

## Chapter H 62

**DESIGN, CONSTRUCTION, INSTALLATION, SUPERVISION AND INSPECTION OF PLUMBING**

H 62.01	Basic plumbing principles		connections and potability control
H 62.02	Plumbing definitions	H 62.15	Health care and related facilities
H 62.03	Fixture unit design basis	H 62.16	Mobile homes
H 62.04	Building sewers	H 62.17	Mobile home parks
H 62.05	Building drains	H 62.18	Joints and connections
H 62.06	Stacks and branches	H 62.19	Materials
H 62.07	Vents	H 62.20	Private domestic sewage treatment and disposal systems
H 62.08	Fixture drain connections	H 62.21	Hangers and supports
H 62.09	Fixtures	H 62.22	Repairs and reconstruction
H 62.10	Traps and cleanouts	H 62.23	Inspection and tests
H 62.11	Interceptors, sumps, ejectors and special and industrial wastes	H 62.24	Alternate and experimental materials
H 62.12	Storm and clear water	H 62.25	Examination of plans and specifications
H 62.13	Water distribution systems		
H 62.14	Back-siphonage, cross-		

**H 62.01 Basic plumbing principles.** (1) The basic principles of this code are enunciated as basic goals in environmental sanitation and safety worthy of accomplishment through properly designed, acceptably installed, and adequately maintained plumbing systems. Some of the details of plumbing construction must vary, but the basic sanitary and safety principles are the same. The results necessary to obtain the desired protection for the health of the people are the same everywhere. As unforeseen situations arise which are not specifically covered in the body of this code, the following principles shall serve to define the intent.

(2) Plumbing in all buildings, public and private, intended for human occupation or occupancy, shall at all times be installed in such manner so as to protect the health, safety and welfare of the public or occupants.

(3) Every building intended for human habitation or occupancy shall be provided with a supply of potable water; such supply shall not be cross connected with an unsafe water supply or with a waste pipe nor be subjected to any hazards of backflow or back-siphonage. When the premises abut on a street in which there is a public water-main, there shall be an individual connection to the public system.

(4) Buildings in which water closets and other plumbing fixtures, devices and appurtenances exist or are to be installed shall be provided with a supply of water adequate in volume and pressure by means of proper pipe sizing to insure that efficient use of the fixture is possible at all times.

(5) Devices for heating water and storing it in pressure vessels or tanks shall be so designed and installed as to prevent dangers of explosion or overheating.

(6) Every building intended for human habitation or occupancy on premises abutting on a street in which there is a public sewer shall have an individual connection with the public sewer.

(7) Each family dwelling unit provided with a drainage system shall have at least one water closet, one wash basin, one kitchen sink and one bathtub or shower to meet the basic requirements of sanitation and personal hygiene. All other structures for human occupancy or use shall be equipped with sufficient sanitary facilities as prescribed in this chapter or other applicable Wis. Adm. Code chapters and in no case no less than one water closet and one wash basin shall be provided.

(8) The entire building drainage system shall be so designed, constructed, and maintained as to conduct the waste water or sewage quickly from the fixture to the place of disposal, with velocities which will prevent clogging, fouling and the depositing of solids and shall have adequate cleanouts so arranged that the pipes may be readily cleaned.

(9) The drainage pipes should be so designed and constructed as to be proof for a reasonable life of the building against leakage of water or sewer drain air and offensive odors due to defective materials, imperfect connections, corrosion, settlements or vibrations of the ground or building, temperature changes, freezing or other causes.

(10) The drainage system shall be so designed that there will be an adequate circulation of air in all pipes, no danger of siphonage, aspiration or forcing of trap seals under conditions of ordinary use.

(11) All rooms in which water closets, urinals or similar fixtures are installed shall have adequate lighting and have proper ventilation to the outer air.

(12) Hot water shall be supplied to all plumbing fixtures which normally need or require hot water for their proper use and function.

(13) Plumbing fixtures shall be made of durable, smooth, non-absorbent and corrosion resistant material and shall be free from concealed fouling surfaces.

(14) If water closets or other plumbing fixtures exist in buildings where there is no sewer within a reasonable distance, suitable provision shall be made for disposing of the building sewage by some method of sewage treatment or disposal satisfactory to the department and local health authority having jurisdiction.

(15) Plumbing systems shall be maintained in a sanitary condition.

(16) Proper protection shall be provided to prevent contamination of food, water, sterile goods and similar materials by backflow of sewage.

(17) Plumbing shall be designed and adjusted to use the minimum quantity of water consistent with proper performance and cleaning.

(18) Fixtures, devices, appliances and appurtenances shall be supplied with water sufficient in volume and at pressures adequate to enable them to function satisfactorily and without undue noise under all normal conditions of use.

(19) All plumbing fixtures shall be so installed as to provide adequate spacing and shall be reasonably accessible for their intended use and for cleansing.

(20) Sewage or other wastes shall not discharge into water surface or sub-surface soil unless it has first been subjected to some acceptable form of treatment.

**History:** 1-2-56: r. and recr. Register, October, 1970, No. 178, eff. 11-1-70; r. and recr. (7), Register, November, 1972, No. 203, eff. 12-1-72.

**H 62.015 History:** Cr. Register, October, 1970, No. 178, eff. 11-1-70; r. Register, November, 1972, No. 203, eff. 12-1-72.

**H 62.02 Plumbing definitions. General.** For the purpose of this code, the following terms shall have the meaning indicated in this section. No attempt is made to define ordinary words which are used in accordance with their established dictionary meaning except where it is necessary to define their meaning as used in this code to avoid misunderstanding.

Note: For definitions of master plumber, journeyman, restricted plumbers, apprentices and registered learners refer to Chapter 145 of the Wisconsin Statutes.

(1) **PLUMBING** in this code shall be defined as set forth in Wis. Stats. 145.01 (a), (b), (c), (d) and (e).

(2) **AIR-BREAK (DRAINAGE SYSTEM).** A piping arrangement in which a drain from a fixture, appliance, appurtenance or device discharges indirectly into another fixture, receptacle, or interceptor at a point below the flood level rim.

(3) **AIR-GAP (DRAINAGE SYSTEM).** The unobstructed vertical distance through free atmosphere between the terminus of the waste pipe and the flood level rim of the fixture, sight waste or other receptacle into which it discharges.

(4) **AIR-GAP (WATER SUPPLY SYSTEM).** The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, vat, plumbing fixture or other device and the flood level rim of the receptacle.

(5) **ALIGNMENT.** Installed in a straight line, either horizontal, vertical or at a given angle.

(6) **APPLIANCES AND APPURTENANCES.** Includes any item or type of equipment not otherwise specifically defined, which is connected directly or indirectly with any portion of the plumbing system.

(7) **APPROVED.** Approved or accepted by the State Department of Health and Social Services, Division of Health.

(8) **AREA DRAIN.** A receptacle designed to collect surface or storm waters from an open area.

(9) **ASPIRATOR.** A fitting or device supplied with water or other fluid under positive pressure which passes through an integral orifice or "constriction" causing a vacuum.

(10) **AUTOPSY TABLE.** A fixture or table used for post-mortem examination.

(11) **BACKFLOW.** The reversal of flow of liquids in a piping system.

(12) **BACKFLOW PREVENTER (REDUCED PRESSURE ZONE TYPE).** An assembly of differential valves and check valves including an automatically opened spillage port to the atmosphere.

(13) **BACK-SIPHONAGE.** The formation of a negative pressure or vacuum which may occur in a water supply pipe causing the backflow of contaminated or polluted liquids to intermix with the potable water.

(14) **BACKWATER VALVE.** A device designed to prevent the reverse flow of storm water or sewage into the drainage system or branches thereof.

(15) **BASEMENT.** The lowest floor line elevation below grade which can be drained to the building sewer by gravity. All other stories below such elevation shall be considered sub-basement levels.

(16) **BATTERY OF FIXTURES.** Any group of 2 or more similar use adjacent fixtures installed so as to discharge into the same common horizontal soil or waste pipe.

(17) **BEDPAN STEAMER.** A fixture used for scalding bedpans or urinals by direct application of steam.

(18) **BEDPAN WASHER.** A fixture designed to wash bedpans and to flush the contents into the soil drainage system. It may also provide for sterilizing.

(19) **BEDPAN WASHER (HOSE).** A device supplied with hot and cold water and located adjacent to a receptacle for cleansing bedpans.

(20) **BELL (OR HUB).** That portion of a pipe which for a short distance is sufficiently enlarged to receive the end of another pipe of the same diameter for the purpose of making a joint.

(21) **BOILER BLOW-OFF BASIN.** A vessel designed to receive the discharge from a boiler blow-off outlet and to cool the discharge to a temperature which permits its safe entry into the drainage system.

(22) **BRANCH.** Any part of a piping system other than a main or stack.

(23) **BUILDING.** A structure having walls and a roof erected or set upon an individual foundation or slab-constructed base designed or used for the housing, shelter, enclosure or support of persons, animals or property of any kind. For purposes of this code, each structure abutting another structure which does not have an approved ingress-egress doorway through the basement foundation walls, or structures with separate exterior or exterior abutting walls, or public use structures separated by an unpierced firewall, shall be considered as a separate or individual building.

(24) **BUILDING (PRIVATE RESIDENCE).** A one family building or dwelling. See dwelling unit.

(25) **BUILDING (PUBLIC).** Means and includes any structure, including exterior parts of such building, such as a porch, exterior platform or steps providing means of ingress or egress, used in whole or in part as a place or resort, assemblage, lodging, trade, traffic, occupancy or use by the public, or by 3 or more tenants.

(26) **BUILDING DRAIN.** See sewers and drains.

(27) **BURR.** Roughness or metal protruding from the walls of a pipe usually as the result of cutting the pipe.

(28) **BY-PASS.** An installation of control valves and piping so installed as to temporarily isolate or by-pass a specific fixture, appliance, equipment or area of piping.

(29) **CATCH BASIN.** See interceptor.

(30) **CESSPOOL.** A covered excavation in the ground which receives sewage or other organic wastes from a drainage system, and so designed as to retain the organic matter and solids, permitting the liquids to seep into the soil cavities. **PROHIBITED IN WISCONSIN.**

(31) **CISTERN.** A covered tank in which rainwater from roof drains is stored for household use or other purposes.

(32) **CLEANOUT.** A metallic plug or cover joined by means of a screw thread to an opening in a pipe, which can be removed for the purpose of cleaning or examining the interior of the pipe.

(33) **CLEAR WATER WASTES.** Cooling water and condensate drainage from refrigeration compressors and air-conditioning equipment, waste water drainage used for equipment chilling purposes, liquids having no impurities or where impurities have been reduced below a minimum concentration considered harmful and cooled condensate from steam heating systems or other equipment.

(34) **CODE.** These regulations, subsequent amendments thereto, or any emergency rule or regulation adopted governing the installation of plumbing, drainage and water supply or distribution system on private property.

(35) **COMBINATION FIXTURE.** A fixture combining one sink and laundry tray or a 2 or 3 compartment laundry tray in one unit.

(36) **CONDUCTORS.** The system of roof leaders, downspouts and pertinent piping located inside or outside of building, conveying storm or rainwater from the roofs of buildings or area to the storm drain, storm sewer, catch basin, rainwater cistern or ground surface.

(37) **CONTINUOUS WASTE.** A drain from two compartments of a single fixture connected to a single trap.

(38) **CROSS-CONNECTION.** Any physical connection or arrangement between two otherwise separate piping systems, one of which contains potable water and the other either water of unknown or questionable safety, or steam, gas or chemical, whereby there may be a flow from one system to the other, the direction of flow depending on the pressure differential between the two systems. See backflow and back-siphonage.

(39) **DEAD END.** That part of a drainage system which terminates upstream from the base of a vertical soil or waste stack or which is without a free circulation of air.

(40) **DEPARTMENT.** Department of Health and Social Services.

(41) **DEVELOPED LENGTH.** The length of a pipe line measured along the center line of the pipe and fittings.

(42) **DIP TUBE.** A pipe which conveys the cold water supply to the lower portion of an automatic water heater or water storage tank when the inlet opening is in the top portion of the tank.

(43) **DOMESTIC WASTES.** The water-carried wastes derived from ordinary living processes. See sewage.

(44) **DRAINAGE SYSTEM.** A drainage system includes the piping within public or private premises, which conveys sewage, rainwater or other liquid wastes to a legal point of disposal, but does not include the mains of a public sewerage system or private or public sewage treatment plant.

(45) **DURHAM SYSTEM.** A term used to describe soil or waste systems where all piping is threaded pipe, tubing or other such rigid

construction, using recessed drainage fittings, to correspond to the types of piping.

(46) **DWELLING UNIT.** One or more rooms with provisions for living, sanitary and sleeping facilities arranged for the use of one or more individuals of the same family

(47) **EJECTOR.** A device operated either electrically or by a mechanical means so constructed as to elevate liquid wastes and sewage from a lower level to a point of discharge into a public or private sewer or other final means of disposal

(48) **FERRULE.** A metallic sleeve used to connect dissimilar plumbing materials.

(49) **FIRE PROTECTION SYSTEM.** A system of pipes and appurtenances used exclusively to supply water for extinguishing fires except the water service pipe as stipulated in sec. 145.01 (1) (c), Wis. Stats.

(50) **FIXTURE.** A receptable, appliance, device or equipment with or without a connection to the water supply system intended to receive or discharge water, liquids or water-carried wastes directly or indirectly into a drainage system.

(51) **FIXTURE UNIT.** A design factor so chosen that the load producing values can be expressed as multiples of that factor.

(52) **FIXTURE UNIT (DRAINAGE d.f.u.).** A measure of the probable discharge into the drainage system by various types of plumbing fixtures. The drainage fixture unit value for a particular fixture depends on its volume rate of discharge, on the duration of a single drainage operation and on the average time between successive operations.

(53) **FIXTURE UNIT (WATER SUPPLY s.f.u.).** A measure of the probable hydraulic demand on the water supply by various types of plumbing fixtures. The supply-unit value for a particular fixture depends on its volume rate of supply, the time duration of a single supply operation and the average time between successive operations.

(54) **FIXTURE UNIT FLOW RATE.** The total discharge flow in gallons per minute of a single fixture divided by 7.5 provides the flow rate of a particular fixture as a unit of flow. Fixtures are rated as multiples of this unit of flow.

(55) **FLOOD-LEVEL RIM.** The flood-level rim is the top edge of the receptacle from which water overflows.

(56) **GARAGE (PUBLIC).** A building or part of a building which accommodates or houses self-propelled land, air or water vehicles for 3 or more persons not of the same family.

(57) **GARAGE (PRIVATE).** A building used for the storage of vehicles or other purposes by a private family and which is not available for public use.

(58) **GRADIENT.** The fall or slope of a line of pipe in reference to a horizontal plane. In drainage systems it is usually expressed as the fall in a fraction of an inch per foot length of pipe.

(59) **HORIZONTAL PIPE.** Any pipe or fitting which makes an angle of less than 45 degrees to the horizontal.

(60) **HOT WATER.** Water at a temperature of 120° F. or more.

(61) **INDIRECT WASTE PIPE.** A waste pipe which does not connect directly to the drainage system, but conveys liquid wastes by discharging into the drainage system through an air-break, air-gap, into a trap, fixture, receptacle or interceptor.

(62) **INDUSTRIAL WASTES.** The liquid wastes resulting from the processes employed in industrial establishments which are free from fecal matter.

(63) **INTERCEPTOR.** A device designed and installed so as to retain deleterious, hazardous or undesirable matter from normal wastes while permitting normal sewage or liquid wastes to discharge into the drainage system by gravity.

(64) **GREASE BASIN (EXTERIOR).** A watertight tank installed underground for the collection and retention of grease from cooking or food processing and which is accessible for periodic removal of the contents.

(65) **GREASE INTERCEPTOR.** A manufactured receptacle designed to intercept and retain grease or fatty substances contained in kitchen and other food wastes.

(66) **GRIT & SAND INTERCEPTOR.** A receptacle designed to intercept and retain sand, grit, earth and other similar solids.

(67) **OIL INTERCEPTOR.** A unit designed to intercept and retain oil, lubricating grease or other like materials.

(68) **MANHOLE.** An opening constructed to a sewer or any portion of a plumbing system of sufficient size to permit a man to gain access thereto.

(69) **MAY.** May implies neither compulsion nor recommendation, only permission.

(70) **MOBILE HOME.** A mobile home is a transportable structure mounted on a chassis and designed to be used with or without a permanent foundation as a dwelling unit. The phrase "without a permanent foundation" indicates that the support system is constructed with the intent that the mobile home placed thereon will be moved from time to time at the convenience of the owner. See sections 218.12 and 348.07 (2), Wis. Stats.

(a) *Mobile home park sewerage system.* All structures and piping by which sewage is collected, conveyed and disposed of.

(b) *Mobile home building sewer.* That part of the plumbing system designed to serve one mobile home site from the mobile home drain connector to its connection with the mobile home park main or private disposal system.

(c) *Mobile home drain connector.* The terminal of all soil or waste piping of a mobile home to which the final waste connection is made to the building sewer.

(d) *Mobile home park water main.* That part of the water distribution system which extends from the street main or private supply to the mobile home water service.

(e) *Mobile home water service.* That part of the water service piping extended from the park water main, or private system, to one mobile home site.

(71) **NON-POTABLE WATER.** Water not safe for human consumption, hygiene or culinary use.

(72) **NUISANCE.** A "nuisance" under this section is referred to as any source of filth or probable cause of sickness pursuant to the provisions of sec. 146.14 of the Wis. Stats.

(73) **PIPE DIAMETERS.** When used in this code, shall mean the inside cross sectional dimension.

(74) **PLACE OF EMPLOYMENT.** Every place, whether indoors or out, or underground, and the premises appurtenant thereto, where either temporary or permanently any industry, trade or business is carried on, or where any process or operation, directly or indirectly related to any industry, trade or business is carried on and where any person is directly or indirectly employed by another for gain or profit, but shall not include any place where persons are employed in private or domestic service or agricultural pursuits which do not involve the use of mechanical power.

(75) **PLUMBING SYSTEM.** The plumbing system includes all water supply, water services and water distribution piping, plumbing fixtures and traps; soil, waste, and vent pipes; building drains, building sewers and private domestic sewage disposal systems including their respective connections, equipment, devices, appliances and appurtenances within the property line of the premises; and water-treating or water-using equipment in connection with the water and drainage systems and the installation thereof.

(76) **POTABLE WATER.** Potable water is water which is satisfactory for human consumption, hygiene and culinary use and meets the requirements of the state administrative authority having jurisdiction.

(77) **PRIVY.** A structure used by the public for the deposition of human body wastes.

(78) **PRIVY VAULT.** A watertight pit receptacle beneath a privy which receives human body wastes.

(79) **PROCESS PIPING.** Process piping is piping separated from the water distribution and/or drainage system by approved methods or means and used exclusively for refining, manufacturing, industrial or shipping purposes of every character and description.

(80) **RADIUS.** Radius is the distance from a center line or point to an axis of rotation.

(81) **RECEPTOR.** A fixture or device which receives the discharge from indirect wastes pipes.

(82) **REPAIRS & STOPPAGES.** Consists of making minor repairs to faucets, valves, pipes, appliances and removing of stoppages in building drains and sewers or waste pipes.

(83) **ROUGHING-IN.** The installation of all soil, waste, vent, water supply piping and supports pertinent thereto within a building to which fixtures, appliances and equipment are to be connected.

(84) **SAFING.** A pan or other collector placed beneath a pipe or fixture to prevent leakage from escaping to the floor, ceiling or walls.

(85) **SANITARY SEWER.** A sanitary sewer is a pipe which carries sewage and excludes storm, surface and ground waters.

(86) **SEWAGE.** The water carried wastes (organic) created in and

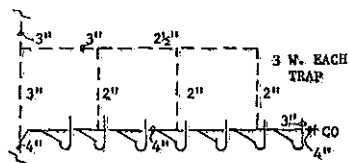
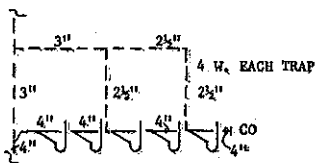
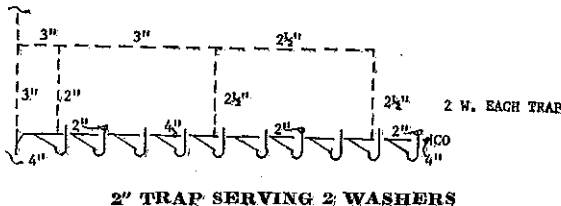
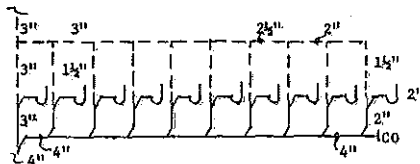
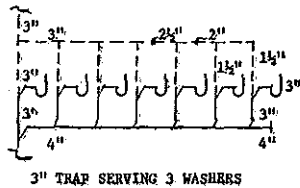
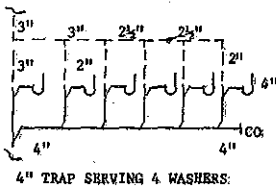


fold with standpipes served by properly sized and vented water sealed traps. The traps may be individually vented or circuit vented. Acceptable methods of installation are indicated in sketches. The following number of washers shall be the maximum to be connected to each size trap:

**Table 6**

TRAP SIZE (Minimum)	NO. OF WASHERS (Maximum)
2 inch trap -----	2 machines
3 inch trap -----	3 machines
4 inch trap -----	4 machines.

Installation of gutters, troughs, local wastes, indirect manifold waste or other such connections are prohibited installations for the above type equipment. See following sketches.



(m) *Vacuum cleaners (central units)*. Plumbing connected central vacuum power cleaning units shall be provided with an acceptable air-gap connection in the water intake pipe. The unit shall be connected to the waste piping system through an air-gap or air-break type connection.

(11) **URINALS (a) Women**. Urinals for women may be installed as an auxiliary or supplementary fixture. This type fixture is not to be used as a substitute for water closets. In all cases the minimum number of water closets required shall be provided.

1. **Enclosure**. The urinal shall be enclosed with a standard size water closet compartment and door to insure privacy in use. An instruction card explaining how to use the fixture shall be posted in each such compartment.

2. **Installation**. The fixture shall be installed in accord with all applicable code requirements set forth for water closets. A floor drain shall be installed immediately adjacent to the fixture. The fixture shall be equipped with an automatic flush tank, automatically controlled flush valve or a satisfactory foot operated flushing device. Every water supply to a urinal (s) shall be protected by an approved type vacuum breaker or other acceptable method.

(b) *Men's urinals*. 1. Stall type urinals shall be set into the floor and the floor shall be graded toward the fixture. A single urinal shall be flushed by an automatic flush tank, an automatically controlled flush valve or a satisfactory foot operated flushing device. A battery of not more than 4 urinals shall be flushed by an automatic flush tank or an automatically controlled flush valve provided the flush pipe is sized and graded as to insure sufficient pressure and volume for adequate flushing at each urinal. Every water supply to a urinal (s) shall be protected by an approved type vacuum breaker or other acceptable method. 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 side wall is less than 12 inches, such space shall be filled in flush with the front and top of the urinal with nonabsorbent material.

2. **Wall type**. a. Wall hanging men's urinals of a type approved by the department may be installed in buildings other than service stations, schools, institutions or places of assembly where children under 12 years old are accommodated.

b. A single urinal shall be flushed by an automatic flush tank, an automatically controlled flush valve or a satisfactory foot operated flushing device. A battery of not more than 4 wall hanging washout urinals shall be flushed by an automatic flush tank or an automatically controlled flush valve provided the flush pipe is sized and graded as to insure sufficient pressure and volume for adequate flushing at each urinal. Every water supply to a urinal (s) shall be protected by an approved type vacuum breaker or other acceptable method.

c. Batteries of wall hanging 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.

d. Wall hanging urinals shall be supported by a carrier fitting.

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

f. 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.

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

h. Excepting for buildings referred to in section H 62.08 (11) (b) 2., any building in which juveniles may be present containing a toilet room having only one water closet and one urinal, the urinal shall be the stall type. If said building contains a toilet room having more than one urinal, at least one urinal shall be installed in accord with section H 62.08 (13) (e).

i. Excepting for buildings referred to in section H 62.08 (11) (b) 2., any building in which juveniles may be present containing a toilet room having only one water closet and one urinal, the urinal shall be the stall type. If said building contains a toilet room having more than one urinal, at least one urinal shall be installed in accord with section H 62.08 (13) (e).

(12) **WATER CLOSETS.** (a) *Floor outlet.* One floor outlet water closet may connect to a 3 inch horizontal or vertical soil pipe through a 4 X 3 inch bend. Not more than 2 water closets shall be connected to a 3 inch vertical soil pipe. Offset or 3 X 4 inch closet collar connections are prohibited.

(b) *Back to back floor outlet.* Two water closets located back to back shall be connected to a vertical 3 inch pipe with a 3 inch tee-wye cross. Two floor outlet water closets located back to back may connect to a vertical 4 inch stack through a 4 X 3 inch sanitary cross or through a 4 inch sanitary cross fitting. When fixtures discharge into the same soil pipe above the water closets, all fixtures shall be properly vented. Back to back floor outlet water closets connecting to a horizontal soil pipe shall be connected by the proper use of 45° wyes, double wyes, tee-wye combinations or with fittings producing a like radius and may be circuit vented or individually back vented. See section H 62.08 (1) (c) for vertical limitations.

(c) *Side by side floor outlet.* Floor outlet water closets installed side by side or in batteries shall connect to the horizontal soil pipe through a horizontally installed wye, tee-wye or wye and 1/8 bend. The fixtures may be individually back vented or circuit vented. Where circuit vents are used, the size shall be: 3 inch for a battery of 2 to 6 fixtures and 4 inch for a battery of 7 or 8 fixtures.

(d) *Wall outlet floor mounted water closets.* Wall outlet floor mounted type water closet fixtures may be connected to a vertical or horizontal soil pipe through an approved type carrier fitting or 4 inch closet collar. When the soil piping is 3 inches in diameter, the pipe connection shall be increased to 4 inch inside diameter between the fixture and soil pipe fitting connections.

(e) *Back to back wall outlet.* Wall outlet, floor mounted type water closets connected to the same vertical soil pipe shall be installed with a fitting so designed as to prevent cross-flow of wastes or air pressures to the opposite fixture, or through an approved type carrier fitting. Where fixtures discharge into the same vertical pipe on floors above, all fixtures shall be properly vented. Wall outlet, floor mounted water closets may discharge into a horizontal soil pipe through an approved type carrier fitting. The water closets may be individually

back vented, served by a 3 inch diameter common vent or a 2 inch diameter common vent increased to 3 inches in diameter a maximum vertical distance of 18 inches above the center line of the fixture opening, with no horizontal offset in the vent pipe below a point 38 inches above the floor line.

(f) *Side by side wall outlet.* Wall outlet floor mounted water closet fixtures installed side by side or in batteries shall connect to the horizontal or vertical soil pipe through an approved carrier type fitting, a wye, tee-wye or wye and  $\frac{1}{2}$  bend connection. The fixtures shall be individually dry vented.

(g) *Off the floor water closets.* 1. Batteries of side by side off the floor type fixtures shall connect to a horizontal or vertical soil pipe through department approved horizontal or vertical carrier type fittings and shall be individually dry vented.

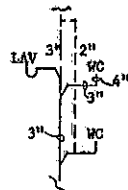
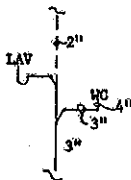
2. Off the floor type water closets installed back to back shall connect to horizontal soil pipe through a department approved type carrier fitting. The water closets may be individually back vented, served by a 3 inch diameter common vent or a 2 inch diameter common vent increased to 3 inches in diameter a maximum vertical distance of 18 inches above the center line of the fixture opening with no horizontal offset in the vent pipe below a point 38 inches above the floor line.

(h) *Stack offsets.* Off the floor type water closets shall be connected to a stack offset through an approved back to back carrier type fitting. The installation shall be served by a unit vent of 3 inch or larger diameter, or may be individually back vented in accord with section H 62.03 (1), table 1. Also see section H 62.06 (1) (c).

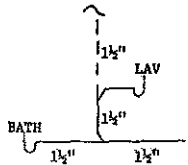
(i) *Multi-story stacks.* Back to back off the floor water closets shall connect to a vertical soil stack through a department approved back to back carrier type fitting. The water closets may be individually back vented, served by a 3 inch diameter common vent or a 2 inch diameter common vent increased to 3 inches in diameter a minimum vertical distance of 18 inches above the center line of the fixture opening with no horizontal offset in the vent pipe below a point 38 inches above the floor line.

(13) BATHROOM GROUPS. (a) *Bathroom group (single).* A single group of bathroom fixtures may be installed without individual fixture vents in a one story building or on the top floor of a building provided that:

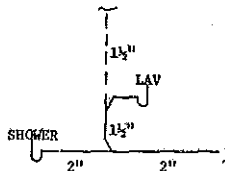
1. The water closet is independently connected to a stack 3 inches or larger with no more than 1 D.F.U. connection above. See following sketch.



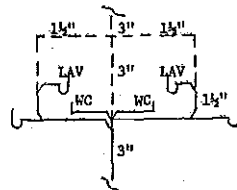
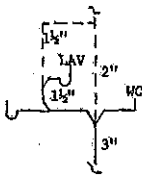
2. The drain from a back vented lavatory serves as a wet vent for a bathtub or shower stall. See following sketch.



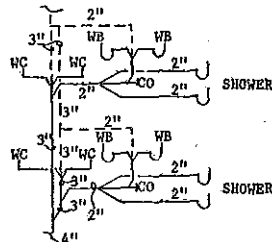
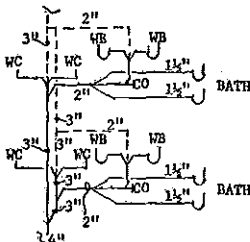
3. Not more than 1 D.F.U. is drained into the 1 1/2 inch vertical vent or not more than 5 D.F.U. drain into the horizontal wet vented pipe. See following sketch.



4. The horizontal wet vented pipe shall connect to the stack at or below the same level as the water closet drain when installed on the top floor. See following sketch.

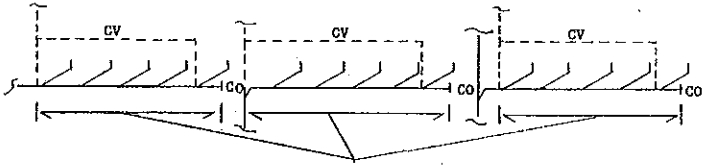


(b) *Double bathroom groups.* Back to back bathroom groups consisting of 2 lavatories and 2 bathtubs or shower stalls may be installed on the same horizontal pipe when served by a 2 inch diameter unit vent provided the water closets (2) connect independently to a 3 inch or larger diameter stack which extends full size without fixture connections above. See following sketches.



(c) *Other fixtures.* A horizontal soil or waste pipe to which 2 and not more than 8 like fixtures are connected may be vented by a circuit

vent. The horizontal soil or waste pipe shall be carried full diameter to the last fixture connection and terminate with a cleanout. See following sketch.



**NO CONNECTIONS IN THIS AREA EXCEPT LIKE FIXTURES SERVED BY CIRCUIT VENT.**

(d) *Prohibited fixture connections.* There shall be no fixture connection other than the circuit vented fixtures connected to the circuit vented horizontal soil or waste pipe.

(e) *Juvenile fixtures.* Water closets and other fixtures for the use of juveniles shall be of a size and shall be installed at a height suitable for juveniles use. Drain connections shall be provided at height required to serve the fixtures.

(14) **UNLISTED FIXTURES, EQUIPMENT, DEVICES AND APPLIANCES.** For items not included in this section, refer to other applicable sections of this chapter or contact the department for information and proposed installation review.

(15) **INDIRECT WASTE PIPING AND SPECIAL WASTES. SPECIAL EQUIPMENT, INDIRECT WASTE PIPING.** (a) *Piping by plumber.* The indirect waste piping serving any refrigerator, refrigerator case, icebox, ice compartment, vending machine, rinse sinks, steam tables, steam kettles, potato peelers, egg boilers, coffee urns, appliances, devices or appurtenances in which food or provisions are stored or processed, baptismal fountains, clothes washers and extractors, dishwashers, dental cuspidors, garbage can washers, appliances, devices or appurtenances such as stills, sterilizers, bar and soda fountains, boiler blow-off basin outlet drains and similar equipment having public health concern shall be installed by licensed plumbers.

(b) *Piping by equipment installers.* Indirect waste piping serving air-conditioning, cooling coils, air-handling condensate waste, expansion tank overflow and equipment serving steam, power, heating, such as flash tanks, boiler to blow-off basins, machinery wastes, process piping and similar waste piping may be installed by the equipment installer.

**History:** 1-2-56: r. and recr. Register, October, 1971, No. 190, eff. 11-1-71; am. (1) (b), (d), (2) (c), (3), (8) (c), (11) (b) 2, d, e, f, g, h, (12) (e), (g) 2, r. and recr. (5), Register, November, 1972, No. 203, eff. 12-1-72.

**H 62.09 Fixtures. (1) CONSTRUCTION AND DESIGN.** All fixtures, appliances, equipment, devices and appurtenances shall be of such design, materials and construction as to comply with applicable standards to insure durability, proper service, sanitation, and so as not to entail undue efforts in keeping them clean and in proper operating condition. All fixtures shall connect directly to the sanitary plumbing system except as otherwise indicated. Blowout type fixtures of any type may only be installed upon approval of the department.

(2) **FIXTURE OUTLETS.** Outlet passageway shall be free from impairments and of sufficient size to insure proper discharge of the fixture contents under normal conditions. Outlet connections which are directly connected to the plumbing system shall be such that a permanent air and watertight joint can be readily made between the fixture and drainage system.

(3) **MATERIALS.** Fixtures shall be made of earthenware, vitreous chinaware, enameled steel or ironware, stainless steel or other approved materials. Wooden trays or sinks with or without metallic lining shall be allowed only in commercial laundries and dye houses where such fixtures are in daily use.

(4) **BATHTUBS.** Bathtubs shall be designed in conformity to applicable standards and shall have waste outlets and overflows at least 1½ inches in diameter. The waste outlet shall be equipped with a suitable stopper or closing device. Bathtubs set in any alcove shall have the side with the longest dimension accessible for entry to the tub.

(5) **DRINKING FOUNTAINS AND DEVICES.** Drinking fountains, coolers and like devices shall not be installed in toilet rooms. All drinking fountains, coolers and like devices shall be separate from other fixtures and be made of earthenware, vitreous chinaware, enameled steel or ironware, stainless steel, anodized aluminum, or other approved material. The bowl shall be so designed and proportioned as to be free from corners so that it may be readily cleaned and so as to prevent unnecessary splashing at the point where the jet stream falls into the bowl. The nozzle shall be of nonoxidizing impervious material and shall have no fouling space or enclosures making cleaning difficult or inducing insanitary conditions. The jet shall be inclined and the orifice shall be higher than the rim of the waste water receiving bowl. The water supply shall be provided with an adjustable valve fitted with a loose key or an automatic self-closing valve permitting regulation of the rate of flow of water. The water supply issuing from the nozzle shall be of sufficient volume and height so that persons using the fountain need not come in direct contact with the nozzle or orifice. To accomplish this, the fountain supply should be equipped with an efficient automatic pressure and volume regulating valve. See section Ind 52.12 (9), Wis. Adm. Code.

(6) **LAUNDRY TRAYS, SINKS.** Laundry trays and each sink compartment shall be provided with a waste outlet of at least 1½ inch diameter.

(7) **LAVATORIES (WASH BASIN).** Each fixture shall have a waste outlet of at least 1½ inch diameter. Each multiple type fixture with 18 inches of useable length of a straight-line or circular type shall be considered equivalent to one lavatory (wash basin) for the purpose of determining the water supply and drainage pipe sizes. Each 18 inch interval and each individual lavatory fixture shall be provided with potable water for hand washing.

(8) **SHOWERS.** (a) *Compartments.* Shower compartments shall have at least 900 square inches of floor area, curb at least 3 inches in height and shall be at least 30 inch in minimum dimension 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. Preformed and prefabricated units shall comply with this subsection.

(b) *Waste outlet.* Waste outlets serving single showers, other than those in bathtubs, shall be at least 2 inches in diameter. When gang showers are to be served, the minimum drain outlet shall be 3 inches in diameter. Strainer perforations or slots shall be no smaller than  $\frac{1}{4}$  inch. Where gang showers are installed, the waste outlet should be so located and the floor so pitched that waste water from one shower head does not flow over the floor area serving another shower head.

(c) *Safing.* All shower stalls, shower rooms, floor setting service sinks or receptors, sunken bathtubs or other like fixtures shall be provided with 4 pound sheet lead asphaltum coated, compotite, copper, saraloy or other approved safing material beneath the entire fixture or room and upward along the sides to a minimum of 6 inches above the curb or maximum water level of the fixture. The corners shall be safed to a height of 6 feet and at least 3 inches in each direction from the corners. The safing shall be properly drained. Un-tized receptors, manufactured floor setting service sinks, shower receptors, bathtubs and installations directly over an unexcavated portion of a building are exempt from safing requirements.

(d) *Shower drains and floor drains.* Shower drains and floor drains shall be considered a fixture and shall be provided with an approved strainer.

(9) **URINALS.** (a) *General.* Urinals shall be made of material impervious to moisture and which will not corrode under the action of urine, be of such design, materials and construction that they may be properly flushed and kept in a sanitary condition. If cast iron is used in the construction of urinals, it must be enameled on the inside and coated with durable paint or be enameled on the outside. No sheet iron urinals will be permitted. Only individual urinals shall be used in public buildings and places of employment. Such individual urinals shall be of vitreous china or stainless steel and shall be equipped with an automatic flushing device.

(10) **WATER CLOSETS.** (a) *General.* All water closets shall be designed to meet specification standards for land use fixtures. They shall hold a sufficient quantity of water and be of such shape and form that no fecal matter will collect on the surface of the bowl. All water closet bowls shall be equipped with adequate flushing rims so as to flush and scour the bowl properly when discharged. Water closet seats shall be of wood or other nonheat absorbing material. See Wis. Adm. Code section Ind 52.59 (2).

1. In public buildings, places of employment, and all other public places except in apartments and guest rooms in hotels and motels, the water closets shall be of the elongated or extended lip design.

2. Except in apartments and guest rooms in hotels and motels, water closet seats shall be open front seats without cover.

3. Water closet seats in guest rooms in hotels and motels shall be open front with or without cover.



(b) *Side inlet water closet bowls.* New water closet installations shall not be equipped with side inlet openings.

(c) *Fixture flushing.* Each water closet shall be individually equipped with an acceptable flush tank and fittings or with an approved flushometer valve. All flush tanks, flushometer or automatic flushing device shall be readily accessible for maintenance and repair. Ballcocks shall be of the anti-siphon type.

(d) *Prohibited water closet fixtures.* It shall be unlawful to install and/or maintain pan, plunger, offset washout, washout, long hopper, frostproof and/or other water closets having invisible seals or unventilated spaces or walls not thoroughly cleaned at each flushing.

(11) **OVERFLOWS.** (a) *Design.* In any fixture which is provided with an overflow, the waste outlet shall be designed and installed so that the standing water in the fixture cannot rise in the overflow when the stopper is closed, nor shall any water remain in the overflow when the fixture is empty.

(b) *Connection of overflows.* The overflow from any fixture shall discharge into the drainage system on the inlet or fixture side of the trap provided that the overflow from a flush tank serving a water closet or urinal shall discharge into the fixture served.

(12) **WATER HEATERS AND HOT WATER STORAGE TANKS.** (a) *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.

(b) *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, 1968.

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, Ill. 60611  
333 Fångsten Road, Northbrook, Ill. 60062  
1685 Scott Blvd., Santa Clara, Calif. 95050  
1285 Walt Whitman Road, Melville, L. I., N. Y. 11746

3) ASME Boiler and Pressure Vessel Codes, Heating Boilers, section IV, 1971, available from American Society of Mechanical Engineers, 29 W. 39th Street, New York, N. Y. 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 N. High Street, Columbus, Ohio 43201.

(c) *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.

**History:** 1-2-56; r. and recr. Register, October, 1971, No. 190, eff. 11-1-71; am. (5) and r. and recr. (10) (a), Register, November, 1972, No. 203, eff. 12-1-72.

**H 62.10 Traps and cleanouts.** (1) **TRAP SIPHONAGE.** Every fixture trap seal shall be protected to prevent siphonage or back pressure by insuring air circulation with an approved vent in compliance with this code. In no case shall a vent be connected at the crown of a trap.

(2) **TRAP CONSTRUCTION.** (a) *Design.* No trap which depends upon the action of movable parts for its seal shall be used. No trap shall be used which depends upon concealed interior partitions for its seal unless such interior partitions are made of indestructible material. No trap shall be used which in case of defect would allow the passage of sewer air. No rubber or wicking packed slip joint connection shall be installed on the sewer side of a fixture trap. Slip joint waste connections on the sewer side of the trap shall be ground faced or equal and shall not be concealed or enclosed.

(b) *Cleansing.* Every trap shall be self-cleaning. Floating and sedimentary solids in the seal of the trap shall be removed by a normal discharge from the connected fixture. Uniform diameter traps shall be considered self-cleaning.

(c) *Material.* The material for traps shall be either vitreous china, clay, lead, brass, copper, borosilicate glass, cast iron or malleable iron. Cast iron traps shall be coated on the inside and outside with rustproof coating.

(d) *Depth of seal.* The water seal of all fixture traps shall be at least 2 inches. A deep seal trap shall have a water seal of 4 inches.

(e) *Approval.* Every trap, P.O. plug and trap extension tubing shall have the maker's name, or registered trademark, cast or stamped upon the exterior surface thereof. Traps varying from standard design shall have the approval of the department before being used in any installation.

(3) **TRAP INSTALLATIONS.** (a) *Setting of traps.* All traps shall be so located as to be accessible, rigidly supported and set true with respect to their water level and so located as to protect their seals, and where necessary, shall be protected from freezing and evaporation.

(b) *Traps where prohibited.* No fixture shall be double trapped and there shall be no traps at the base of soil or waste stacks.

(c) *Bath traps.* Drum traps not less than 4 inches in diameter and having a seal of not less than 2 inches may be used under all bathtubs wherever practicable. The horizontal distance between the verti-

to be conducted away from residences, industrial establishments and public buildings. See domestic wastes.

(87) **SEWERAGE SYSTEM (PUBLIC)**. All structures, conduits and pipe lines by which sewage is collected and disposed of, except plumbing inside and in connection with buildings and properties served, and service pipes from building to street main. See chapter 144, Wis. Stats.

(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 ground water**. 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. **Percolation test**. A method of testing absorption qualities of the soils.

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

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

14. Seepage bed. An excavated area similar to a seepage trench but larger than 3 feet in width and containing more than one distribution line.

15. Seepage trench. An area excavated 3 feet or less in width which contains a bedding of aggregate and a single distribution line.

16. Septic tank. A water tight tank which receives sewage.

17. 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.

18. 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.

(89) SEWERS & DRAINS. (a) *Sanitary*. 1. Building sewer. That part of the plumbing system beginning at the immediate outside foundation or proposed foundation wall to its connection with the main of a public sewer, private sewer, private sewage disposal system or other point of disposal.

2. Building drain. The lowest horizontal piping of a drainage system which receives the discharge of soil, waste and other drainage pipes inside any building and conveys same to the building sewer by gravity flow. See Wis. Adm. Code section H 62.08 (2) (c), sketch.

3. Building drain branch. That part of any drainage system which extends laterally at a slight grade, with or without horizontal change of direction from the building drain or subdrain. In this definition, horizontally means an angle less than 45 degrees with a horizontal plane and a rise not to exceed the inside diameter of the branch. See Wis. Adm. Code section H 62.08 (2) (c), sketch.

4. Building subdrain. The horizontal portion of a drainage system within a building which cannot flow by gravity to the building drain.

(b) *Storm*. 1. Building sewer. That part of the storm water system which receives the discharge from building storm drains and sub-drains, parking lots, yard fountains and other permissive sources, and conveys such waters to a public storm water system, private storm water system or other approved point of disposal.

2. Building drain. The lowest horizontal piping which receives storm waters or other permissive water from roofs, area ways, court yards, canopies, enclosed parking ramps and other sources inside any building or structure and conveys same to the building storm sewer by gravity flow.

3. Building subdrain. Same as sanitary subdrain.

(90) SEWER. (a) *Private*. A privately owned building sewer serving a single building.

(b) *Private interceptor main sewer*. A privately owned building sewer not directly controlled by public authority. Privately owned

means single ownership by an individual, firm or corporation, and approved by local authority and the department.

(91) **SEWER (PUBLIC)**. A publicly owned sewer.

(92) **SUBSOIL DRAIN**. That part of a drainage system which conveys the ground or seepage water from the footings of walls or below the basement floor under buildings to the storm sewer or other point of disposal.

(93) **SHALL**. The word "shall" when used in this code is a mandatory requirement.

(94) **SHOULD**. "Should" is not mandatory but expresses the recommendation of the department.

(95) **SIPHONAGE**. A suction created by the flow of liquids in pipes.

(96) **SLIP-JOINT**. A connection in which one pipe slips into another, the joint of which is made tight with a compression type fitting.

(97) **SPECIAL WASTES**. Wastes which require special treatment before entry into the normal plumbing system.

(98) **SPECIAL WASTE PIPE**. Piping which conveys special wastes.

(99) **SPIGOT**. The end of a pipe which fits into a bell or hub.

(100) **STACKS & BRANCHES**. (a) *Stacks*. 1. Soil stack. Any pipe extending vertically which conveys the discharge of water closets, bedpan washers or like fixtures with or without other fixtures to a horizontal branch, building drain or building subdrain.

2. Waste stack. Any pipe extending vertically which receives only liquid wastes free from fecal matter and conveys same to a horizontal branch, the building drain or building subdrain.

(b) *Branches*. 1. Branch. A horizontal drain pipe extending from a soil or waste stack to which vertical sections or extensions may be connected which receive the discharge from one or more fixture drains.

2. Branch interval. A distance along a soil or waste stack corresponding in general to a story height but in no case less than 8 feet within which the horizontal branches from one story of a building are connected to the stack.

(101) **STERILIZERS**. (a) *Boiling type*. A non-pressure type device used for boiling instruments, utensils, and/or other equipment for disinfection purposes.

(b) *Pressure instrument washer-sterilizer*. A pressure vessel fixture designed to both wash and sterilize instruments during the operating cycle of the unit.

(c) *Pressure (autoclave)*. A pressure vessel designed to use steam under pressure for sterilizing. Also called an autoclave.

(d) *Water*. A device used for sterilizing water and storing sterile water.

(102) **STILL**. A device used in distilling liquids.

(103) **SUMP.** A tank or pit which receives sewage or liquid wastes located below the normal grade of the gravity system and which must be emptied by mechanical means.

(104) **SUMP PUMP.** A mechanical device other than an ejector for removing liquid waste from a sump.

(105) **SUPPORTS.** Supports, hangers, anchors and other devices for supporting and securing pipes, or fixtures to walls, ceilings, floors or structural members of a building.

(106) **SWIMMING POOL.** Any structure, basin chamber or tank containing an artificial body of water for swimming, diving or recreational bathing having a depth of 2 feet or more at any point.

(107) **TERMINAL.** That part of a drainage or vent piping system which projects above the roof of the building or at the end of the building effluent disposal system.

(108) **TRAP.** A fitting or device so designed and constructed as to provide, when properly vented, a liquid seal which will prevent the back passage of sewer air without materially affecting the flow of sewage or waste through it.

(a) *Trap crown.* Where the trap connects to or becomes a part of the horizontal arm of the trap which is intergral with the trap.

(b) *Trap seal.* Trap seal is indicated by the height of the water column measured between the overflow and the dip separating the inlet and outlet arms of the trap.

(109) **TURF SPRINKLER UNIT.** A system of piping, appurtenances and devices so installed as to distribute water for lawn or other similar irrigation purposes without plumbing fixtures or means of use for human consumption.

(110) **VACUUM BREAKER.** An atmospheric device, pipe installed and designed to protect a water supply against back-siphonage by entry of air to relieve vacuums in the water distribution system. (A vacuum breaker is not designed to protect the water supply under conditions of backflow or back-pressures.)

(111) **VENT PIPE.** Any pipe provided to ventilate a plumbing system.

(a) *Back vent.* A pipe that connects to a soil or waste pipe to vent a single fixture trap and connects to the vent system above the fixture served with no part of it below the fixture trap.

(b) *Branch vent.* That part of the vent pipping which extends horizontally with or without lateral or vertical extensions and to which other vent pipes connect.

(c) *Circuit vent.* A vent pipe which serves 2 or more fixture traps which discharge to a nearly horizontal soil or waste branch and extends from the downstream side of the furthestmost upstream fixture trap to the main soil or waste vent or main vent so that a circuit is formed.

(d) *Continuous vent.* A vertical vent pipe that is a continuation of the vertical waste pipe to which it connects.

(e) *Loop vent.* Similar to a back vent except that part of it extends below the trap it serves before reconnecting to the vent piping system.

(f) *Main soil or waste vent.* That part of the stack above the highest installed fixture opening or branch connection. (Commonly referred to as a stack vent.)

(g) *Main vent.* A vent pipe connected to the base of a soil or waste stack below the lowest fixture branch extending vertically with or without change of direction and which serves as a terminal for other vent pipe connections and terminates through the roof or connects with the main soil or waste pipe at a point 2 feet or more above the highest soil or waste opening, but in no case less than 38 inches above the highest floor on which soil or waste openings are installed.

(h) *Relief vent.* The vent pipe connected to a soil or waste pipe close to the stack in a manner to equalize minus and plus pressures in the stack.

(i) *Stack venting.* A method of venting a fixture or group of fixtures through the soil or waste stack.

(j) *Sterilizer vent.* A separate pipe or stack connected indirectly to the building drainage system at the lowest terminal, which receives the vapors from non-pressure sterilizers or the exhaust vapors from pressure sterilizers and conducts the vapors directly to the outer air. (Commonly referred to as vapor, steam, atmospheric or exhaust vent.)

(k) *Unit vent.* One which denotes an installation so arranged that one pipe will serve traps from two identical fixtures at the same point when connected to a vertical soil or waste pipe.

(l) *Wet vent.* That portion of a vent pipe which receives the discharge from wastes other than water closets, kitchen fixtures or other sources containing like sewage or fecal matter.

(m) *Yoke vent.* A pipe connecting upward from a soil or waste stack into a main vent pipe in a manner to equalize pressures within the stacks.

(112) **WATER SOFTENER.** An appliance, appurtenance or device used for the purpose of ion exchange or demineralizing water.

(113) **WATER SUPPLY (PRIVATE).** Private water supply means one or more sources of ground water, including facilities for conveyance thereof, such as wells, springs and pumps, on one property, other than those serving a municipality or a group of 10 or more premises of mixed ownership.

(114) **WATER SERVICE.** A pipe extended from the water main or private pumping system or other supply source with or without lateral extensions to the building, structure or other system to be served.

(115) **WATER DISTRIBUTION SYSTEM.** Those pipes which convey water from the service pipe to the plumbing fixtures, appliances, appurtenances, equipment, devices or other systems which are to be served.

(116) **WIPED JOINT.** The fusion of metal with solder, smoothly finished with a wiping cloth and having a thickness of at least one-fourth inch at the point where the pipes are joined.

(117) **WORKMANSHIP.** Work of such character that will fully secure the results sought in all the sections of this code as intended for the safety, welfare and health protection of all individuals.

(118) **YARD DRAIN.** The horizontal piping and its branches which convey the surface drainage from areas, courts or yards outside the walls of a building to the storm water sewer.

(119) **MISCELLANEOUS. Standards or Specifications Abbreviations.**

- A.G.A. ----- American Gas Association, Inc.  
420 Lexington Ave., New York, New York 10017
- A.N.S.I. ----- American National Standards Institute, Inc.  
1430 Broadway, New York, New York 10018
- A.S.M.E. ----- American Society of Mechanical Engineers  
29 W. 39th St., New York, New York 10018
- A.S.S.E. ----- American Society of Sanitary Engineering  
960 Illuminating Building, Cleveland, Ohio 44113
- A.S.T.M. ----- American Society for Testing and Material  
1916 Race St., Philadelphia, Pa. 19103
- A.W.W.A. ----- American Water Works Association  
2 Park Avenue, New York, New York 10016
- C.S. ----- Commercial Standards, Supt. of Documents  
Governmental Printing Office, Washington, D.C.  
20401
- F.S. ----- Federal Specifications  
General Services Administration, Regional Office 3,  
Washington, D.C. 20407
- M.S.S. ----- Manufacturers Standardization Society  
of the Value and Fittings Industry  
420 Lexington Ave., New York, New York 10017
- N.S.F. ----- National Sanitation Foundation  
Testing Laboratory, Inc., P.O. Box 1468,  
Ann Arbor, Michigan 48106
- U.L. ----- Underwriters' Laboratories, Inc.  
207 E. Ohio Street, Chicago, Illinois 60611
- W.C.F. ----- Water Conditioning Foundation  
1201 Waukegan Road, Glenview, Illinois 60025

**History:** 1—2—56; am. (8), (42) (b) and (c); (46) and (49), Register, February, 1957, No. 14, eff. 3—1—57; r. and recr. Register, October, 1970, No. 178, eff. 11-1-70; cr. (119), Register, October, 1971, No. 190, eff. 11-1-71; r. and recr. (70); (79) through (118) are renum. to be (80) through (119); (119) is renum. to be (79); am. (89) (a) 2. and 3. as renum., r. and recr. (90) as renum. Register, November, 1972, No. 203, eff. 12—1—72; r. and recr. (88) (a) 4, Register, July, 1976, No. 247, eff. 8—1—76.



conditions at the depth of the proposed system and soil permeability is limited to the maximum of the class used for design purposes and the soil condition is confirmed by the soil bore test data. The department reserves the right to require proof of the map findings or soil texture and resultant anticipated percolation rate. The exemption of percolation tests does not eliminate the required bore hole test data. The borings shall be distributed uniformly in the area of the proposed system. If soil pits are constructed they shall be located immediately adjacent to the area.

2. Soil maps. When a parcel of land consists entirely of soils having very severe or severe limitations for on-site liquid waste disposal as determined by use of a detailed soil map and interpretive data, that map and interpretive data may be used as a basis for denial for an on-site waste disposal system. Nevertheless, in all cases the property owner shall be permitted to present evidence consisting of soil percolation test data, bore hole data and topographic survey data to support the contention that a suitable site for an on-site liquid waste disposal system does exist.

(c) *Replacement system area.* On each parcel of land being initially developed sufficient area of suitable soils based on soil tests and separation and site requirements contained in paragraphs (b) and (e) for one replacement system shall exist. Where bore hole test data in the replacement system area are equivalent to that in the proposed system area the percolation test may be eliminated.

(d) *Septic tank location.* No tank shall be located within 5 feet of any building or its appendage, 2 feet of any lot line, 10 feet of any cistern, 25 feet of any well, reservoir, below ground swimming pool or the high water mark of any lake, stream, pond or flowage.

**Note:** Septic tanks should be located to provide accessibility for pumping and service vehicles.

(e) *Soil absorption site.* 1. Location. The surface grade of all soil absorption disposal systems shall be located at a point lower than the surface grade of any nearby water well or reservoir on the same or adjoining property, except that when this is not possible, the site shall be so located that surface water drainage from the site is not directly toward a well or reservoir and will bypass the well or reservoir site by several feet. The soil absorption system shall be located not less than 5 feet from any lot line; 10 feet from a water service, or an uninhabited slab constructed building; 15 feet from an aboveground swimming pool; 25 feet from any occupied or habitable building or dwelling, building with below grade foundation, public water main, below grade swimming pool or cistern; 50 feet from any water well or reservoir and 50 feet from the high water mark of any lake, stream or other watercourse. Effluent disposal systems in compacted areas such as parking lots and driveways are prohibited. Surface waters shall be diverted away from the soil absorption site.

2. Percolation rate—trench or bed. A subsurface soil absorption system of the trench or bed type shall not be installed where the percolation rate for any one of the 3 tests is slower than 60 minutes for water to fall one inch. The slowest percolation rate shall be used to determine the absorption area.

3. Percolation rate—seepage pit. For a seepage pit, percolation tests shall be made in each stratum penetrated below the inlet pipe. Soil strata in which the percolation rates are slower than 30 minutes per inch shall not be included in computing the absorption area. The slowest percolation rate shall be used to determine the absorption area.

4. Floodplain. A soil absorption system shall not be installed in a floodway. Soil absorption systems in areas considered floodplains excluding the floodway shall not be installed unless written approval is received from the department. The department shall receive written local government approval for construction in and filling of the floodplain area prior to reviewing plans.

5. Slope. The soil absorption system shall be constructed on that portion of the lot which does not exceed the slope here specified for the class. In addition, the soil absorption system shall be located at least 20 feet from the crown of any slope that is greater than the specified slope in its class.

<i>Class of Slope</i>	<i>Minutes Required for Water to Fall One Inch</i>	<i>Slope</i>
1 -----	Under 3 -----	20%
2 -----	3 to 45 -----	15%
3 -----	45 to 60 -----	10%

6. Filled area. A soil absorption system shall not be installed in a filled area unless written approval is received from the department except, if filled prior to certification as a subdivision lot under chapter H 65, Wis. Adm. Code.

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.

(3) PERCOLATION TEST PROCEDURE. (a) *Type of hole.* The hole shall be dug or bored. It shall have vertical sides and have a horizontal dimension of 4 to 12 inches.

(b) *Preparation of hole.* The bottom and sides of the hole shall be carefully scratched with a sharp pointed instrument to expose the natural soil interface. All loose material shall be removed from the hole and the bottom shall be covered with 2 inches of coarse sand or gravel.

(c) *Test procedure, sandy soils.* For tests in sandy soils containing little or no clay, the hole shall be carefully filled with clear water to a minimum depth of 12 inches over the gravel and the time for this amount of water to seep away shall be determined. The procedure shall be repeated and if the water from the second filling of the hole at least 12 inches above the gravel seeps away in 10 minutes or less, the test may proceed immediately as follows: Water shall be added to a point not more than 6 inches above the gravel. Thereupon, from a fixed reference point, water levels shall be measured at 10-minute intervals for a period of one hour. If 6 inches of water seeps away in

less than 10 minutes, a shorter interval between measurements shall be used, but in no case shall the water depth exceed 6 inches. The final water level drop shall be used to calculate the percolation rate. Soils not meeting the above requirements shall be tested as in paragraph (d) below.

(d) *Test procedure, other soils.* The hole shall be carefully filled with clear water and a minimum water depth of 12 inches shall be maintained above the gravel for a 4-hour period by refilling whenever necessary or by use of an automatic siphon. Water remaining in the hole after 4 hours shall not be removed. Thereafter the soil shall be allowed to swell not less than 16 hours nor more than 30 hours. Immediately following the soil swelling period, the percolation rate measurements shall be made as follows: Any soil which has sloughed into the hole shall be removed and water shall be adjusted to 6 inches over the gravel. Thereupon, from a fixed reference point, the water level shall be measured at 30-minute intervals for a period of 4 hours unless 2 successive water level drops do not vary by more than 1/16 of an inch. At least 3 water level drops must be observed and recorded. The hole shall be filled with clear water to a point not more than 6 inches above the gravel whenever it becomes nearly empty. Adjustment of the water level shall not be made during the last 3 measurement periods except to the limits of the last measured water level drop. When the first 6 inches of water seeps away in less than 30 minutes, the time interval between measurements shall be 10 minutes and the test run for one hour. The water depth shall not exceed 6 inches at any time during the measurement period. The drop that occurs during the final measurement period shall be used in calculating the percolation rate.

(e) *Verification.* 1. Physical characteristics. Depth to high groundwater and bedrock, ground slope and percolation test results shall be subject to verification. Verification of high groundwater may include, but not be limited to, a morphological study of soil conditions with particular reference to soil color and sequence of horizons.

2. Filling. Where the natural soil condition has been altered by filling or other attempts to improve wet areas, the department may require observation of high groundwater levels under saturated soil conditions.

**Note:** Detailed soil maps are of value for determining estimated percolation rates and other soil characteristics.

(4) **SEPTIC TANKS AND OTHER TREATMENT TANKS.** (a) *Design of septic tanks.* 1. Materials. Septic tanks shall be fabricated or constructed of welded steel, monolithic concrete, glass-fiber reinforced polyester or other materials approved by the department. All tanks shall be watertight and fabricated so as to constitute an individual structure.

2. Approval. a. The design of prefabricated septic tanks shall be approved by the department.

b. Plans for site-constructed concrete tanks shall be approved by the department prior to construction.

3. General. a. The liquid depth shall not be less than 3 feet nor more than an average of 6 feet. The total depth shall be at least 8 inches greater than the liquid depth.

b. Rectangular tanks shall have a minimum width of 36 inches and shall be constructed with the longest dimensions parallel to the direction of flow.

c. Cylindrical tanks shall have an inside diameter of not less than 48 inches.

d. Each prefabricated tank shall be clearly marked to show liquid capacity and the name and address or registered trade mark of the manufacturer. The markings shall be impressed into or embossed onto the outside wall of the tank immediately above the outlet opening. Each site-constructed concrete tank shall be clearly marked at the outlet opening to show the liquid capacity. The marking shall be impressed into or embossed onto the outside wall of the tank immediately above the outlet opening.

e. For septic tank material and construction specifications, see section H 62.19 (2) table 32, Wis. Adm. Code Limitations 16, 17 and 18. For general septic tank design criteria, see section H 62.20 (4) (a) and (b) Wis. Adm. Code.

4. Tank accessories. a. The inlet and outlet openings on all tanks shall contain a "boss" stop or other provision which will prevent the insertion of the sewer piping beyond the inside wall of the tank.

b. The inlet and outlet on all tanks or tank compartments shall be provided with open-end coated iron sanitary tees or baffles made of approved materials, so constructed as to distribute flow and retain scum in the tank or compartments. The tees or baffles shall extend at least 6 inches above and 9 inches below the liquid level, but not to exceed  $\frac{1}{3}$  the liquid depth. At least 2 inches of clear space shall be provided over the top of the baffles or tees. The bottom of the outlet opening shall be at least 2 inches lower than the bottom of the inlet.

c. Each single-compartment tank and each unit of a multi-compartment tank shall be provided with at least one manhole opening no less than 24 inches square or 24 inches in diameter. Manholes shall terminate no more than 6 inches below the ground surface, be of the same material as the tank and be provided with a substantial, fitted, watertight cover of concrete, steel, cast iron or other approved materials. Steel tanks shall have a minimum 2-inch collar for the manhole extensions permanently welded to the tank. The manhole extension on glass-fiber tanks shall be of the same material as the tank and an integral part of the tank. The collar shall have a minimum height of 2 inches.

d. An airtight inspection opening which may be either a manhole or a cast iron pipe at least 4 inches in diameter, shall be provided over the inlet baffle of all treatment tanks. The upper end of the inspection pipe shall terminate at or above ground surface. The manhole shall terminate not more than 6 inches below the ground surface.

(b) *Design of other treatment tanks.* 1. The design of other treatment tanks shall be considered on an individual basis. A complete description of the method of treatment to be performed in the treatment tank plus three complete sets of plans must be submitted to the department for each request for approval of the treatment tank. The installation of the tank shall be commenced only upon receipt of written approval by the department. The capacity, sizing

and installation of the tank shall be according to sections H 62.20 (4) (d) and H 62.20 (4) (e) unless the department specifies different sizing or installation requirements in its written approval of the treatment tank. The department may require such treatment tank to be preceded by a conventional septic tank. Credit will be given for the capacity of the septic tank in meeting the required capacity as listed in section H 62.20 (4) (c).

(c) *Capacity and sizing.* 1. Minimum capacity. The capacity of a septic tank or other treatment tank shall be based on the number of persons using the building to be served or upon the volume and type of waste. The minimum liquid capacity shall be 750 gallons except a 500 gallon septic tank may be used to serve a one bedroom residence.

2. Multiple tanks. When the required capacity is to be provided by more than one tank, the minimum capacity of any tank shall be 750 gallons. When 3 or 4 tanks are installed, approval of the design of the system shall be obtained from the department. The installation of more than 4 tanks in series is prohibited. Installation of septic tanks in parallel is prohibited.

3. Sizing of tank. a. The minimum liquid capacity for one- and two-family residences is as follows:

Septic Tank Capacity One- and Two-Family Residences

Number of Bedrooms	Septic Tank
1 -----	500
2 -----	750
3 -----	975
4 -----	1200
5 -----	1425
6 -----	1650
7 -----	1875
8 -----	2100

b. For buildings other than one- and two-family residences the liquid capacity shall be increased above the 750-gallon minimum as established in the following table. For such buildings having kitchen and/or laundry waste, the tank capacity shall be increased to receive the anticipated volume for a 24-hour period from the kitchen and/or laundry. The liquid capacities established in this table do not include employees.

Apartment buildings (per bedroom) -----	200 gals.
Assembly hall (per person - no kitchen) -----	2 "
Bars and cocktail lounges (per patron space) -----	9 "
Beauty salons (per station) -----	140 "
Bowling alley (per alley) -----	125 "
Bowling alley with bar (per alley) -----	225 "
Campgrounds and camping resorts (per camp space) -----	100 "
Campground sanitary dump stations (per camp space) (omit camp spaces with sewer connection) -----	15 "
Camps, day use only - no meals served (per person) -----	15 "
Camps, day and night (per person) -----	40 "
Car wash (automatic) - subject to state approval -----	
Car wash (per car handwash) -----	50 "
Catch basins - garages, service stations, etc. - (per basin floor clean up, etc.) -----	100 "
Catch basins - truck washing (per truck) -----	100 "
Churches - no kitchens (per person) -----	3 "

Churches - with kitchen (per person) -----	7.5 gals.
Condominiums (per bedroom) -----	200 "
Country clubs - subject to state approval-----	
Dance halls (10 sq. ft. per person) -----	3 "
Dining hall - kitchen and toilet waste (per meal served) -----	10 "
Dining hall - kitchen waste only (per meal served) -----	3 "
Dog kennels (per animal enclosure) -----	20 "
Drive-in restaurants - all paper service (per car space) -----	15 "
Drive-in restaurants - all paper service inside seating (per seat) -----	15 "
Drive-in theaters (per car space) -----	5 "
Employees - in all buildings, per employe - total all shifts -----	20 "
Hospitals (per bed space) -----	200 "
Hotels or motels and tourist rooming houses (per room - 2 persons per room) -----	100 "
Medical office buildings, clinics and dental offices	
Doctors, nurses, medical staff (per person) -----	75 "
Office personnel (per person) -----	20 "
Patients (per person) -----	10 "
Migrant labor camp, central bathhouse (per employee) -----	30 "
Mobile home parks, homes with bathroom groups (per site) -----	300 "
Nursing and rest homes (per bed space) -----	100 "
Parks, toilet wastes (per person - 75 persons per acre) -----	5 "
Parks, with showers and toilet wastes (per person - 75 persons per acre) ---	10 "
Restaurant - kitchen and toilet wastes (per seating space) -----	30 "
Restaurant (24-hr) - kitchen and toilet wastes (per seating space) -----	60 "
Restaurant - dishwasher and/or food waste disposer (per seat) -----	3 "
Restaurant (24-hr) - dishwasher and/or food waste disposer (per seat) ----	6 "
Retail store - customers (10 sq. ft. per person) -----	1.5 "
Schools (per classroom - 25 pupils per classroom) -----	450 "
Schools with meals served (per classroom - 25 pupils per classroom) -----	600 "
Schools with meals served and showers provided (per classroom) -----	750 "
Self-service laundries (toilet waste only, per machine) -----	50 "
Auto. washer, (apartments, service buildings, etc. - per machine) -----	300 "
Service stations (per car) -----	10 "
Swimming pool bathhouses (per person) -----	10 "

(d) *Installation of septic and other treatment tanks.* 1. Location. Septic and other treatment tanks shall not be installed within the interior foundation walls of a building nor shall a new building or addition to an existing building be constructed or located over, or within 5 feet of a tank.

2. Groundwater. If the tank is installed in groundwater adequate anchoring provisions shall be made.

3. Bedding. A 3-inch thick compacted bedding shall be provided for all septic and other treatment tank installations. The bedding material shall be sand, gravel, granite, limerock or other noncorrosive materials of such size that 100 percent will pass a 1/2-inch screen.

4. Backfill. a. The backfill material for steel and glass fiber tanks shall be as specified for bedding and shall be tamped into place, care being taken to prevent damage to the coating.

b. The backfill for concrete tanks shall be soil material, 100 percent of which shall pass a 4-inch screen and shall be tamped into place.

5. Piping. The inlet and outlet piping between a septic or other treatment tank and points 3 feet beyond the undisturbed ground surrounding the excavation made to install each tank and all piping connecting tanks shall be cast iron pipe or other pipe approved by the department for the specific purpose. The piping 3 feet beyond the undisturbed ground on the outlet side of the septic tank shall comply with the materials specified in section H 62.04 (2), Wis. Adm. Code.

The joints between pipe and tank openings shall be made with lead and oakum or other methods approved by the department.

6. Manhole riser joints. a. Concrete. All joints on concrete risers and manhole covers shall be tongue and groove or shi lap type and sealed watertight using neat cement, mortar or bituminous compound.

b. Steel. All joints on steel risers shall be welded or flanged and bolted and be watertight. All steel manhole extensions shall be bituminous coated inside and outside.

c. Glass-fiber. All methods of attaching glass-fiber risers shall be watertight and approved by the department.

(5) SOIL ABSORPTION SYSTEM - INITIAL INSTALLATION. (a) *Disposal of tank effluent.* The effluent from septic tanks and other approved treatment tanks shall be disposed of by soil absorption systems or by such other manner approved by the department and with the concurrence of the department of natural resources for the specific installation.

(b) *Method of discharge.* For 6-bedroom one- or two-family residences or facilities having a daily effluent application of 1500 gallons or less, flow from the septic or treatment tank to the soil absorption system may be gravity or pressure. For all other systems the tank effluent must be discharged by pumping or by use of an automatic siphon.

**Note:** The dosing of effluents is recommended for all systems.

(c) *Dosing or pumping chamber - sizing and construction and pumping equipment.* The working capacity of the dosing or pumping chamber shall be sized to permit automatic discharge of the total daily sewage flow with discharge occurring no more than 4 times per 24 hours. Dosing or pumping chamber construction shall meet the same general criteria as specified for septic tanks in relationship to materials and fabrication. Dosing or pumping chambers shall be provided with a minimum 4-inch vent extended at least 12 inches above final grade and terminate with an approved vent cap and be a minimum of 25 feet from a door, window or fresh air intake. The automatic siphons and pumping equipment shall be department approved.

(d) *Sizing - general.* For systems having a daily effluent application of 5000 gallons or less, sizing shall be in accord with subsections H 62.20 (5) (e) and (f) below. For systems receiving effluents in excess of 5000 gallons per day, subsections H 62.20 (5) (e) and (f) below shall apply except that 2 systems of equal size shall be required. Each system shall have a capacity of no less than 75 percent of the required area. A suitable means of alternating waste application shall be provided. The dual system shall be considered as one system.

(e) *Sizing - residential.* The bottom area for seepage trenches or beds or the side wall area for seepage pits required for a soil absorption system serving residential property shall be determined from the following table using soil percolation test data and type of construction:

Percolation Class	Percolation Rate Minutes Required for Water to Fall One Inch	Minimum Absorption Area in Square Feet			
		Public Buildings		Residential Property per bedroom	
		Seepage Trenches or Pits	Seepage Beds	Seepage Trenches or Pits	Seepage Beds
Class 1	0 to 10	110	140	165	205
" 2	10 to 30	165	205	250	315
" 3	30 to 45	200	250	300	375
" 4	45 to 60	220	280	330	415

(f) *Sizing - other.* The required bottom area for seepage trenches or beds or the side wall area for seepage pits for a soil absorption system serving public buildings shall equal the absorption area specified in section H 62.20 (5) (e) for public buildings according to the percolation test results and type of construction multiplied by the applicable unit specified in column 2, multiplied by the applicable factor in column 3 of the following table. The effluent disposal factor established in this table does not include employees.

Column 1	Column 2	Column 3
Building Classification	Units	Factor
Apartment building	1 per bedroom	1.0
Assembly hall - no kitchen	1 per person	0.02
Bar and cocktail lounge	1 per patron space	0.2
Beauty salon	1 per station	2.4
Bowling alley	1 per bowling lane	2.5
Bowling alley with bar	1 per bowling lane	4.5
Camp, day use only	1 per person	0.2
Camp, day and night	1 per person	0.45
Campground and camping resort	1 per camping space	0.9
Campground and sanitary dump station	1 per camping space	0.2
Car wash (automatic)	Subject to state approval	
Car wash (per car handwash)	1 per car	1.0
Catch basin - garages, service stations, etc. (floor cleanup)	1 per basin	2.0
Catch basin - truck wash	1 per truck	5.0
Church - no kitchen	1 per person	0.04
Church - with kitchen	1 per person	0.09
Condominium	1 per bedroom	1.0
Dance hall	1 per person	0.06
Dining hall - kitchen and toilet	1 per meal served	0.3
Dining hall - kitchen only	1 per meal served	0.15
Dog kennel	1 per animal enclosure	0.4
Drive-in restaurant (all paper service)	1 per car space	0.3
Drive-in restaurant (inside seating)	1 per seat	0.3
Drive-in theater	1 per car space	0.1
Employees - in all buildings	1 per person	0.4
Hotel or motel and tourist rooming house	1 per room	0.9
Hospital	1 per bed space	2.0
<b>Medical office buildings, clinics and dental offices</b>		
Doctors, nurses and medical staff	1 per person	0.8
Office personnel	1 per person	0.25
Patients	1 per person	0.15
Migrant labor camp - central bathhouse	1 per employee	0.25
Mobile home park	1 per mobile home site	3.0
Nursing or rest homes	1 per bed space	1.0
Park - toilet waste only	1 per acre	4.0
Park - showers and toilets	1 per acre	8.0
Restaurant - kitchen and toilet	1 per seating space	0.6
Restaurant - (24-hr) kitchen and toilet	1 per seating space	1.2



Restaurant with dishwasher and/or food waste disposer	1 per seating space	0.75
Restaurant - (24-hr) with dishwasher/dispenser	1 per seating space	1.5
Retail store	1 per customer	0.03
Self-service laundry - toilet wastes only	1 per machine	1.0
Auto washer (apartments, service bldgs., etc.)	1 per machine	6.0
Service station	1 per car served	0.15
Swimming pool bathhouse	1 per person	0.2
School - no meals, no showers	1 per classroom	5.0
School - meals served or showers	1 per classroom	6.7
School - meals and showers	1 per classroom	8.0

(g) *Installation - seepage trench or bed systems.* 1. A seepage trench or a seepage bed shall have a depth to the top of the distribution pipe of 12 to 42 inches measured from the finished grade.

**Note:** A shallow seepage trench system is preferred in all cases.

2. The bottom of the seepage trench shall be level with seepage trench excavations from one to 5 feet in width. The absorption area of a seepage trench shall be computed by using the bottom area only. Trench excavations shall be spaced at least 6 feet apart. The distribution header shall be constructed of approved solid wall pipe and the bottom area of the header excavation shall not be computed as absorption area. The individual seepage trenches should preferably not be over 100 feet long. Equal distribution of effluents shall be made to all seepage trenches.

3. Seepage beds shall be level and meet the requirements of a seepage trench except that the excavation is more than 5 feet wide and has more than one distribution pipe line. Distribution piping in a seepage bed shall be uniformly spaced no more than 6 feet and no less than 3 feet apart and no more than 3 feet or less than one foot from the sidewall. The distribution header shall be constructed of approved solid wall pipe.

4. Seepage trenches or beds shall not be excavated when the soil has a plastic consistency at moist or wet conditions.

5. All smeared or compacted surfaces in the seepage trench or bed shall be scarified to the depth of the compaction and the loose material removed.

6. Distribution piping for gravity systems shall be a minimum of 4-inch I.D. approved perforated cement asbestos, concrete, clay tile, bituminous fiber or plastic. The top of the distribution piping shall be laid 12 to 42 inches below the surface in continuous straight or curved lines at a slope of 2 to 4 inches per 100 feet.

7. Fresh air inlets of cast iron shall be provided and connected to the perforated distribution pipe with an approved fitting or junction box and be placed so as to assure a free flow of air throughout the entire installation. The vent pipes shall be at least 4 inches in diameter and extend at least 12 inches above the final grade and terminate with an approved vent cap. Fresh air inlets shall be located at least 25 feet from any window, door or air intake of any building used for human habitation. A maximum of 4 distribution pipe lines may be served by one common 4-inch vent when interconnected by a common header pipe.

8. A minimum of 12 inches of washed, graded, hard rock or similar aggregate ranging in size from 3/4 to 2-1/2 inches shall be laid into

the trench or bed below the distribution pipe elevation and such aggregate shall be evenly distributed a minimum of 2 inches over the top of the distribution pipe. The aggregate shall be covered with untreated building paper or 2 inches of marsh hay or equal. The first 4 to 6 inches of soil backfill shall be hand filled.

9. Where dosing is required the siphon or pump shall discharge a minimum capacity equal to 75% of the combined volume of the distribution piping in the absorption system. See section H 62.20 (5) (d).

(h) A seepage pit shall have a minimum inside diameter of 5 feet and shall consist of a chamber walled-up with material such as a perforated precast concrete ring, concrete block, brick or other material approved by the department which allows effluent to percolate into the surrounding soil. Seepage pits shall be located 6 feet or more apart. The pit bottom shall be left open to the soil. Washed graded hard rock or similar aggregate 3/4 to 2-1/2 inches in size shall be placed into a 6-inch minimum annular space separating the outside wall of the chamber and sidewall excavation. Depth of the annular space shall be measured from the inlet pipe to the bottom of the walled-up chamber. Each seepage pit shall be provided with a 24-inch manhole extending within 6 inches of the ground surface and a 4-inch fresh air inlet which shall meet the requirements of section H 62.20 (5) (g) 7. Excavation and scarifying shall be in accord with section H 62.20 (5) (g) 5. The effective area of a seepage pit shall be the vertical wall area of the walled-up chamber for the depth below the inlet for all strata for which the percolation rates are less than 30 minutes per inch. Six inches of annular opening outside the vertical wall area may be included for determination of effective area. The following table may be used for determining the effective sidewall area of circular seepage pits:

Effective Absorption Area Seepage Pit \*

Inside diameter of walled-up chamber in feet *	Depth of Permeable Strata Below Inlet					
	3	4	5	6	7	8
7-----	75	101	126	151	176	201
8-----	85	113	142	170	198	226
9-----	94	126	157	188	220	251
10-----	104	138	173	208	242	277
12-----	123	163	204	245	286	327

\* The 6-inch annular opening credit is included.

(6) SOIL ABSORPTION SYSTEM—REPLACEMENT. (a) *Approval*. The department shall be contacted for approval of replacement systems for all public buildings and all buildings where site conditions do not permit systems in accord with this section.

(b) *Effluent disposal*. Alternates for the disposal of effluents emanating from existing structures may be accomplished by means other than outlined in this section provided written local approval is obtained and submitted along with detailed plans and specifications to the department for review and consideration. Written approval shall be received from the department prior to commencing the improvements or work on these systems.

(7) **MAINTENANCE AND SLUDGE DISPOSAL.** (a) *Maintenance.* Septic tanks shall be cleaned whenever the sludge and scum occupies 1/3 of the tank volume. All sludge, scum, liquid and any other material removed from a private domestic sewage treatment and disposal system is hereafter referred to as sludge.

(b) *Sludge disposal.* See Wis. Adm. Code chapter NR 113.

(8) **CHEMICAL RESTORATION.** The chemical restoration of effluent disposal systems shall be approved by the department.

(9) **HOLDING TANKS.** (a) *Approval.* 1. Holding tanks shall be considered on an individual basis. Three complete sets of plans, as required in section H 62.20 (1) (c) 4., shall be submitted to the department for each request to install a holding tank.

2. *Sizing.* a. The minimum liquid capacity of a holding tank for one- and two-family residences is as follows:

Number of Bedrooms	Holding Tank
1 -----	1000
2 -----	1500
3 -----	2000
4 -----	2500
5 -----	3000
6 -----	3500
7 -----	4000
8 -----	4500

b. Public buildings shall have a minimum 5-day holding capacity but not less than 1000 gallons. Sizing shall be based in accord with section H 62.20 (4) (c) 3. b.

*Note:* The 750 gallon minimum referred to in section H 62.20 (4) (c) 3. b. does not apply to holding tanks.

3. **Agreement.** A signed agreement between local government and owner to guarantee the pumping and transport of the holding tank contents to a disposal site meeting the requirements of Wis. Adm. Code chapter NR 113, provided it becomes necessary to prevent or abate a nuisance as described in sections 146.13 and 146.14, Wis. Stats., or if the owner does not pump and transport in response to orders from local government, shall be submitted to the department for review and approval. The agreement shall be binding on the owners, their heirs and assignees. The installation of the holding tank shall be made in accord with the following criteria.

(b) *Installation.* 1. **Materials.** The tank shall be constructed of material approved by the department.

2. **Location.** Tanks shall be located in accord with section H 62.20 (2) (d) except the tanks shall be 20 feet from a building or its appendage.

3. **Warning device.** A high water warning device shall be installed. This device shall be either an audible or an indoor illuminated alarm. If the latter, it shall be conspicuously mounted.

4. **Manhole.** Each tank shall be provided with a manhole opening no less than 24 inches square or 24 inches in diameter extending to

ground surface. Each manhole cover shall have an effective locking device.

5. Septic tank. If an approved septic tank is installed to serve as a holding tank, the inlet and outlet baffles shall be removed and the outlet sealed.

6. Vent. Each tank shall be provided with a minimum 2-inch fresh air inlet extending 12 inches above final grade terminating with a return bend fitting and a minimum of 25 feet from a door, window or fresh air inlet.

7. Servicing. Holding tanks shall be serviced in accord with chapter 146, Wis. Stats., and Wis. Adm. Code chapters H 62 and NR 113.

8. Before any holding tank is purchased or installed a state septic tank permit shall be obtained in accord with section 144.03, Wis. Stats.

(10) SEVERABILITY. Should any section, paragraph, phrase, sentence, clause or word of this chapter be declared invalid or unconstitutional for any reason, the remainder of this chapter shall not be affected thereby.

History: 1-2-56; am. (1) (f), Register, June, 1956, No. 6, eff. 7-1-56; am. (2) (a), (2) (b), (2) (c) 2, Register, February, 1957, No. 14, eff. 3-1-57; am. (1) (b), (d) and (e), Register, April, 1962, No. 76, eff. 10-1-62; r. and recr. Register, November, 1969, No. 167, eff. 12-1-69; am. (5) (d) 2. e., Register, October, 1971, No. 190, eff. 11-1-71; r. and recr. (2) (b), Register, November, 1972, No. 203, eff. 12-1-72; r. and recr. Register, July, 1976, No. 247, eff. 8-1-76.

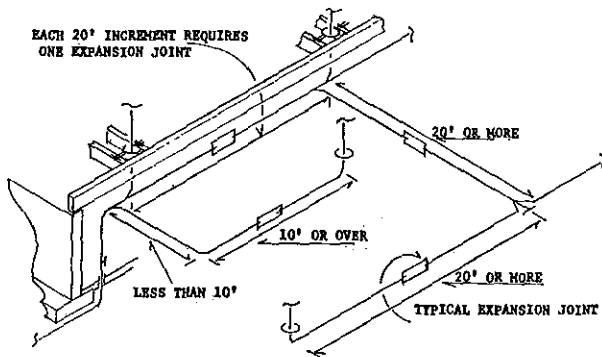
**H 62.21 Hangers and supports.** (1) GENERAL. All piping in a plumbing system shall be installed without undue strains and stresses and provisions shall be made for expansion, contraction and structural settlement and backgrounds where necessary.

(2) PIPE SUPPORTS. (a) *Stacks*. All pipes shall be supported so that alignment is retained and the weight of the pipes shall not bear upon a caulked joint, except where the spigot end of one vertical pipe rests in the hub end of the next lower vertical pipe. All vertical stacks extending 3 floors or more in height shall be supported on concrete or masonry piers. All vertical piping shall be provided with an approved support at each floor or approximately every 10 feet.

(b) *Pipe supports—water distribution*. 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 and/or sags in water piping shall be avoided where possible. When unavoidable, such sags, traps or inverts shall have provisions for properly draining same.

(3) HANGERS. (a) All horizontal piping above the floor shall be supported or anchored by approved wall brackets, copper, iron or steel hangers, concrete or masonry piers set at intervals not to exceed 10 feet. Cast iron pipe shall be supported at the joint and intervals not to exceed 5 feet. Copper tubing shall be supported at approximately 6 feet for piping 1¼ inches inside diameter and less, and at intervals not to exceed 10 feet for piping 1½ inches inside diameter and larger. Lead pipe shall be supported in its entirety. Bracket, hanger and support materials in contact with the pipe or tubing shall be compatible. Plastic DWV piping shall be supported at intervals of not

more than 4 feet, at the end of branches and change of direction or elevation. Supports shall allow free movement. Vertical piping shall be maintained in a straight alignment. Support trap arms in excess of 3 feet in length as close as possible to the trap. Closet rings shall be securely fastened with corrosive resistant fasteners to the floor. Closet bends or stubs shall be stabilized against all horizontal or vertical movement. Pipe exposed to damage by sharp surfaces shall be protected with grommets or sleeves of rubber or plastic. Hangers and straps shall not compress, distort, cut or abrade the piping and shall allow free movement of pipe. All horizontal piping exceeding 20 feet in length shall have an approved ABS or PVC expansion joint installed. See following sketch.



Next page is numbered 276c.



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

American Water Works Association  
2 Park Avenue, New York, New York 10016

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

Cast Iron Soil Pipe Inst.  
2029 K St. NW  
Washington, D. C. 20006

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

**History:** Cr. Register, November, 1972, No. 203, eff. 12-1-72.

**H 62.25 Examination of plans and specifications.** (1) **PLAN EXAMINATION REQUIRED.** Plans and specifications for plumbing to be installed in and/or outside of all buildings, structures, parks, areas or complexes in the following classifications shall be submitted to the department and written approval received before commencing work. The department shall immediately acknowledge receipt of all plans and specifications. The department may issue a permit to commence work provided plan review is not completed within 30 days. The issuance of a permit shall not be construed as plan approval or approval for non-code complying designs or installations. All non-code complying portions of the plumbing system installed prior to complete plan review under this permit shall be removed or replaced.

(a) *Health care and related facilities.* See Wis. Adm. Code section H 62.15 (1) and (2).

(b) *Theaters and assembly halls.*

(c) *Schools and other places of instruction.*

(d) *Apartment buildings, hotels, motels, resorts and places of detention.*

(e) *State or municipally owned buildings.*

(f) *Reduced pressure zone principle type backflow preventers.* See Wis. Adm. Code section H 62.24 (2) (a).

(g) *Controlled roof drainage systems.* See Wis. Adm. Code section H 62.05 (4).

(h) *Factories, offices and mercantile buildings.*

(i) *Mobile and manufactured homes.*

(j) *Mobile home parks, water and sewerage systems.* See Wis. Adm. Code section H 62.17 (1) (a).

(k) *Private interceptor main sewers.* See Wis. Adm. Code section H 62.02 (90) (b).

(l) *Private domestic sewage treatment and disposal systems serving public buildings and experimental systems serving all buildings.* See Wis. Adm. Code section H 62.20 (1) (c).

(2) **PLAN SUBMISSION.** (a) *Stamping and signing plans.* All plans and specifications shall be sealed or stamped in accord with chapter A—E 1,

Wis. Adm. Code by a registered architect, engineer or registered plumbing designer. A master plumber may design and submit for approval plumbing plans and specifications for a plumbing system which he is to install. Each sheet of plans and specifications the master plumber submits shall be signed, dated and include his Wisconsin master plumber license number. Where more than one sheet is bound together into one volume, only the title sheet or index sheet need be signed and dated by the master plumber responsible for their preparation, provided the signed sheet clearly identifies all of the other sheets comprising the bound volume.

(b) *Submission data.* All plans, preliminary or complete, shall be submitted in duplicate with the exception of plans relating to private sewage disposal systems serving public buildings which shall be submitted in triplicate. Work shall not commence until written approval for the preliminary or complete plans is received from the department. The plans submitted shall be prints that are clear, legible and permanent. All pertinent data shall be a part of or shall accompany all plans submitted for review. Plans will be examined in the order of receipt.

(c) *Additions and alterations.* This section shall apply to all additions and alterations exceeding 3 plumbing fixtures as well as to all new buildings and shall also apply to all cases where there is a change of the type of occupancy or use of a building which requires changes to or intended use of the plumbing so as to comply with this chapter for that occupancy or use.

(d) *Agent municipalities.* Examination of plans, specifications and calculations for the following type buildings and alterations to these buildings located in those municipalities shall be submitted to the municipality designated in (d) below for plan examination and approval according to requirements of Wis. Adm. Code chapter H 62. Municipalities designated to perform plan examinations may set, by ordinance, plan examination fees. All other plans and specifications as listed in Wis. Adm. Code section H 62.25 (1) shall be submitted to the department for examination.

1. Appleton
  - a. Theaters and assembly halls.
  - b. Schools and other places of instruction except state-owned schools.
  - c. Apartment buildings, hotels, motels, resorts and places of detention.
  - d. Factories, offices and mercantile buildings.
  - e. Private interceptor main sewers.
2. Dane county
  - a. Private domestic sewage treatment and disposal systems serving public buildings.
3. Green Bay
  - a. Theaters and assembly halls.
  - b. Schools and other places of instruction except state-owned schools.



- c. Apartment buildings, hotels, motels, resorts and places of detention.
- d. Factories, offices and mercantile buildings.
- e. Private interceptor main sewers.
- 4. Madison
  - a. Theaters and assembly halls.
  - b. Schools and other places of instruction except state-owned schools.
  - c. Apartment buildings, hotels, motels, resorts and places of detention.
  - d. Factories, offices and mercantile buildings.
  - e. Private interceptor main sewers.
- 5. Manitowoc
  - a. Theaters and assembly halls.
  - b. Schools and other places of instruction except state-owned schools.
  - c. Apartment buildings, hotels, motels, resorts and places of detention.
  - d. Factories, offices and mercantile buildings.
  - e. Private interceptor main sewers.
- 6. Milwaukee
  - a. Theaters and assembly halls.
  - b. Schools and other places of instruction except state-owned schools.
  - c. Apartment buildings, hotels, motels, resorts and places of detention.
  - d. Factories, offices and mercantile buildings.
  - e. Private interceptor main sewers.
- 7. Muskego
  - a. Theaters and assembly halls.
  - b. Schools and other places of instruction except state-owned schools.
  - c. Apartment buildings, hotels, motels, resorts and places of detention.
  - d. Factories, offices and mercantile buildings.
  - e. Private interceptor main sewers.
- 8. Racine
  - a. Theaters and assembly halls.
  - b. Schools and other places of instruction except state-owned schools.

c. Apartment buildings, hotels, motels, resorts and places of detention.

d. Factories, offices and mercantile buildings.

e. Private interceptor main sewers.

9. Sheboygan

a. Theaters and assembly halls.

b. Schools and other places of instruction except state-owned schools.

c. Apartment buildings, hotels, motels, resorts and places of detention.

d. Factories, offices and mercantile buildings.

e. Private interceptor main sewers.

10. Two Rivers

a. Theaters and assembly halls.

b. Schools and other places of instruction except state-owned schools.

c. Apartment buildings, hotels, motels, resorts and places of detention.

d. Factories, offices and mercantile buildings.

e. Private interceptor main sewers.

(3) **PLAN EXAMINATION FEES.** (a) *Applicability.* 1. Fees. Plan examination fees for preliminary or complete plans shall accompany the plans and specifications when submitted. If the department determines upon review of the plans that inadequate fees were provided, the necessary additional fee shall be provided prior to departmental approval. Written approval shall not be granted until all applicable fees have been paid.

2. Fee adjustment. Examination fees may be adjusted biennially commencing on July 1, 1975 in direct proportion with the salary increases granted staff review personnel.

(b) *Examination fees.* The plan examination fee shall be:

1. Plan examination fees for public buildings will be determined by the size of building sewers, \$15 per inch diameter of each building sewer.

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

a. 1-25 sites—\$25.

b. 26-50 sites—\$50.

c. 51-125 sites—\$75.

d. Over 126 sites—\$100.

3. Mobile and manufactured homes, each model, \$35.

4. Controlled roof drainage systems.
  - a. If included in general plumbing plans, \$15.
  - b. If submitted separately, \$20.
5. Acid waste piping systems.
  - a. If submitted in general plumbing plans, \$15.
  - b. If submitted separately, \$20.
6. Reduced pressure zone principle type backflow preventers, \$20.
7. Private domestic sewage treatment and disposal systems.
  - a. 500-1500 gallon septic tank—\$15.
  - b. 1501-2500 gallon septic tank—\$20.
  - c. 2501-4000 gallon septic tank—\$25.
  - d. 4001-8000 gallon septic tank—\$35.
  - e. 8001-12,000 gallon septic tank—\$40.
  - f. Over 12,000 gallon septic tank—\$50.
  - g. 500-5000 gallon holding tank—\$10.
  - h. 5001-10,000 gallon holding tank—\$15.
  - i. Over 10,000 gallon holding tank—\$20.
8. Private interceptor main sewers, sanitary and/or storm, \$5 per inch diameter, the fee being determined on the largest diameter of each interceptor main sewer.

(c) *Reproduction fee.* If the correct number of plans or specifications have not been submitted, a minimum reproduction fee of \$5 per set will be charged except that reproductions exceeding \$5 per set will be charged actual costs. Reproduction fees will be charged to the party submitting the plans.

(4) **REVISIONS.** After written approval is granted, plans and specifications of plumbing systems shall not be changed without written consent of the department and the architect, engineer, designer or master plumber responsible for the design.

(5) **LIMITATIONS.** In granting approval of plans, specifications, products, devices or materials, the department does not hold itself liable for any defects in construction, nor for any damages that may result from the specific installation.

(6) **PLAN AVAILABILITY.** The architect, professional engineer, registered designer, owner or plumbing contractor shall keep at the construction site one set of plans bearing the stamp of approval of the department.

**History:** Cr. Register, October, 1974, No. 226, eff. 11-1-74; am. (2) (d), Register, April, 1976, No. 244, eff. 5-1-76.