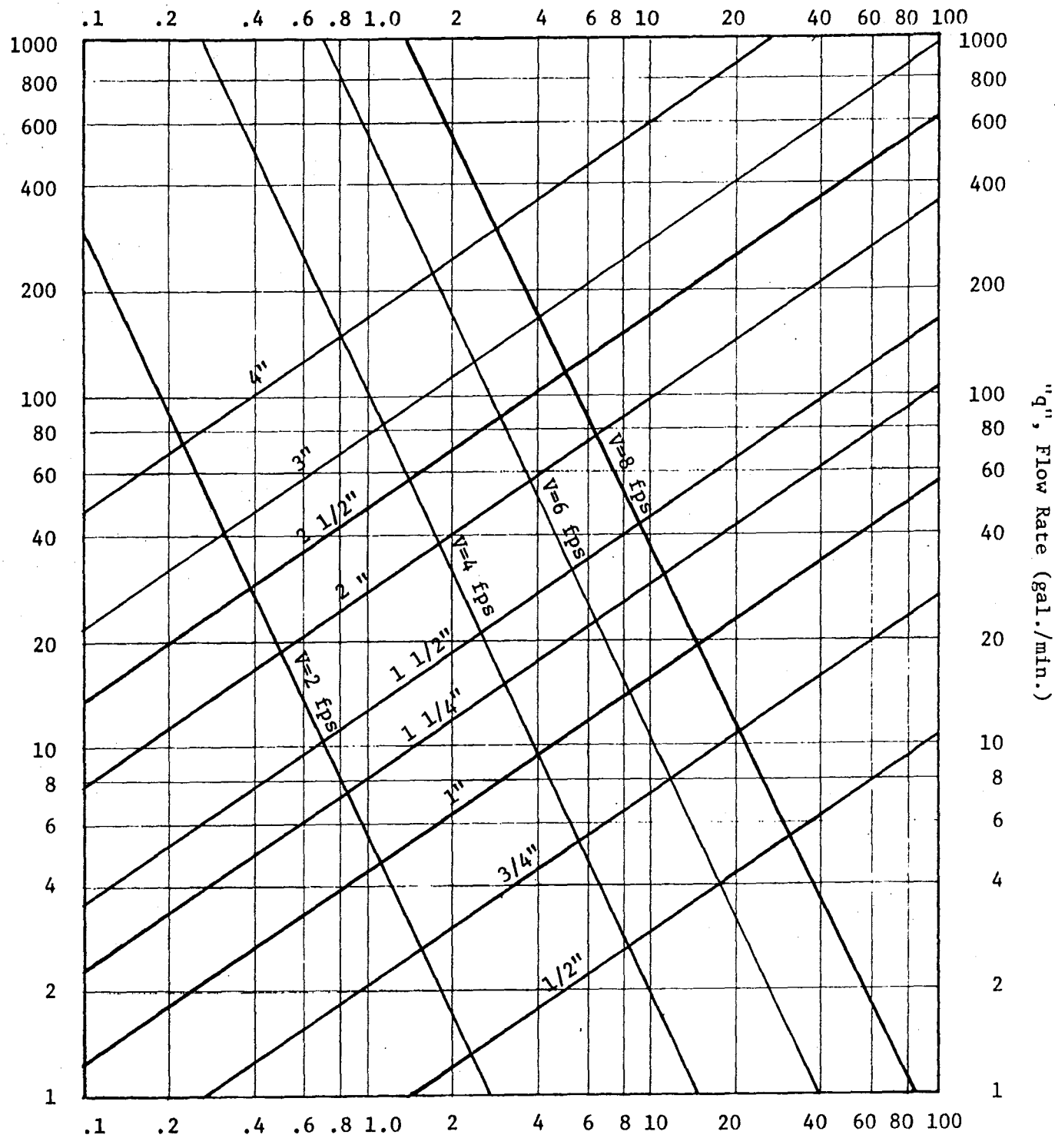


TABLE 16b

PRESSURE LOSS DUE TO FRICTION--
COPPER WATER TUBE, TYPE L (ASTM B88)
Surface Condition: "Fairly Smooth"
$q = 4.57\ p^{0.526}\ d^{2.64}$

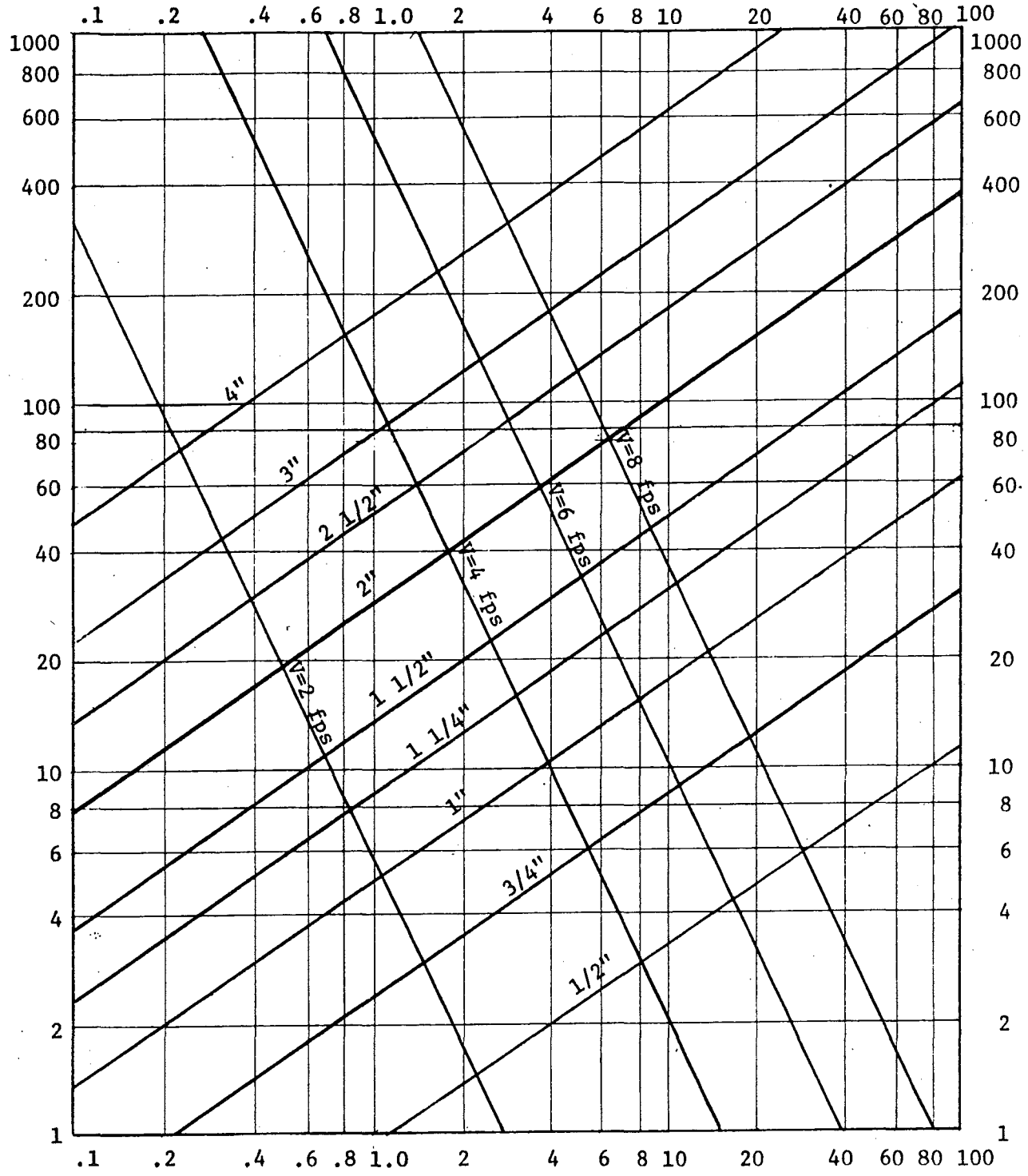
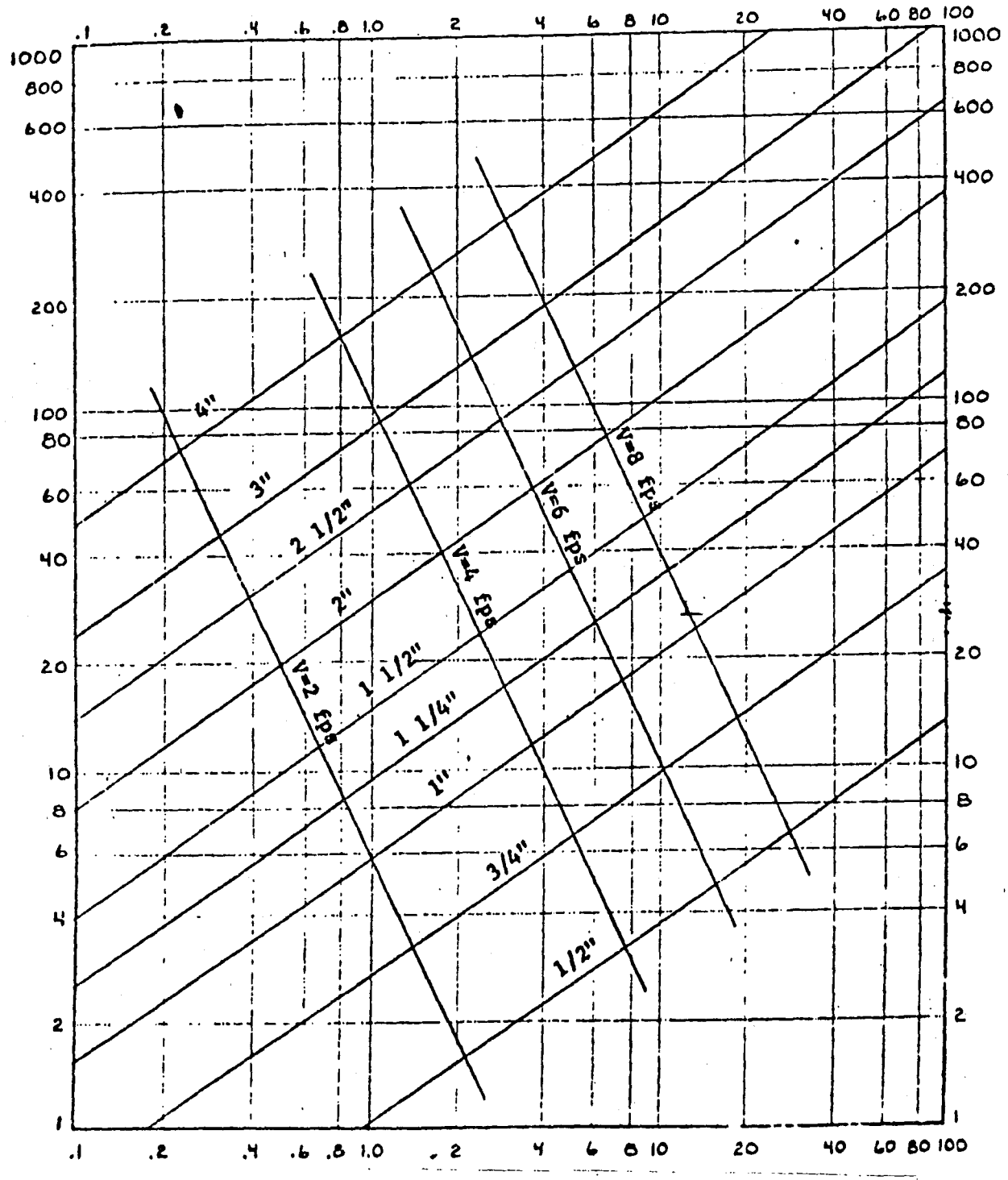


TABLE 16c

PRESSURE LOSS DUE TO FRICTION--
COPPER WATER TUBE, TYPE M(ASTM B88)
Surface Condition: "Fairly Smooth"
$q = 4.57\ p^{0.546}\ d^{2.64}$



"P", Pressure Loss Due To Friction (psi/100 ft. of pipe)

"q", Flow Rate (gal./min.)

TABLE 16d

PRESSURE LOSS DUE TO FRICTION--
GALV. IRON & STEEL STANDARD WEIGHT PIPE (ASTM A72, A120)
Surface Condition: "Fairly Rough"
q = 4.29 p0.521 d2.562

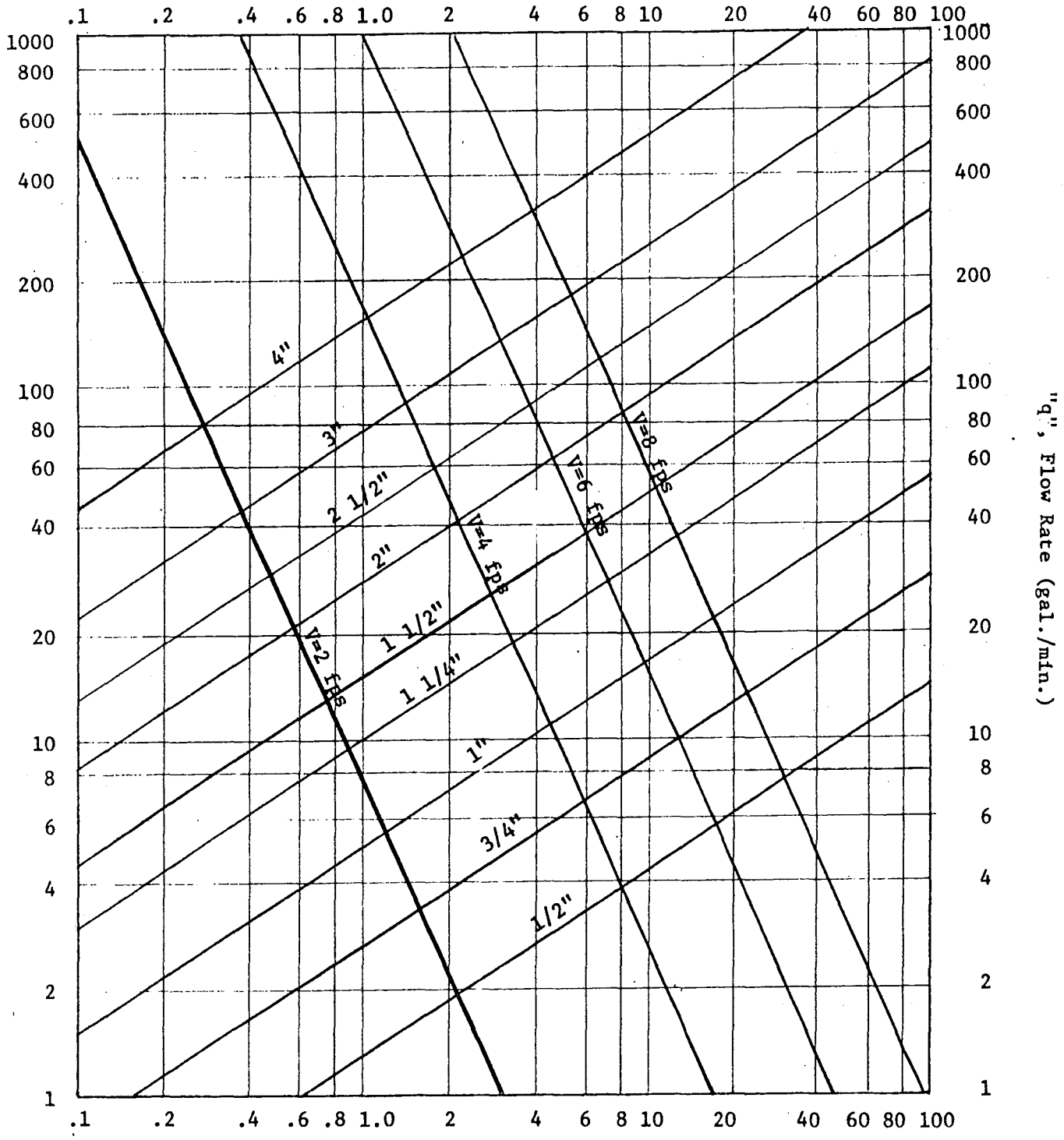
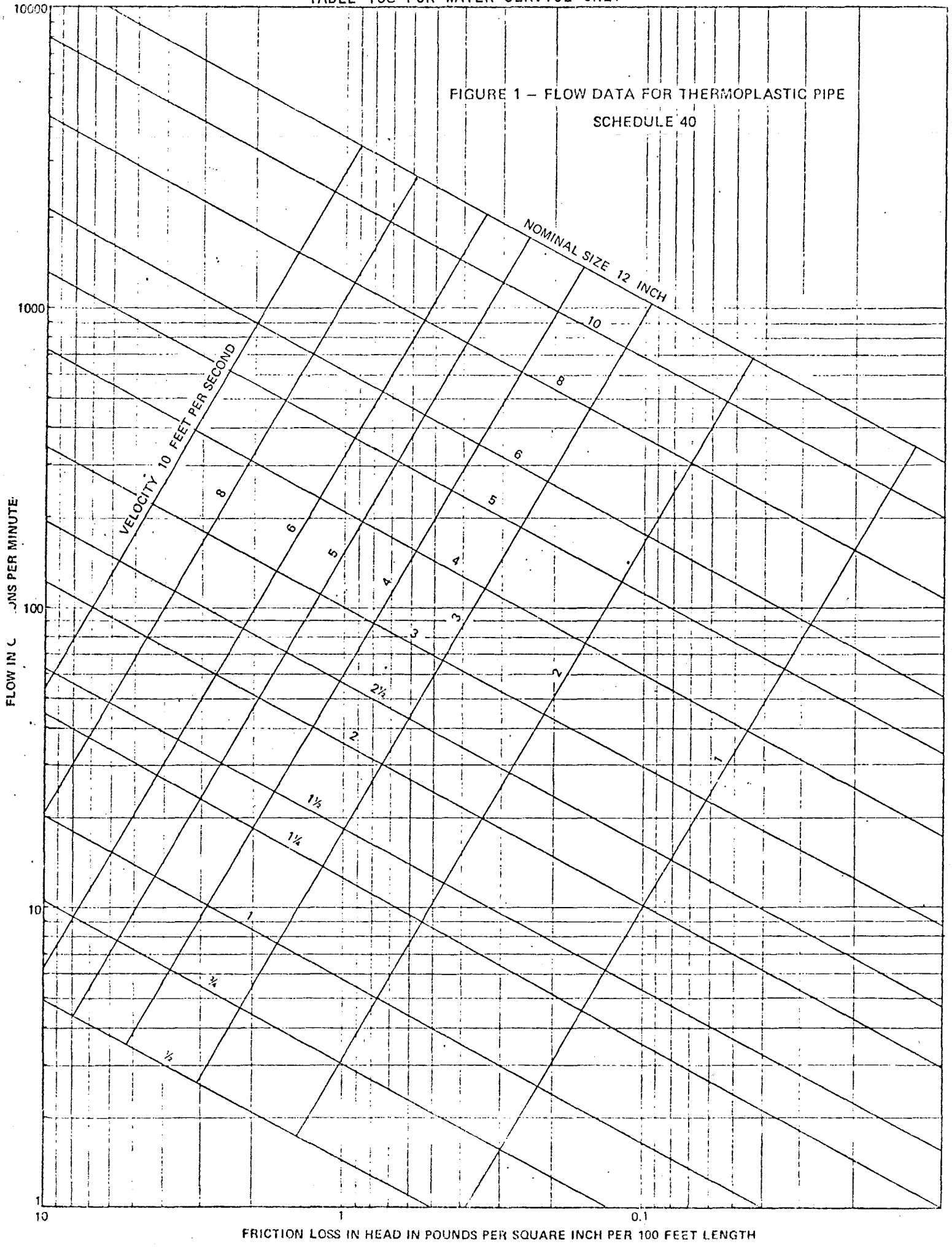


TABLE 16e FOR WATER SERVICE ONLY



n. Hot water distribution. In residences, buildings serving the public and places of employment, hot water shall be supplied to all plumbing fixtures and equipment used for personal hygiene, bathing, washing, culinary purposes, cleansing, laundry or building maintenance.

2. Excessive pressures. Water pressure at any fixture, appliance or appurtenance shall not exceed 80 psi for a period not to exceed 60 minutes in any 24-hour period under no flow conditions. When the water pressure in a part of or the entire water distribution system serving a fixture(s), appliance(s), or appurtenance(s) exceeds 80 psi for a period of more than 60 consecutive minutes, an approved type pressure reducing valve, preceded by a strainer, shall be installed and the pressure reduced to 80 psi or less for that part or all of the system that serves a fixture(s), appliance(s) or an appurtenance(s). Outside wall hydrants, sill cocks, water supply 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 system may be left at full pressure.

3. Design methods. The methods utilized in designing and sizing the water distribution system may vary and recognized engineering practices meeting the criteria established in sections H 62.01 (4) and H 62.13 (4) will be acceptable to the department. When submitting plans and specifications to the department for plan examination include all calculations and data relating to the sizing of the water distribution system.

(d) Materials and installation. 1. Materials. All water distribution pipes (within a building) shall be of galvanized steel, brass, or cast iron (piping) with brass or galvanized malleable iron fittings; type K, L or M copper water tube with copper or brass fittings or other materials approved by the department.

2. Frost protection. All water pipe, storage tanks, fixtures, appliances and appurtenances subject to low temperatures shall be, so far as practical, effectively protected against freezing.

3. Bending of pipe. Bending of water distribution piping except fixture supply tubing is prohibited. See subsection H 62.19 (2) (a) 7., Wis. Adm. Code.

(e) 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.

(f) Water Temperature Control - Public Buildings. 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 pressure balance mixing valves. Individual showers in commercial and public buildings shall have balance pressure mixing valves in addition to flow regulation as indicated in table 16.

1. 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 all circulating return lines and on the inlet and outlet of the return circulation pump.

2. Insulation - storage tanks. Heat loss from unfired hot water storage tanks shall be limited to 15 BTU per hour per square foot of external tank surface area. The design ambient temperature shall be no higher than 65°F.

3. Insulation - piping. Piping heat loss for recirculation systems shall be limited to a maximum of 25 BTU per hour per square foot of external pipe surface for aboveground piping and a maximum of 35 BTU per hour per square foot of external pipe surface for underground piping. Maximum heat loss shall be

determined at a ΔT equal to the maximum water temperature minus a design ambient temperature no higher than 65°F.

(g) Water heaters and hot water storage tanks. 1. General. All water heaters either for domestic or industrial use shall be of an approved type and shall connect to the water distribution system in an approved manner. All heaters except electric heaters shall be provided with a flue of rust resistant material connected to a chimney or gas vent stack. All water heaters shall be permanently marked with the rated input of the heater in B.T.U. or watts. Such marking shall be in an accessible position on the outside of the heater for inspection purposes.

2. Safety devices. All safety devices, except mixing valves, shall meet the current requirements of one or more of the following: American Gas Association, Underwriters Laboratories, Inc., American Society of Mechanical Engineers or National Board of Boiler and Pressure Vessel Inspectors. Test and certification by a laboratory in accordance with one of the above applicable standards shall also be considered acceptable. All water safety devices shall be of the temperature and pressure type installed in accordance with this code.

Note: The above standards are on file in the offices of Health and Social Services, Secretary of State, and Revisor of Statutes, and may also be obtained for personal use as follows:

1) Approval requirements for gas water heaters, volume I, Seventeenth Edition, 1965.

Approval requirements for gas water heaters, volume II, effective January 1, 1963.

Approval requirements for gas water heaters, volume III, third edition, 1965. Listing requirements for relief valves and automatic gas shutoff devices for hot water supply systems, effective January 1, 1965 and addenda effective January 1, 1966.

The above standards are available from American Gas Association, Inc., 605 Third Avenue, New York, New York 10016.

2) Standards for safety, household electric storage-tank water heaters, UL 174, third edition, May 1, 1970, and revision pages dated June 16, 1971, January 18, 1971.

The above standards are available from:

Underwriters' Laboratories, Inc.
207 E. Ohio Street, Chicago, IL 60611
333 Pfingsten Road, Northbrook, IL 60062
1655 Scott Boulevard, Santa Clara, CA 95050
1285 Walt Whitman Road, Melville, L.I., NY 11746

3) ASME Boiler and Pressure Vessel Codes, Heating Boilers, section IV, 1971, available from American Society of Mechanical Engineers, 29 West 39th Street, New York, NY 10018.

4) Relieving capacities of safety valves and relief valves, January 1, 1970.

The above standards are available from The National Board of Boiler and Pressure Vessel Inspectors, 1155 North High Street, Columbus, OH 43201.

3. Tank construction. Storage tanks for direct fired storage type water heaters shall be constructed to withstand a minimum of 300 psi test pressure without leakage or permanent distortion and shall bear the manufacturers' marking showing test and working pressure, except that in lieu thereof, pressure markings appearing on AGA or UL listed water heater units will be considered acceptable.

4. Hot water storage tank and heater 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 3/4-inch nominal iron pipe size and the outlet end shall be equipped with a minimum standard 3/4-inch hose thread.

5. Water heaters, storage tanks and boilers. a. Combination domestic water heating/space heating boilers. Space heating boilers shall not be used for service water heating from May 1 to September 30 unless the service water heating load equals or exceeds 30% of the net boiler load.

b. Temperature controls. Service water heating systems shall be equipped with automatic temperature controls capable of adjusting from the lowest to the highest acceptable temperature setting for the intended use.

c. Shut down. A separate means shall be provided to permit turning off the energy supplied to service water heating systems.

(h) Relief valves. 1. 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. The relief valve shall be installed either directly in a top tank tapping or in the hot water outlet line close to the tank. In a tankless-type heater, the relief valve shall be installed in the hot water outlet line as close as possible to the unit. 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.

2. 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).

3. Combination pressure temperature relief valves. Combination pressure temperature relief valves shall comply with all the requirements of the separate pressure and temperature relief valves.

4. 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.

5. Installation of relief valve discharge. 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 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, bathtub overflow, urinal, fixture tailpiece 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 valve in the discharge pipe from the relief valve.

6. Vacuum relief valves. Where a hot water storage tank or direct or indirect water heater is located at an elevation of 20 feet from the bottom of the heater or more above the lowest fixture outlets in the hot water system, a vacuum relief valve shall be installed on the storage tank or heater.

7. Pressure marking of hot water storage tanks. Hot water storage tanks shall be permanently marked in an accessible place with the maximum allowable working pressure.

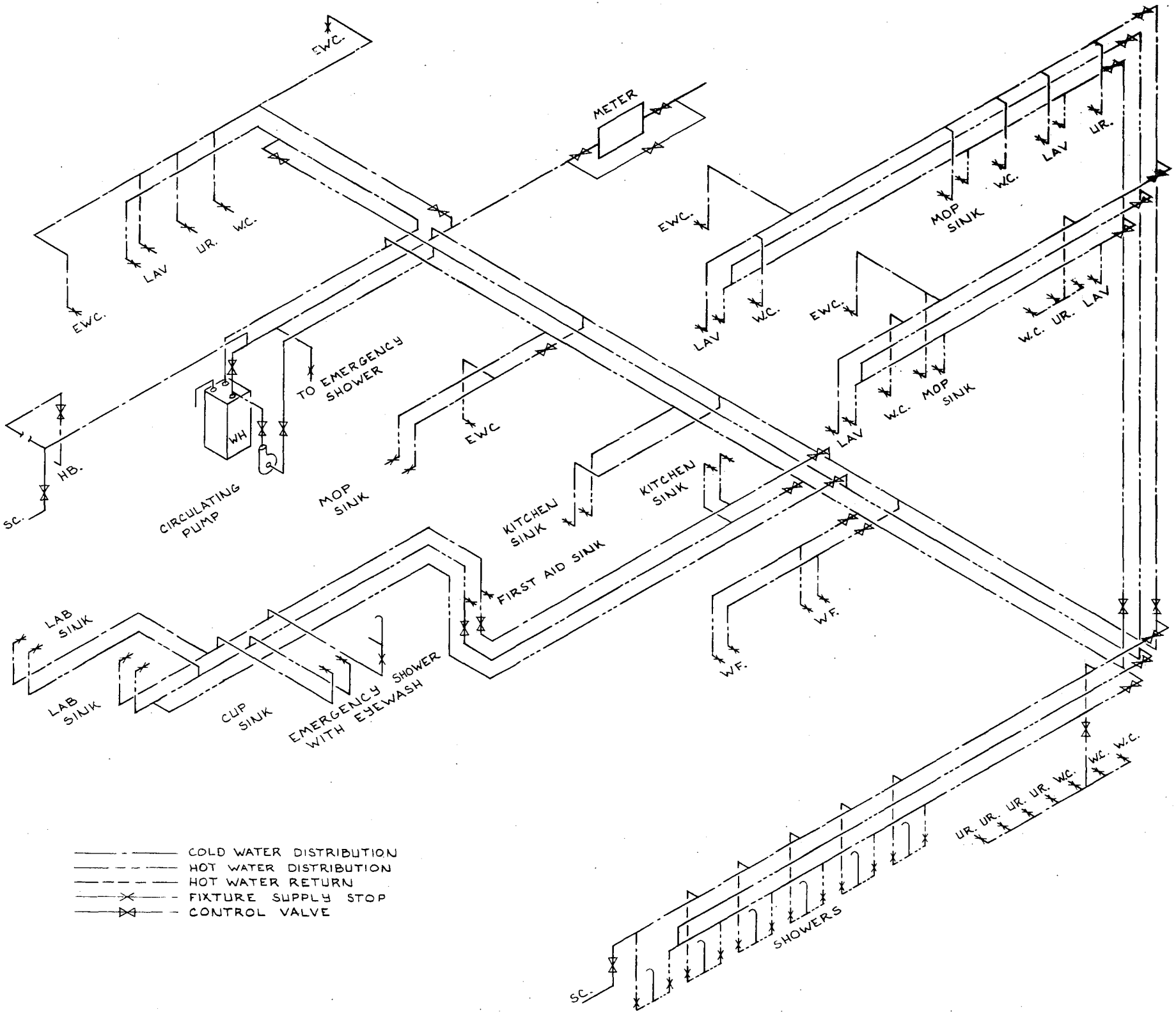
(i) Water hammer suppressors. 1. Water hammer suppressors. All water supply systems, water distribution systems and components connected thereto, subject to water hammer, shall be provided with approved shock absorbing devices located and sized to suppress water hammer. All appliances, devices, equipment, fixtures and appurtenances with quick closing valves or which may create water hammer, shall be provided with shock absorbing devices. When copper air chambers are used, the minimum size shall be 1/2" x 1" x 14".

2. Mechanical suppressors. The size and location of the suppressors shall be in accord with the hydraulic design of the piping system served and to the manufacturer's recommendations. All mechanical water hammer suppressors shall be accessible.

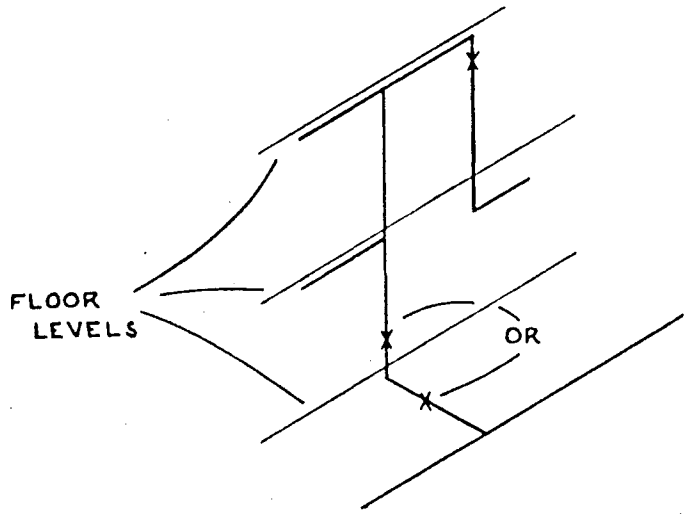
Note: The water hammer suppressor may be eliminated provided the appliance, appurtenance, device, equipment or fixture has a slow closing or manually closed valve and does not create water hammer.

(j) 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 all public buildings and multiple dwelling units, each hot and cold water distribution main, riser and branch main shall be valved. All fixtures, appliances, appurtenances, lawn sprinkler faucets and wall hydrants shall be valved. The meter valve on the discharge side of the meter may serve as the water distribution main valve. See following sketch.


EWC.
METER
LAV
UR.
W.C.
EWC.
HB.
SC.
WH
TO EMERGENCY SHOWER
CIRCULATING PUMP
MOP SINK
EWC
KITCHEN SINK
KITCHEN SINK
FIRST AID SINK
LAB SINK
LAB SINK
CUP SINK
EMERGENCY SHOWER WITH EYEWASH
W.F.
W.F.
EWC.
LAV
W.C.
MOP SINK
W.C.
LAV
UR.
EWC.
LAV
W.C.
EWC.
W.C.
MOP SINK
W.C. UR. LAV
UR. UR. UR. UR. W.C.
W.C. W.C.
SHOWERS
SC.
COLD WATER DISTRIBUTION
HOT WATER DISTRIBUTION
HOT WATER RETURN
FIXTURE SUPPLY STOP
CONTROL VALVE

b. Riser valves. A valve shall be installed at the foot of each water supply riser or in the branch main serving a single riser. In buildings incorporating down feed risers a valve shall be installed at the top of each water supply down feed riser. See following sketch.



c. 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 (4) (g), (h).

d. Water conditioner bypass. All commercial water conditioners shall be provided with a valved bypass. The bypass may be a minimum of one nominal pipe size smaller than the water supply to the unit.

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

f. Control valve design. Fixture supply valves shall have flow capacity, without reducing the pressure at the fixture to less than the minimum specified in this section, to provide the minimum flows as required in table 16. Line valves 3/4-inch inside diameter and larger shall be the same size as the pipe

being served and have a Cv factor not less than that specified in the following table for the particular pipe size.

I.D. Pipe Size	Minimum Cv Factor
3/4	18
1	35.5
1-1/4	61
1-1/2	107
2	175
3	255
4	340

Note: The Cv factor is defined as the flow coefficient for valves, expressing the flow rate in gallons per minute of 60° water with a 1 psi pressure drop across the valve.

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

h. 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) (c), tables 13, 14, 15 and 16; 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 x 20 mesh to the inch and by 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 ID)	Maximum Capacity of Water Supply Line to Tank	Diameter of Overflow Pipe (Inches ID)
0- 13 gpm	1 1/2	356- 640 gpm	5
14- 55 gpm	2	641-1040 gpm	6
56-100 gpm	2 1/2	over-1040 gpm	8
101-165 gpm	3		
166-355 gpm	4		

(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 NONPRESSURIZED WATER TANKS

Tank Capacity (gallons)	Drain Pipe (inches)	Tank Capacity (gallons)	Drain Pipe (inches)
Up to 750	1	3001 to 5000	2 1/2
751 to 1500	1 1/2	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 a pressure of less than 20 p.s.i.g. on the inlet side of the pump.

(g) Pressure tanks, vacuum relief. All elevated water pressure tanks 20 feet to the bottom of the tank or more above the lowest fixture 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 temperatures of 200° F. The minimum size of such vacuum relief valves shall be 1/2 inch.

(6) DISINFECTION OF POTABLE WATER SYSTEM. (a) Procedure. New or repaired potable water systems should 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 solution of water and chlorine 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 solution of water and chlorine 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 a master, journeyman plumber or a registered plumber apprentice, under supervision, 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.

H 62.20 (2) (e) 7.

7. Groundwater, bedrock or slowly permeable soils. Soil having a percolation rate of 60 minutes per inch or faster shall exist for the depth of the proposed soil absorption system and for at least 3 feet below the proposed bottom of the soil absorption system. There shall be at least 5 feet of soil over bedrock and above the high groundwater level. <u>There shall be a minimum of 3 feet of soil between the bottom of the soil absorption system and high groundwater or bedrock.</u>

1. Soil mottling and monitoring groundwater levels. A property owner or developer has the option to provide documentation that soil mottling at a particular site is not an indication of seasonally saturated soil conditions or high groundwater levels. If the option to provide documentation is made, water levels observed by monitoring shall apply. Acceptable documentation will result from successful monitoring according to the following procedures:

a. Monitoring shall be done in a near normal spring season. A near normal spring season is when the precipitation received at a local station equals or exceeds the amount historically received in Wisconsin 2 out of 3 years for both the periods September 1st to March 1st and March 1st to June 1st. These amounts are 8.5 inches and 7.6 inches respectively. In addition, where sites are subject to broad regional water tables, such as large areas of sandy soils, the fluctuation over the several year cycle must be considered.

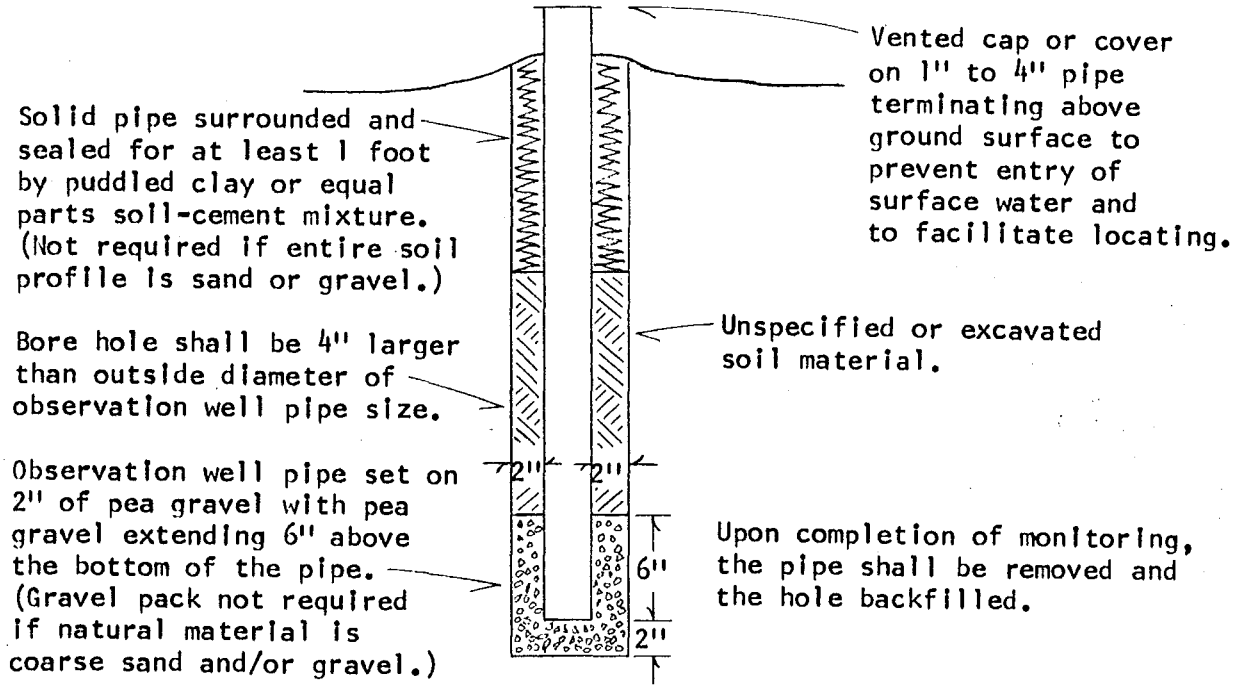
b. Areas which are monitored shall be carefully checked for drainage tile and open ditches which may have altered natural high groundwater levels. When such factors are involved, information on the location, design, ownership and maintenance responsibilities must be provided. Clear assurance shall be needed to show that the drainage network has an adequate outlet, and can and will be maintained.

c. Monitoring shall be done by a certified soil tester.

d. The certified soil tester shall notify in writing the local sanitary permit issuing authority, or in the absence of such, the department, of intent to monitor. It is expected the local authority or department may field check the monitoring at least once during the time of expected saturated soil conditions.

e. At least 2 locations shall be monitored at a site for a proposed system and replacement. If in the judgement of the local authority or the department, more than 2 monitoring sites are needed, the certified soil tester will be so advised in writing.

f. Observation wells designed as shown in the following sketch shall be constructed for monitoring. In general, they should extend to a depth of at least 6 feet below ground surface and shall be a minimum of 3 feet below the designed system depth. However, with layered mottled soil over permeable unmottled soil, some wells shall terminate within the mottled layer. Site conditions may, in some cases, require monitoring at greater depths. It will be the responsibility of the certified soil tester to determine the depth of the observation wells for each specific site and if in doubt, they shall request the guidance of the local authority or in its absence, the department.



g. Observations shall be made at the following frequency:

1) The first observation shall be made within 2 weeks after the frost is absent and thereafter every 7 days. Observations shall continue until June 1st or until the site is determined to be unacceptable, whichever comes first.

2) If water is observed after the frost is absent, or at any other time, an observation shall be made 1 week later. If water is present at both observations, monitoring can cease because the site is considered unacceptable.

3) If water is not present at the second observation, monitoring shall continue until June 1st. If any 2 successive observations show the presence of water above the critical depth, the site is unacceptable and the department shall be notified in writing.

4) The occurrence of rainfall(s) of 1/2 inch intensity or more during the monitoring period may necessitate observations at more frequent intervals.

5) A site which is saturated above the critical depth for more than 7 consecutive days of a near normal spring season is an unacceptable site.

h. Submitting data:

1) When monitoring shows saturated conditions, data giving test locations, soil bore hole or pit descriptions, soil series if available from soil maps, dates observed, depths to observed water and local precipitation data (monthly from September 1st to June 1st and daily during monitoring) shall be submitted in writing, with two copies sent to the department and one to the local authority.

2) When monitoring discloses that the site is acceptable, documentation including location and depth of test holes, soil bore hole or pit descriptions; soil series if available from soil maps; dates observed; results of observations, local precipitation data (monthly from September 1st to June 1st and daily during monitoring) and information on artificial drainage shall be submitted in writing with two copies to the department and one to the local authority. A request for a variance to install a soil absorption system must be made to the department.

Create Section H 62.20 (11)

(11) INITIAL ADVERSE DETERMINATION. In all cases where property owners and/or developers receive initial adverse determinations and sanitary permits are refused by county, city, village or town officials or the department rejects a conventional private domestic sewage treatment and disposal system because of site limitations, the aggrieved party shall be given the reason, in writing, for rejection and alternate course of actions available to them. The department shall provide to all sanitary permit issuing agents a list of alternates which may be applied in the event conventional means of waste disposal is not acceptable.

Create H 62.25 (l) (m), (n), (o) and (p)

(m) Private water mains.

(n) Water distribution systems.

(o) Turf sprinklers.

(p) Variances to code.

Repeal and recreate H 62.25 (3) (b) 2., 3., 4., 5., 6., 7., 8. and create 9., 10., 11., 12. and 13.

2. Mobile home parks and private subdivisions~~; water distribution systems~~. See Wis. Adm. Code section H 62.25 (3) (b) 7., 8., 10. and ~~8.~~ 11. for applicable sewage collection~~,~~ and~~/~~or private domestic sewage treatment and disposal system~~s~~, water mains and/or water distribution systems.

a. 1 - 25 sites--~~$25~~$30.

b. 26 - 50 sites--~~$50~~$60.

c. 51 - 125 sites--~~$75~~$90.

d. Over 125 sites--~~$100~~$125.

3. Mobile and manufactured homes, each model, ~~$35~~ $45.

4. Controlled roof drainage systems.

a. If included in general plumbing plans, ~~$15~~ $20.

b. If submitted separately, ~~$20~~ $25.

5. Acid waste piping systems.

a. If submitted in general plumbing plans, ~~$15~~ $20.

b. If submitted separately, ~~$20~~ $25.

6. Reduced pressure zone principle type backflow preventers, ~~$20~~ $25.

7. Private water mains, $25.

8. Building water distribution systems plan examination fees will be determined by the size of the water service, $10 per inch diameter of each water service.

9. Turf sprinkler systems, $25.

~~7.~~ 10. Private domestic sewage treatment and disposal systems.

a. 500 - 1500 gallon septic tank--~~$15~~$20.

b. 1501 - 2500 gallon septic tank--~~$20~~$25.

c. 2501 - 4000 gallon septic tank--~~$25~~$35.

d. 4001 - 8000 gallon septic tank--~~$35~~$45.

e. 8001 - 12,000 gallon septic tank--~~$40~~$55.

f. Over 12,000 gallon septic tank--~~$50~~$65.

g. 500 - 5000 gallon holding tank--~~$10~~$20.

h. 5001 - 10,000 gallon holding tank--~~$15~~$25.

i. Over 10,000 gallon holding tank--~~$20~~$30.

~~8.~~ 11. Private interceptor main sewers, sanitary and/or storm, $5 $6 per inch diameter, the fee being determined on the largest diameter of each interceptor main sewer.

12. Building storm sewers, $5 per inch diameter.

13. Request for variances to code, $15.

14. Permit to start construction. a. Submittal of complete plans, in person, by appointment, with additional fee, equal to plan review fee and both fees paid at time of submittal.

PROPOSED AMENDMENT
WISCONSIN ADMINISTRATIVE CODE

1 Repeal Section H 62.16.

2 Repeal Section H 62.15 and Recreate as Section H 62.16.

8/16/78

The rules contained herein shall take effect on the first day of the month following publication in the WISCONSIN ADMINISTRATIVE REGISTER as provided in section 227.026, Wis. Stats.

DONALD E. PERCY, SECRETARY
DEPARTMENT OF HEALTH AND SOCIAL SERVICES

December 12, 1978

Seal: