H 61, 62

State of Wisconsin \ DEPARTMENT OF HEALTH AND SOCIAL SERVICES

DIVISION OF HEALTH
MAIL ADDRESS: P. O. BOX 309
MADISON, WISCONSIN 53701

IN REPLY PLEASE REFER TO:

September 24, 1970

Mr. James J. Burke
Revisor of Statutes
321 Northeast, State Capitol
Madison, Wisconsin

Dear Mr. Burke:

As provided in Section 227.023, Wisconsin Statutes, there is hereby submitted a certified copy of Chapter H 61, Wisconsin Administrative Code, pertaining to apprenticeship and licensing of plumbers and Sections H 62.01-62.06, Wisconsin Administrative Code, pertaining to basic plumbing principles, plumbing definitions, approval on experimental basis, fixture unit design basis , building sewers and building drains, as adopted by the Department of Health & Social Services Board on September 23, 1970.

These rules are also being submitted to the Governor pursuant to Section 14.225, Wisconsin Statutes, and to the Secretary of State as required by Section 227.023, Wisconsin Statutes.

It is hoped that the rules can be published in the October 1970 edition of the Wisconsin Administrative Register and become effective on November 1, 1970.

Respectfully submitted,

E. H. Jorris M.D.

E. H. Jorris, M.D.
State Health Officer

EHJ:ew
Enclosures

STATE OF WISCONSIN)
) ss
DEPARTMENT OF HEALTH AND SOCIAL SERVICES)

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

I, Wilbur J. Schmidt, Secretary of the Department of Health and Social Services and custodian of the official records of said department, do hereby certify that the amendments to rules and regulations, relating to apprenticeship and licensing of plumbers and basic plumbing principles, plumbing definitions, approval on experimental basis, fixture unit design basis, building sewers and building drains, were duly approved and adopted by this department on September 23, 1970.

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

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the official seal of the department in the city of Madison, this 24th day of September, 1970.

Wilbur J. Schmidt
Secretary
Department of Health & Social Services

Seal

The rules contained herein shall take effect on November 1, 1970 as provided in Section 227.026(1), Wisconsin Statutes, subject to the provisions of Section 14.225, Wisconsin Statutes.

Wilbur J. Schmidt
Secretary
Department of Health & Social Services

Dated September 24, 1970

Seal

ORDER OF THE DEPARTMENT OF HEALTH & SOCIAL SERVICES ADOPTING RULES

Pursuant to authority vested in the Department of Health and Social Services in Section 140.05, Wisconsin Statutes, and in accordance with Chapter 227, Wisconsin Statutes, the following rules are hereby promulgated.

Chapter H 61 and Sections H 62.01-62.05, and Section H 62.23 of the WISCONSIN ADMINISTRATIVE CODE are repealed.

Chapter H 61 and Sections H 62.01-62.05 of the WISCONSIN ADMINISTRATIVE CODE are recreated to read:

filed 9/29/70

Chapter H 62

RULES AND REGULATIONS GOVERNING THE DESIGN, CONSTRUCTION, INSTALLATION, SUPERVISION AND INSPECTION OF PLUMBING

SECTION H 62.01

BASIC PLUMBING PRINCIPLES

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 watermain, 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) In multiple dwellings provided with a drainage system, there shall be at least one private water closet and one wash basin for each family. Installation of a kitchen sink and bathtub or shower is recommended.

(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.

SECTION H 62.015

APPROVAL ON EXPERIMENTAL BASIS

H 62.015 Approval on experimental basis. Materials, fixtures, appurtenances, devices, appliances, system designs and layouts other than those set forth in this code may be approved by the division administrator for specific installations or for experimental use or for trial purposes.

SECTION H 62.02

PLUMBING DEFINITIONS

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 two 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 two or three compartment laundry tray in one unit.

(36) CONDUCTORS. The system of roof leaders, down spouts 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-CONNECT . Any physical connection or arrangement between two otherwise separate pipin; ystems, 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 receptacle, 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 structure mounted on a wheeled chassis designed for highway transport. When placed upon, fastened or affixed to a foundation, pillars or like support, or when exceeding 45 feet in length, the structure shall be considered as a building or housing unit. See sec. 348.07 (2) Wis. Stats.

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

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

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

(82) 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.

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

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

(85) SEWAGE. The water carried wastes (organic) created in and to be conducted away from residences, industrial establishments and public buildings. See domestic wastes.

(86) 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 Sec. 144 of the Wis. Stats.

(87) 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, cement asbestos or short lengths of clay or concrete drain tile.

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 watertight 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.

(88) 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. The minimum building drain extends from the building sewer to all soil stacks.

3. Building drain. (Waste pipe). 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.

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 subdrains, 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.

(89) SEWER (PRIVATE). A privately owned sewer.

(90) SEWER (PUBLIC). A publicly owned sewer.

(91) 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.

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

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

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

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

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

(97) SPECIAL WASTE PIPE. Piping which conveys special wastes.

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

(99) 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.

(100) 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.

(101) STILL. A device used in distilling liquids.

(102) 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.

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

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

(105) 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.

(106) 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.

(107) 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 integral 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.

(108) 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.

(109) 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.)

(110) 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 piping 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 two or more fixture traps which discharge to a nearly horizontal soil or waste branch and extends from the downstream side of the furthermost 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.

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

(112) 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.

(113) 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.

(114) 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.

(115) 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.

(116) 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.

(117) 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.

(118) 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
228 Standard 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
Government 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 Valve 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

SECTION H 62.03

FIXTURE UNIT DESIGN BASIS

H 62.03 Fixture unit design basis. (1) INTERMITTENT FLOW FIXTURES. The fixture unit value and the size of traps, vents, and piping shall be as designated in the following table for any fixture named therein. For fixtures not included in the following table, contact the department for the fixture value rating. Equivalent value for other intermittent operating fixtures shall be one fixture unit for each 7.5 gallons per minute of flow rate.

Table 1

Type of Fixture	Unit Value	Trap Minimum Size Inches	Soil or Waste Minimum Size Inches	Vent Minimum Size Inches
Automatic clothes washers,				
Commercial (individual)----------	4	2	2	1 1/2
Commercial (large capacity)*--------				
Residential----------	3	1 1/2	1 1/2	1 1/2
Bathtubs, all types**----------	3	1 1/2	1 1/2	1 1/2
Bed Pan Washer----------	6	2	3	2
Bidet----------	2	1 1/4	1 1/2	1 1/2
Cuspidor, fountain or dental----------	1	1 1/4	1 1/4	1 1/4
#Dishwasher (commercial)***----------				
#Dishwasher (residential)----------	4	1 1/2	1 1/2	1 1/2
Drinking fountain----------	1	1 1/4	1 1/4	1 1/4
Drinking fountain (refrigerated)------	1/2	1 1/4	1 1/4	1 1/4
Floor Drain,				
2 inch----------	3	2	2	1 1/2
3 inch or larger****----------	4	3	3	2
Laundry tray----------	3	1 1/2	1 1/2	1 1/2
#Refrigerated cases----------	1	1 1/2	1 1/2	1 1/2
Shower stall, each head----------	4	2	2	1 1/2
Sinks,				
Cup----------	1	1 1/4	1 1/4	1 1/4
Factory wash-up----------	4	1 1/2	1 1/2	1 1/2
Fountain or bar----------	3	1 1/2	1 1/2	1 1/2
Food waste disposers (commercial)---	2 HP or less	1 1/2 or 2	2	1 1/2
Food waste disposers (commercial)---	3 HP or more	3	3	2
Laboratory----------	2	1 1/2	1 1/2	1 1/2
Laboratory, school----------	2	1 1/2	1 1/2	1 1/2
Classroom juvenile----------	2	1 1/4	1 1/2	1 1/2
Pack or plaster----------	4	2	2	1 1/2

Type of Fixture	Unit Value	Trap Minimum Size Inches	Soil or Waste Minimum Size Inches	Vent Minimum Size Inches
Residential (with or without F.W.G.)	4	1 1/2	1 1/2	1 1/2
Restaurant,				
Scullery, pots & pans----------	4	2	2	1 1/2
Food, rinsing, cleaning or thawing	3	1 1/2	1 1/2	1 1/2
Service sink, flushing rim----------	6	3	3	2
Service sink, wall outlet----------	4	2	2	1 1/2
Service sink, wall outlet----------	4	3	3	2
Service sink, floor outlet----------	4	2	2	1 1/2
Service sink, floor outlet----------	4	3	3	2
Shampoo sink, barber or beauty parlor----------	2	1 1/4 or 1 1/2	1 1/2	1 1/2
Surgeons, wash-up----------	3	1 1/2	1 1/2	1 1/2
Sterilizer,				
Bed pan----------	4	2	2	1 1/2
Garbage can washers----------	3	3	3	1 1/2
#Instrument or water----------	1	1 1/4	1 1/4	1 1/4
Urinal,				
Men----------	4	2	2	2
Women----------	6	2 1/2	3	2
#Vegetable display cases----------	2	1 1/2	1 1/2	1 1/2
Wash basin----------	1	1 1/4	1 1/2	1 1/4
Water closet, tank type----------	6	2	3	2
Water closet, flush valve----------	8	2	3	2

* Based on discharge rate (See Section H 62.03 (2).)
** Includes foot, Sitz and infant baths and regular bathtubs with or without showers.
*** Based on discharge rates and number of outlets, 4" trap and waste pipe minimum recommended.
**** Trap and waste pipe sizes to correspond to floor drains.
# Requires air-gap discharge.

(2) CONTINUOUS FLOW FIXTURES. Fixtures such as pumps and ejectors from which there is continuous or semi-continuous discharge shall have a fixture unit value of one for each one gallon per minute of flow.

(3) UNIT CAPACITY AND LENGTH OF SANITARY PIPING. The number of fixture units connected to any stack, branch or vent and the length of piping shall not exceed that shown in the following table for a given diameter of pipe. After maximum length of vent for any given pipe size is reached, the diameter of the pipe shall be increased to the next size.

Table 2

Fixture Unit Capacity and Maximum Water Closets or Like Fixtures on Soil, Waste or Vent Pipe

Pipe	Soil or Waste				Vent	
Diameter (Inches)	Fix. Units on Vertical Pipe	Water Closets or Like Fixtures on Vertical Pipe	Fix. Units on Horizontal Pipe	Water Closets or Like Fixtures on Horizontal Pipe	Fix. Units on Vent (See limitations)	Maximum Length Vent (in feet)
1 1/4	1		1		1	50
1 1/2	8		4		12	65
2	18		9		24*	85
2 1/2	40		20		60*	105
3	50	2	25*	1	126**	212
4	252	33	126	17	252	300
5	680	80	340	40	680	390
6	1,380	120	690	60	1,380	510
8	3,600	225	1,800	112	3,600	750
10	7,600	400	3,800	200	7,600	---
12	12,000	575	6,000	288	12,000	---

* Limitation of one 6 or 8 fixture unit fixture.
** Limitation of six 6 or 8 fixture unit fixtures.

Table 3

Gravity Condensation Drains
Total Number of Connections

Drain Outlet Size	Indirect Main Waste Size							Assigned Fixture Unit Value
	3/4	1	1 1/4	1 1/2	2	2 1/2	3	
1/2	2	4	6	9	16	25	36	0 - 1/4
3/4	1	1	3	4	7	11	16	0 - 1/2
1	0	1	1	2	4	6	9	0 - 3/4
1 1/4	0	0	1	1	2	4	6	1
1 1/2	0	0	0	1	2	3	4	2
2	0	0	0	0	1	1	2	5
2 1/2	0	0	0	0	0	1	1	9
3	0	0	0	0	0	0	1	14

SECTION H 62.04

BUILDING SEWERS

H 62.04 Building sewers. (1) PREMISES SERVED. The interior plumbing of each building shall be entirely separate from and independent of that of any other building. All sanitary, storm drainage or special type drainage systems shall be connected, by means of independent connections, with a public or private disposal system.

(a) Private sewage and storm disposal systems shall be disconnected when public sewers become available to a property. The drainage system shall then be connected to the public system.

(b) When a building is razed or otherwise demolished, the building sewers shall be sealed at the property line.

(2) MATERIALS. All building sewers shall be constructed of cast iron, vitrified clay, concrete, cement asbestos or bituminous fiber pipe or other materials approved by the department for restricted, tentative or experimental use.

(3) SIZE. (a) Sanitary sewer. The size of the building sewer shall be determined by the total number of drainage fixture units tributary thereto. The diameter of the building sewer shall be equal to or greater than the size of the building drain. The minimum size of a building sanitary sewer shall be 4 inches. The following table shall apply to sanitary building sewers and building drains.

Table 4

Diameter of Pipe (inches)	Maximum Number of Fixture Units		
	1/8" per ft. slope	1/4" per ft. slope	1/2" per ft. slope
4	115	150	210
5	270	370	540
6	510	720	1,050
8	1,290	1,860	2,640
10	2,520	3,600	5,250
12	4,390	6,300	9,300

(b) Storm sewer. The required size of building storm sewers, other exterior drains and lateral branches is to be determined on the basis of the horizontal projection of roofs, yards and other tributary areas to be drained. The building storm sewer shall be of a size to accommodate, under normal flow rate capacities, the entire volume of wastes tributary to same. No building storm sewer shall be less than 4 inch inside diameter.

(4) INSTALLATION. (a) Gradient. Building sewers shall, where possible, have a slope of one-fourth inch per foot. In no case shall there be less than one-eighth inch per foot unless a minimum velocity of 2 feet per second is attained throughout the sewer by gravity flow. Between the lot line and the sewer main, or riser pipe therefrom, the sewer shall be laid at a uniform slope not exceeding one-half inch per foot. Building sewers 12 inches or larger in diameter may be installed with a grade equal to main interceptors of the same diameter. Where the main sewer in the street has sufficient depth, or where a lot is 3 feet or more above the established grade line, the building sewer between the lot line and the building shall not exceed a gradient of one-half inch per foot except for a change in elevation which shall be made by the use of 45 degree fittings.

(b) Depth. Building sewers shall be installed at a depth of not less than 42 inches below finished grade, except that when the building sewer terminates in a septic tank, its depth shall be not less than 18 inches to top of pipe.

(c) Riser - main sewer. A riser from the main sewer may be installed to establish the elevation for the building sewer to insure the proper gradient and depth in accord with section H 62.04 (4) (a) and (b).

(d) Alignment. All building sewers shall be laid in alignment between fittings. Any changes in grade or direction shall be made with approved "Y's" or long radius fittings. Clipping of pipe or fittings is prohibited.

(e) Trenching. All excavations shall be open trench work unless otherwise permitted by local ordinance or accepted by the local inspector.

Note: See sections Ind 6.06, 6.12 and 6.21 concerning timber requirements for trenches and general safety precautions.

(f) Stable bottom. Where the bottom of the trench can be maintained in a stable condition and free of water during time of installation of pipe, the building sewer, depending on the type of material used, shall be bedded and be initially backfilled as hereinafter provided. Grade, as used in this subsection, is defined as the elevation of the bottom of the pipe.

1. Concrete, clay, bituminous fiber and asbestos-cement pipe. The trench bottom throughout its length shall be excavated to a depth at least 3 inches below the grade elevation except where sand is encountered and shall be brought back to grade with a sand, gravel, or crushed stone bedding which is tamped in place. The size of the bedding material shall be such that 100% shall pass a one-half inch sieve. The bedding shall be shaped to accommodate pipe bells or couplings. Initial backfill on the sides of the pipe and to a depth of 12 inches over the pipe shall be well tamped sand, gravel, crushed stone or excavated material which is neither corrosive nor organic in nature. The material shall be of such size that 100% shall pass a one-inch sieve. Initial backfill shall be placed in increments not exceeding 6 inches in depth and be well tamped for the full length of the sewer.

2. Cast iron soil pipe. Where the trench bottom does not contain stone larger than one inch in size or where bedrock is not encountered, the trench may be excavated to grade. When stone larger than one inch in size or when bedrock is encountered, the trench shall be excavated to a depth at least three inches below the grade elevation and be brought back to grade with a bedding of sand, gravel, or crushed stone of which 100% shall pass a one-half inch sieve. The bedding material shall be

tamped in place. The bedding or trench bottom shall be shaped to accommodate the bells of the pipe. Initial backfill on the sides of the pipe and to a depth of 3 inches over the pipe for that part of the building sewer laid on private property shall be well tamped sand, gravel, crushed stone or excavated material which is neither corrosive nor organic in nature. The material shall be such that 100% shall pass a one-inch sieve. For that portion of the sewer in the street, the initial backfill material to a depth of 12 inches over the pipe shall be sand, gravel or crushed stone of such size that 100% shall pass a one-inch sieve. It shall be placed in increments not exceeding 6 inches and be well tamped.

(g) Unstable bottom. Where a mucky or unstable bottom is encountered in the trench, the required dry and stable foundation conditions shall be provided by sheathing driven and left in place to a depth of 48 inches below the trench bottom or to solid foundation at a lesser depth, the removal of wet and yielding material to a depth of 24 inches or to solid material, and replacement of the unstable material with limestone screenings, pea gravel or equivalent material for the bedding under the pipe. The trench bedding shall be shaped to accommodate pipe bells or couplings. In lieu of the foregoing, the required dry and stable foundation conditions may be provided by installation of a longitudinally reinforced concrete cradle the width of the trench and at least 3 inches thick or by installation of a longitudinally reinforced concrete slab the width of the trench at least 3 inches thick and bedding material as provided for in subsection H 62.04 (4) (f) 1 and 2. Initial backfill material and its placement shall conform to that specified in subsections H 62.04 (4) (f) 1 and 2. All sheathing shall be cut off at a depth of 3 feet or more below the ground surface to prevent heaving due to frost action.

(h) Access. When building sewers exceed 100 feet in length cleanouts of the same diameter shall be not more than 75 feet apart on piping up to and including

4 inches in diameter; not more than 100 feet apart on piping 5 to 10 inches in diameter. Manholes shall be constructed for main interceptor sewers 12 inches and larger at intervals not to exceed 200 feet, or at each change of direction of more than 45 degrees. All cleanout openings shall extend to finished grade.

(i) Industrial waste control. All building sewers serving manufacturing or industrial processing plants or service stations (gas and oil) which are connected to a public sewer system shall have installed therein a manhole for periodic sewage sampling purposes. The manhole shall be of approved design and shall be located on public right-of-way where possible. When manholes are installed on private property they shall be readily accessible at all times.

1. Location. Sampling manholes should be located on public property whenever possible. When located on private property they shall be within 5 feet of the lot line fronting on the public right-of-way and authorized representatives shall be guaranteed the right of access.

2. Construction. Sampling manholes shall be a minimum of 36 inches in diameter and constructed in a watertight and substantial manner and may be of concrete, precast concrete, cast iron, bituminous fiber, enamel coated 14 gauge steel, or vitrified clay pipe. Construction details shall follow the general criteria as shown in H 62.22.

(j) Backfill completion. Due care shall be exercised in placing the balance of the backfill to prevent breakage of the pipe. Large boulders or rock or concrete slabs, or frozen masses shall not be used in the backfill nor shall machinery be operated within the trench until a cover of 6 feet over the pipe has been attained.

(5) INSPECTION. The building sewer should be inspected upon completion of placement of the pipe and before backfilling. A "T" or "Y" should be provided to

permit testing the pipe for leakage or infiltration. Such "T" or "Y" shall be located as near as possible to the point of connection with the street or main sewer.

(6) CONNECTIONS TO MAIN SEWER. When a building connection on the street or main sewer is not found within 3 feet of the point designated by the local governing body, or its authorized representative, a "Y" or "T" fitting approved by the department shall be used. The connection shall be set upon or in a carefully cut opening centered in the upper quadrant of the street sewer, and be secured by encasement of the main sewer pipe and the fitting with concrete at least 3 inches thick so as to assure permanency of connection and adequate backing of the street sewer pipe. In lieu of the use of fittings and in the event that the opening cannot be centered in the upper quadrant of the street sewer, a length of the street sewer pipe shall be removed and a "Y" branch section inserted in its place. The joints at the ends of such section shall be encased in concrete at least 3 inches thick. Such connection or insertion shall be made under the supervison of the authorized representative of the municipality.

(7) SEWER OPENINGS PROTECTED. The ends of all sewer pipes not immediately connected shall be securely closed so as to prevent the introduction of sand or earth or drainage from an excavation.

(8) LIMITATIONS AND PROHIBITIONS. (a) Location. The following minimum distances shall be maintained between building sewers and water wells.

1. Sanitary and storm sewers, including sanitary and storm building drains, of cast iron pipe with leaded or neoprene gasket joints -- 8 feet.

2. Sanitary and storm sewers, including sanitary and storm building drains, other than cast iron -- 25 feet.

(b) Use of building sewers. No person shall connect to a public sewer any building drain or sewer through which is discharged any substance likely to cause

undue corrosion, obstruction, nuisance, explosion or interference with sewage treatment processes. See section H 62.11 and H 62.14.

(c) Storm and clear water connections. Roof leaders, surface drains, ground water drains, foundation footing, refrigerator cooling water, storm water drains, drinking fountains, air-conditioning and other clear water drains not described herein shall whenever possible discharge to storm drains or sewers, but they shall not be discharged to a sanitary building drain or sewer or to a private sewage disposal system. Building storm sewers shall not be connected to a building sanitary sewer. The building sanitary sewer and building storm sewer shall be installed as 2 separate pipe lines and shall connect to the appropriate street or main sewer. In the event no main storm sewer exists, the building storm sewer shall extend to the ground surface terminating with a return bend type fitting with the discharge opening 18 inches above final grade. A bleeder drain shall extend to an open bottom catch basin and shall be reduced to a 1 inch inside diameter pipe size or other design methods as may be approved by the department.

SECTION H 62.05

BUILDING DRAINS

H 62.05 Building drains. (1) ELEVATION. All building drains shall be brought into the building underground, preferably below the level of the basement floor.

(2) MATERIALS. All building drains shall be constructed of concrete, vitrified clay, type L hard temper copper or cast iron pipe. The use of concrete or vitrified clay pipe is permitted only where there is a soil covering of 18 inches or more or where the pipe is covered with 9 inches of soil and a substantial concrete floor having a minimum 3 inch thickness. Where a building drain leaves the building at a point above the basement floor, it shall be constructed of cast iron or type L hard temper copper pipe to a point 5 feet from the inside of the building foundation wall or to such additional distance as necessary to reach undisturbed stable ground.

(3) SIZE. (a) Sanitary. The size of building drains and building sub-drains shall be determined by the number of fixture units tributary thereto. The minimum size of a building drain shall be 4 inches. The minimum size of an underground building sub-drain shall be 3 inches. The minimum size of underground waste pipe may be 2 inches in diameter and shall not exceed 4 feet in length. See subsections H 62.04 (3) (a) and H 62.10 (1).

(b) Storm. The building storm drain size shall be determined on the total area to be drained thereby. The size of the roof leader piping should be determined from the following table or shall be calculated using the formula following the table.

Table 5

Type of Roof	Allowable Roof Area in Square Feet for Given Size of Inside Leader					
	2 1/2"	3"	4"	5"	6"	8"
Roof covered with gravel, slag or similar material with incline 1/4" to 1' or less	Up to 1,645	1,646 to 2,120	2,121 to 3,780	3,781 to 5,885	5,886 to 8,490	8,491 to 15,125
Same with incline 1/2" to 1' or more and sawtoothed roofs	Up to 1,220	1,221 to 1,770	1,771 to 3,150	3,151 to 4,905	4,906 to 7,075	7,076 to 12,600
Metal, tile, brick, slate, or similar roofs of any incline	Up to 975	976 to 1,415	1,416 to 2,520	2,521 to 3,925	3,926 to 5,660	5,661 to 10,080

(c) Barrett's formula. For vertical leaders serving roofs covered with gravel or slag, with an incline not exceeding one-quarter of an inch per foot, allow 300 square feet of roof surface to each square inch of leader opening; for roofs of greater incline or sawtooth roof construction, 250 square feet roof surface to each square inch of leader opening; for metal, tile, slate, or similar roofs of any incline, 200 square feet of roof surface to each square inch of leader opening. This formula using the 300 square feet of area for each square inch of leader opening can also be used for determining the size required for draining yards and other areas. To determine the diameter of the vertical leader required, the following formula can be used:

$$\text{vertical leader diameter} = 1.128\sqrt{\frac{\text{roof area}}{300 \text{ or } 250 \text{ or } 200}}$$

(4) CONTROLLED ROOF DRAINAGE. (a) Approval. Storm water roof drainage systems employing or incorporating special types of equipment, devices, weirs or other methods of controlling or delaying flow volume velocities or capacities for

the purpose of minimizing pipe diameter requirements shall receive department approval before installation.

(b) Design. The system shall be designed using the area rainfall rate criteria, the formulae applicable to the specific manufacturers roof drain equipment to be installed, other pertinent design data and applicable state plumbing code rules.

(c) Plans. Blueprints (isometric or schematic) shall be prepared in triplicate for submission to the department for review. The plans shall contain the entire system layout including the building storm drain and storm sewer. All criteria and data pertinent to the proposed installation shall be included with the plans including other clear water waste tributary thereto. The installation shall not be revised or deviate from the approved plan without prior authorization from the department.

(5) BACKFLOW VALVES. Building drains subject to backflow or backwater at the time of installation shall be provided with adequate backwater valves, installed to prevent interference with the flow and be readily accessible for cleaning.

(6) OTHER REQUIREMENTS. Installation of building drains shall also conform to subsection H 62.04 (4) (a) as to gradient, subsections H 62.04 (4) (f) and (g), (7) and (8); section H 62.15 and H 62.16, insofar as they are applicable and necessary for proper installation.

ORDER OF THE DEPARTMENT OF HEALTH & SOCIAL SERVICES ADOPTING RULES

Pursuant to authority vested in the Department of Health and Social Services in Section 140.05, Wisconsin Statutes, and in accordance with Chapter 227, Wisconsin Statutes, the following rules are hereby promulgated.

9/28/70

Chapter H 61 and Sections H 62.01-62.05, and Section H 62.23 of the WISCONSIN ADMINISTRATIVE CODE are repealed.

Chapter H 61 and Sections H 62.01-62.05 of the WISCONSIN ADMINISTRATIVE CODE are recreated to read:

Section H 62.06 of the WISCONSIN ADMINISTRATIVE CODE is created to read:

Filed 9-28-70
prepared + sent
9-29-70
Copy to Pub

Chapter H 61

APPRENTICESHIP AND LICENSING OF PLUMBERS

H 61.01 Apprenticeship. (1) REGISTRATION. Every plumbing apprentice shall register with the department immediately. Registration forms will be furnished by the department which shall require the applicant to indicate his name, age, preliminary schooling, beginning date of indenture, name and address of employer and such other information as the department may require. Persons beginning an accredited plumbing trade school course may also register.

(2) QUALIFICATIONS FOR REGISTRATION. All applicants for registration as apprentices must have reached the age of 16 years and have completed the 12th grade in school or its equivalent. Applicants who have not completed the 12th grade or its equivalent shall be required to attend part-time school four hours per week during the entire period of their apprenticeship. In each case where the applicant seeks to establish the equivalency of completion of the 12th grade the matter shall be referred to the department.

(3) RESPONSIBILITY OF EMPLOYER. (a) Registration as an apprentice shall not be accepted unless the particular shop in which the apprentice is to work and the employing master plumber are equipped and qualified to have an apprentice and that the requirements as to both shop and school training will be complied with. Master plumbers employing registered apprentices shall report to the department any changes

made in relation to the continued employment of such apprentices. Such changes shall be subject to the joint approval of the state departments having jurisdiction.

(b) Employing master plumbers shall be owners or co-owners with a monetary interest in a firm or corporation engaged in the installation of plumbing. Master plumbers in the employ of state agencies are to be considered employing master plumbers for the purpose of this section. Master plumbers shall be licensed by this state.

(4) SUSPENSION OF REGISTRATION. (a) Whenever an apprenticeship ceases to exist or whenever a registration has been accepted under such conditions as would not have warranted an acceptance if the facts had been presented, or when there has been willful noncompliance with the shop and school training requirements, the department shall suspend such registration until the conditions shall have been remedied or cancel such registration if necessary.

(b) A registration which has lapsed either through suspension or cancellation may be renewed in the same manner as new registrations and the department may grant such credit toward completion of the 5-year apprenticeship as it may deem proper in each case.

H 61.02 Practical training. (1) INSTRUCTION AND EXPERIENCE. The apprentice shall receive instruction and experience in all branches of plumbing.

(2) FIRST THREE YEARS. During the first three years the apprentice shall be given opportunity to install plumbing material as his skill will permit under the immediate supervision of a journeyman or master plumber licensed in Wisconsin.

(3) FOURTH AND FIFTH YEARS. During the fourth and fifth years any apprentice who is meeting the related instruction requirement may under general supervision of a licensed master plumber make plumbing installations as his acquired skill will

permit. A graduate of a plumbing course of an accredited trade school having at least a 2-year course in plumbing may, upon registration as an apprentice perform the same class of work as a fourth and fifth year apprentice.

(4) SCHOOL CREDITS. Apprentice applicants who have attended the plumbing course in a recognized trade school in Wisconsin but who are not graduates of such school will be given credit for the work done in the trade school as a part of the required five years of experience. Any attendance of less than three months shall not receive recognition.

H 61.03 Related instruction. (1) TRADE SCHOOL ATTENDANCE. An apprentice who is not a graduate of an accredited trade school shall complete an approved day school course in plumbing of not less than 400 hours. In addition, an apprentice including graduates of a trade school shall complete an approved trade extension course of not less than 120 hours in night school.

(2) FAILURE TO COMPLETE CONTRACT. An indentured apprentice who fails to complete his contract or who was not transferred with approval to another shop shall not be entitled to continue his vocational school plumbing course.

H 61.04 Engineering training. Graduates of a college engineering course related to plumbing and those completing not less than one year of such a course who have had in addition plumbing installation experience shall receive such credit up to one year for each year of college as may be determined by the department. Each such applicant shall be considered as a separate case.

H 61.05 Journeyman plumber licenses. Proof of experience, skill and related instruction shall be provided by all applicants for journeyman licenses.

H 61.06 Examinations. (1) LICENSE EXAMINATION. Not less than 4 examinations for the licensing of journeyman and master plumbers and journeyman restricted and master restricted plumbers will be conducted annually at such time and place as the department may direct. Application forms for examination for licensure and renewal of licenses may be obtained from the department.

(2) DATE OF FILING APPLICATION. All applications for examination shall be on file in the office of the Section of Plumbing at least four weeks prior to the date of the examination. Failure to have the application on file within the required time shall necessitate postponement of the applicant's appearance to the next examination. All applications shall expire after a period of one year from the date of filing.

(3) FEES. Fees for the examinations and licenses are regulated by section 145.08, Wis. Stats. No fees shall be returned after an applicant has appeared for examination.

(4) NOTICE OF EXAMINATION TO APPLICANTS. Notice of the time and place of examination shall be sent by first class mail to those who have approved applications on file. Such notice shall be mailed to the address given on the application blank and shall be presented by the applicant to gain admittance to the examination room. Failure to receive the notice due to change in address shall not be the responsibility of the department.

(5) CHARACTER OF EXAMINATIONS. (a) The examinations shall be conducted by the committee of examiners. They shall consist of written and practical tests, and may be oral in part. The examination will cover the theory and practice of plumbing, the interpretation of charts and blueprints and plans of plumbing installations, and such other tests as the committee may deem necessary to properly pass upon the qualifications of the candidate.

(b) Examinations shall consist of the following:

1. Written work based on code.

2. Chart work based on code.

3. Practical work.

(c) Applicants shall participate in all portions of examination and shall acquire a passing grade in each subject to become eligible for licensure. A passing grade of 75% in each subject is required.

(6) MATERIALS USED IN EXAMINATION. Applicants shall furnish the necessary tools and material for the examination as requested by the examiners.

(7) RE-EXAMINATION. Applicants failing an initial examination may be re-examined within three months. Applicants shall not be eligible for a second re-examination until the expiration of six months after the first re-examination, and not for the third and subsequent re-examinations until the expiration of one year after the last re-examination. Applicants failing an examination will be re-examined only in the subjects in which they were unsuccessful.

H 61.07 Temporary permits. Temporary permits to engage in business as a master plumber shall not be issued except in cases of emergency resulting from a master plumber's incapacity to work, demise or separation from business. When deemed necessary the department may require a special examination to determine the qualifications of an applicant before a temporary permit is issued. Temporary permits shall become void upon the date of the first examination following issuance of permit and shall be surrendered to the department. Not more than two permits shall be issued to an individual in any twelve month period. Applicants for temporary permits shall comply with all other applicable rules and statutes.

H 61.08 License renewal. (1) ANNUAL NOTICE FOR RENEWAL OF LICENSES. Notice for the renewal of licenses shall be sent to all plumbers whose licenses were in

force during the previous year to the address given on the latest license renewal blank on file unless notice of another address is given. Failure to receive the notice for renewal of licenses shall not be an excuse for failure to renew.

(2) DELINQUENT OR ELAPSED LICENSES. Whenever a plumber fails to renew his license for a period of five years the department shall require evidence to show that he is competent to perform the work of either a master or journeyman plumber or master or journeyman plumber restricted before such license is renewed.

(a) Master plumber and master plumber restricted licenses shall be renewed at least every fifth year to be considered as a future renewable license. Renewal will require the applicant to have in his possession, a journeyman license for the year in which the exchange is requested. The licensee may again revert to a journeyman license the immediate following license period.

(b) Persons who have been licensed only as a journeyman or journeyman restricted plumber shall renew their delinquent or elapsed license every fifth year. Failure to do so will require re-examination to again qualify for licensure as a journeyman plumber. Renewal of a license shall be permitted only after the current license fee and the annual late revival fee for each year of the elapsed period have been paid to the department.

H 61.09 Exchange of licenses without examination. All master plumbers or master restricted plumbers in good standing and currently licensed by the department who work as journeyman, may, upon application and upon payment of the initial license fee, be issued journeyman licenses. A currently licensed journeyman who has renewed his master's license within 5 years preceding date of application for exchange may be relicensed as a master upon the payment of the renewal and revival fee as provided by law for the renewal of such license.

H 61.10 Registered learners - restricted. (1) REGISTRATION. Every plumbing learner shall register with the department as required under sec. 145.07 (7)(a) Wis. Stats. Registration forms will be furnished by the department which shall require the applicant to indicate his name, age, schooling, beginning date of employment, name and address of employer and such other information as the department may require.

(2) QUALIFICATION FOR REGISTRATION. All applicants for registration as learners must have reached the age of 16 years and have completed the 10th grade in school or its equivalent. In each case where the applicant seeks to establish the equivalency of completion of the 10th grade, the matter shall be referred to the department.

(3) RESPONSIBILITY OF EMPLOYER. Registration as a learner shall not be accepted unless the particular organization in which the learner is to work and the master plumber or master plumber restricted are equipped and qualified to train a learner in the specific restricted classifications for which he is requesting registration. Master plumbers or master plumbers restricted supervising registered learners shall see that the requirements as to both shop and school training will be complied with, and shall report to the department any changes made in relation to the continued employment of such learners. Such changes shall be subject to the approval of the department.

(4) SUSPENSION OF REGISTRATION. (a) Whenever a registration ceases to exist or whenever a registration has been accepted under such conditions as would not have warranted an acceptance if the facts had been presented, or when there has been willful noncompliance with the shop and school training requirements, the department shall suspend such registration until the conditions shall have been remedied or cancel such registration if necessary.

(b) A registration which has lapsed either through suspension or cancellation may be renewed in the same manner as new registrations and the department may grant such credit toward completion of the 1-year learner program as it may deem proper in each case.

H 61.11 Practical training - restricted. The learner shall receive instruction and experience in all branches of the restricted type plumbing for which he has been registered. He shall be given opportunity to install plumbing materials as his skill will permit under his specific registration. All work shall be performed under the immediate supervision of journeyman or master plumbers or journeyman or master plumbers restricted licensed in Wisconsin.

H 61.12 Related instruction - restricted. (1) LEARNERS. A learner who is not a graduate of a trade school course related to the specific items and classification for which he is registered shall complete a school course of not less than 125 hours. All specialized trade courses shall be reviewed for credit by the department. Learners, immediately upon approval by the department of their registration, shall enroll in a vocational or trade school or technical institute for purposes of obtaining the required related instruction.

(2) RESTRICTED SEWER SERVICES. A learner registered in the classification of sewer services shall complete 125 hours of related instruction in the following subjects:

(a) Transit or builder's level -- 20 hours

(b) Blueprint interpretation -- 30 hours

(c) Trenching requirements -- 10 hours

(d) Plumbing code (related to class) -- 40 hours

(e) Construction mathematics -- 15 hours

(f) First aid and safety -- 10 hours

(b) A registration which has lapsed either through suspension or cancellation may be renewed in the same manner as new registrations and the department may grant such credit toward completion of the 1-year learner program as it may deem proper in each case.

H 61.11 Practical training - restricted. The learner shall receive instruction and experience in all branches of the restricted type plumbing for which he has been registered. He shall be given opportunity to install plumbing materials as his skill will permit under his specific registration. All work shall be performed under the immediate supervision of journeyman or master plumbers or journeyman or master plumbers restricted licensed in Wisconsin.

H 61.12 Related instruction - restricted. (1) LEARNERS. A learner who is not a graduate of a trade school course related to the specific items and classification for which he is registered shall complete a school course of not less than 125 hours. All specialized trade courses shall be reviewed for credit by the department. Learners, immediately upon approval by the department of their registration, shall enroll in a vocational or trade school or technical institute for purposes of obtaining the required related instruction.

(2) RESTRICTED SEWER SERVICES. A learner registered in the classification of sewer services shall complete 125 hours of related instruction in the following subjects:

(a) Transit or builder's level -- 20 hours

(b) Blueprint interpretation -- 30 hours

(c) Trenching requirements -- 10 hours

(d) Plumbing code (related to class) -- 40 hours

(e) Construction mathematics -- 15 hours

(f) First aid and safety -- 10 hours

(b) A registration which has lapsed either through suspension or cancellation may be renewed in the same manner as new registrations and the department may grant such credit toward completion of the 1-year learner program as it may deem proper in each case.

H 61.11 Practical training - restricted. The learner shall receive instruction and experience in all branches of the restricted type plumbing for which he has been registered. He shall be given opportunity to install plumbing materials as his skill will permit under his specific registration. All work shall be performed under the immediate supervision of journeyman or master plumbers or journeyman or master plumbers restricted licensed in Wisconsin.

H 61.12 Related instruction - restricted. (1) LEARNERS. A learner who is not a graduate of a trade school course related to the specific items and classification for which he is registered shall complete a school course of not less than 125 hours. All specialized trade courses shall be reviewed for credit by the department. Learners, immediately upon approval by the department of their registration, shall enroll in a vocational or trade school or technical institute for purposes of obtaining the required related instruction.

(2) RESTRICTED SEWER SERVICES. A learner registered in the classification of sewer services shall complete 125 hours of related instruction in the following subjects:

(a) Transit or builder's level -- 20 hours

(b) Blueprint interpretation -- 30 hours

(c) Trenching requirements -- 10 hours

(d) Plumbing code (related to class) -- 40 hours

(e) Construction mathematics -- 15 hours

(f) First aid and safety -- 10 hours

(3) RESTRICTED APPLIANCES. Learners registered in the classification of appliances, equipment and devices, shall complete 125 hours of related instruction in the following subjects:

(a) Blueprint reading (buildings) -- 20 hours

(b) Plumbing code (related to class) -- 60 hours

(c) Appliance and equipment servicing -- 30 hours

(d) General mathematics -- 15 hours

(4) CERTIFICATION. When required subjects are not available, other related material may be referred to the department for approval and credit prior to enrollment. All learners applying for examination for licensure as a restricted journeyman plumber shall, upon completion of their registration program, submit certification of completion of the required school training from the school or institution of enrollment to the department with an application.

Chapter H 62

RULES AND REGULATIONS GOVERNING THE DESIGN, CONSTRUCTION, INSTALLATION, SUPERVISION AND INSPECTION OF PLUMBING

SECTION H 62.01

BASIC PLUMBING PRINCIPLES

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 watermain, 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) In multiple dwellings provided with a drainage system, there shall be at least one private water closet and one wash basin for each family. Installation of a kitchen sink and bathtub or shower is recommended.

(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.

SECTION H 62.02

PLUMBING DEFINITIONS

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 two 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 ~~two~~ 2 or ~~three~~ 3 compartment laundry tray in one unit.

(36) CONDUCTORS. The system of roof leaders, down spouts 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.

(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.

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(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 receptacle, 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 structure mounted on a wheeled chassis designed for highway transport. When placed upon, fastened or affixed to a foundation, pillars or like support, or when exceeding 45 feet in length, the structure shall be considered as a building or housing unit. See sec. 348.07 (2) Wis. Stats.

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

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

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

(82) 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.

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

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

(85) SEWAGE. The water carried wastes (organic) created in and to be conducted away from residences, industrial establishments and public buildings. See domestic wastes.

(86) 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 ~~Sec.~~ Ch. 144, ~~of the~~ Wis. Stats.

(87) 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, cement asbestos or short lengths of clay or concrete drain tile.

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 watertight 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.

(88) 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. The minimum building drain extends from the building sewer to all soil stacks.

3. Building drain. (Waste pipe). 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.

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 subdrains, 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.

(89) SEWER (PRIVATE). A privately owned sewer.

(90) SEWER (PUBLIC). A publicly owned sewer.

(91) 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.

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

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

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

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

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

(97) SPECIAL WASTE PIPE. Piping which conveys special wastes.

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

(99) 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.

(100) 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.

(101) STILL. A device used in distilling liquids.

(102) 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.

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

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

(105) 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.

(106) 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.

(107) 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 integral 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.

(108) 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.

(109) 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.)

(110) 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 piping 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 ~~two~~ 2 or more fixture traps which discharge to a nearly horizontal soil or waste branch and extends from the downstream side of the furthermost 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 tnat 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.

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

(112) 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.

(113) 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.

(114) 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.

(115) 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.

(116) 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.

(117) 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.

(118) 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
228 Standard 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
Government 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 Valve 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

60.015

SECTION H ~~62.03~~

APPROVAL ON EXPERIMENTAL BASIS

62.015

H ~~62.03~~ Approval on experimental basis. Materials, fixtures, appurtenances, devices, appliances, system designs and layouts other than those set forth in this code may be approved by the division administrator for specific installations or for experimental use or for trial purposes.

Move this to correct sequence

SECTION H 62.04 03

FIXTURE UNIT DESIGN BASIS

62.03

H 62.04 Fixture unit design basis. (1) INTERMITTENT FLOW FIXTURES. The fixture unit value and the size of traps, vents, and piping shall be as designated in the following table for any fixture named therein. For fixtures not included in the following table, contact the department for the fixture value rating. Equivalent value for other intermittent operating fixtures shall be one fixture unit for each 7.5 gallons per minute of flow rate.

Table 1

Type of Fixture	Unit Value	Trap Minimum Size Inches	Soil or Waste Minimum Size Inches	Vent Minimum Size Inches
Automatic clothes washers,				
Commercial (individual)----------	4	2	2	1 1/2
Commercial (large capacity)*--------				
Residential----------	3	1 1/2	1 1/2	1 1/2
Bathtubs, all types**----------	3	1 1/2	1 1/2	1 1/2
Bed Pan Washer----------	6	2	3	2
Bidet----------	2	1 1/4	1 1/2	1 1/2
Cuspidor, fountain or dental----------	1	1 1/4	1 1/4	1 1/4
#Dishwasher (commercial)***----------				
#Dishwasher (residential)----------	4	1 1/2	1 1/2	1 1/2
Drinking fountain----------	1	1 1/4	1 1/4	1 1/4
Drinking fountain (refrigerated)------	1/2	1 1/4	1 1/4	1 1/4
Floor Drain,				
2 inch----------	3	2	2	1 1/2
3 inch or larger****----------	4	3	3	2
Laundry tray----------	3	1 1/2	1 1/2	1 1/2
#Refrigerated cases----------	1	1 1/2	1 1/2	1 1/2
Shower stall, each head----------	4	2	2	1 1/2
Sinks,				
Cup----------	1	1 1/4	1 1/4	1 1/4
Factory wash-up----------	4	1 1/2	1 1/2	1 1/2
Fountain or bar----------	3	1 1/2	1 1/2	1 1/2
Food waste disposers (commercial)---	2 HP or less	1 1/2 or 2	2	1 1/2
Food waste disposers (commercial)---	3 HP or more	3	3	2
Laboratory----------	2	1 1/2	1 1/2	1 1/2
Laboratory, school----------	2	1 1/2	1 1/2	1 1/2
Classroom juvenile----------	2	1 1/4	1 1/2	1 1/2
Pack or plaster----------	4	2	2	1 1/2

Type of Fixture	Unit Value	Trap Minimum Size Inches	Soil or Waste Minimum Size Inches	Vent Minimum Size Inches
Residential (with or without F.W.G.)	4	1 1/2	1 1/2	1 1/2
Restaurant,				
Scullery, pots & pans----------	4	2	2	1 1/2
Food, rinsing, cleaning or thawing	3	1 1/2	1 1/2	1 1/2
Service sink, flushing rim----------	6	3	3	2
Service sink, wall outlet----------	4	2	2	1 1/2
Service sink, wall outlet----------	4	3	3	2
Service sink, floor outlet----------	4	2	2	1 1/2
Service sink, floor outlet----------	4	3	3	2
Shampoo sink, barber or beauty parlor----------	2	1 1/4 or 1 1/2	1 1/2	1 1/2
Surgeons, wash-up----------	3	1 1/2	1 1/2	1 1/2
Sterilizer,				
Bed pan----------	4	2	2	1 1/2
Garbage can washers----------	3	3	3	1 1/2
#Instrument or water----------	1	1 1/4	1 1/4	1 1/4
Urinal,				
Men----------	4	2	2	2
Women----------	6	2 1/2	3	2
#Vegetable display cases----------	2	1 1/2	1 1/2	1 1/2
Wash basin----------	1	1 1/4	1 1/2	1 1/4
Water closet, tank type----------	6	2	3	2
Water closet, flush valve----------	8	2	3	2

* Based on discharge rate (See Section H 62.04 (2).)
** Includes foot, Sitz and infant baths and regular bathtubs with or without showers.
*** Based on discharge rates and number of outlets, 4" trap and waste pipe minimum recommended.
**** Trap and waste pipe sizes to correspond to floor drains.
# Requires air-gap discharge.

(2) CONTINUOUS FLOW FIXTURES. Fixtures such as pumps and ejectors from which there is continuous or semi-continuous discharge shall have a fixture unit value of one for each one gallon per minute of flow.

(3) UNIT CAPACITY AND LENGTH OF SANITARY PIPING. The number of fixture units connected to any stack, branch or vent and the length of piping shall not exceed that shown in the following table for a given diameter of pipe. After maximum length of vent for any given pipe size is reached, the diameter of the pipe shall be increased to the next size.

Table 2

Fixture Unit Capacity and Maximum Water Closets or Like Fixtures on Soil, Waste or Vent Pipe

Pipe	Soil or Waste				Vent	
Diameter (Inches)	Fix. Units on Vertical Pipe	Water Closets or Like Fixtures on Vertical Pipe	Fix. Units on Horizontal Pipe	Water Closets or Like Fixtures on Horizontal Pipe	Fix. Units on Vent (See limitations)	Maximum Length Vent (in feet)
1 1/4	1		1		1	50
1 1/2	8		4		12	65
2	18		9		24*	85
2 1/2	40		20		60*	105
3	50	2	25*	1	126**	212
4	252	33	126	17	252	300
5	680	80	340	40	680	390
6	1,380	120	690	60	1,380	510
8	3,600	225	1,800	112	3,600	750
10	7,600	400	3,800	200	7,600	---
12	12,000	575	6,000	288	12,000	---

* Limitation of one 6 or 8 fixture unit fixture.
** Limitation of six 6 or 8 fixture unit fixtures.

Table 3

Gravity Condensation Drains
Total Number of Connections

Drain Outlet Size	Indirect Main Waste Size							Assigned Fixture Unit Value
	3/4	1	1 1/4	1 1/2	2	2 1/2	3	
1/2	2	4	6	9	16	25	36	0 - 1/4
3/4	1	1	3	4	7	11	16	0 - 1/2
1	0	1	1	2	4	6	9	0 - 3/4
1 1/4	0	0	1	1	2	4	6	1
1 1/2	0	0	0	1	2	3	4	2
2	0	0	0	0	1	1	2	5
2 1/2	0	0	0	0	0	1	1	9
3	0	0	0	0	0	0	1	14

SECTION H 62.05 04

BUILDING SEWERS

6204

H ~~62.05~~ Building sewers. (1) PREMISES SERVED. The interior plumbing of each building shall be entirely separate from and independent of that of any other building. All sanitary, storm drainage or special type drainage systems shall be connected, by means of independent connections, with a public or private disposal system.

(a) Private sewage and storm disposal systems shall be disconnected when public sewers become available to a property. The drainage system shall then be connected to the public system.

(b) When a building is razed or otherwise demolished, the building sewers shall be sealed at the property line.

(2) MATERIALS. All building sewers shall be constructed of cast iron, vitrified clay, concrete, cement asbestos or bituminous fiber pipe or other materials approved by the department for restricted, tentative or experimental use.

(3) SIZE. (a) Sanitary sewer. The size of the building sewer shall be determined by the total number of drainage fixture units tributary thereto. The diameter of the building sewer shall be equal to or greater than the size of the building drain. The minimum size of a building sanitary sewer shall be 4 inches. The following table shall apply to sanitary building sewers and building drains.

Table 4

Diameter of Pipe (inches)	Maximum Number of Fixture Units		
	1/8" per ft. slope	1/4" per ft. slope	1/2" per ft. slope
4	115	150	210
5	270	370	540
6	510	720	1,050
8	1,290	1,860	2,640
10	2,520	3,600	5,250
12	4,390	6,300	9,300

(b) Storm sewer. The required size of building storm sewers, other exterior drains and lateral branches is to be determined on the basis of the horizontal projection of roofs, yards and other tributary areas to be drained. The building storm sewer shall be of a size to accommodate, under normal flow rate capacities, the entire volume of wastes tributary to same. No building storm sewer shall be less than 4 inch inside diameter.

(4) INSTALLATION. (a) Gradient. Building sewers shall, where possible, have a slope of one-fourth inch per foot. In no case shall there be less than one-eighth inch per foot unless a minimum velocity of 2 feet per second is attained throughout the sewer by gravity flow. Between the lot line and the sewer main, or riser pipe therefrom, the sewer shall be laid at a uniform slope not exceeding one-half inch per foot. Building sewers 12 inches or larger in diameter may be installed with a grade equal to main interceptors of the same diameter. Where the main sewer in the street has sufficient depth, or where a lot is 3 feet or more above the established grade line, the building sewer between the lot line and the building shall not exceed a gradient of one-half inch per foot except for a change in elevation which shall be made by the use of 45 degree fittings.

(b) Depth. Building sewers shall be installed at a depth of not less than 42 inches below finished grade, except that when the building sewer terminates in a septic tank, its depth shall be not less than 18 inches to top of pipe.

(c) Riser - main sewer. A riser from the main sewer may be installed to establish the elevation for the building sewer to insure the proper gradient and depth in accord with section H 62.05 (4) (a) and (b).

(d) Alignment. All building sewers shall be laid in alignment between fittings. Any changes in grade or direction shall be made with approved "Y's" or long radius fittings. Clipping of pipe or fittings is prohibited.

(e) Trenching. All excavations shall be open trench work unless otherwise permitted by local ordinance or accepted by the local inspector.

Note: See sections Ind 6.06, 6.12 and 6.21 concerning timber requirements for trenches and general safety precautions.

(f) Stable bottom. Where the bottom of the trench can be maintained in a stable condition and free of water during time of installation of pipe, the building sewer, depending on the type of material used, shall be bedded and be initially backfilled as hereinafter provided. Grade, as used in this subsection, is defined as the elevation of the bottom of the pipe.

1. Concrete, clay, bituminous fiber and asbestos-cement pipe. The trench bottom throughout its length shall be excavated to a depth at least 3 inches below the grade elevation except where sand is encountered and shall be brought back to grade with a sand, gravel, or crushed stone bedding which is tamped in place. The size of the bedding material shall be such that 100% shall pass a one-half inch sieve. The bedding shall be shaped to accommodate pipe bells or couplings. Initial backfill on the sides of the pipe and to a depth of 12 inches over the pipe shall be well tamped sand, gravel, crushed stone or excavated material which is neither corrosive nor organic in nature. The material shall be of such size that 100% shall pass a one-inch sieve. Initial backfill shall be placed in increments not exceeding 6 inches in depth and be well tamped for the full length of the sewer.

2. Cast iron soil pipe. Where the trench bottom does not contain stone larger than one inch in size or where bedrock is not encountered, the trench may be excavated to grade. When stone larger than one inch in size or when bedrock is encountered, the trench shall be excavated to a depth at least three inches below the grade elevation and be brought back to grade with a bedding of sand, gravel, or crushed stone of which 100% shall pass a one-half inch sieve. The bedding material shall be

tamped in place. The bedding or trench bottom shall be shaped to accommodate the bells of the pipe. Initial backfill on the sides of the pipe and to a depth of 3 inches over the pipe for that part of the building sewer laid on private property shall be well tamped sand, gravel, crushed stone or excavated material which is neither corrosive nor organic in nature. The material shall be such that 100% shall pass a one-inch sieve. For that portion of the sewer in the street, the initial backfill material to a depth of 12 inches over the pipe shall be sand, gravel or crushed stone of such size that 100% shall pass a one-inch sieve. It shall be placed in increments not exceeding 6 inches and be well tamped.

(g) Unstable bottom. Where a mucky or unstable bottom is encountered in the trench, the required dry and stable foundation conditions shall be provided by sheathing driven and left in place to a depth of 48 inches below the trench bottom or to solid foundation at a lesser depth, the removal of wet and yielding material to a depth of 24 inches or to solid material, and replacement of the unstable material with limestone screenings, pea gravel or equivalent material for the bedding under the pipe. The trench bedding shall be shaped to accommodate pipe bells or couplings. In lieu of the foregoing, the required dry and stable foundation conditions may be provided by installation of a longitudinally reinforced concrete cradle the width of the trench and at least 3 inches thick or by installation of a longitudinally reinforced concrete slab the width of the trench at least 3 inches thick and bedding material as provided for in subsection H 62.05 (4) (f) 1 and 2. Initial backfill material and its placement shall conform to that specified in subsections H 62.05 (4) (f) 1 and 2. All sheathing shall be cut off at a depth of 3 feet or more below the ground surface to prevent heaving due to frost action.

(h) Access. When building sewers exceed 100 feet in length cleanouts of the same diameter shall be not more than 75 feet apart on piping up to and including

4 inches in diameter; not more than 100 feet apart on piping 5 to 10 inches in diameter. Manholes shall be constructed for main interceptor sewers 12 inches and larger at intervals not to exceed 200 feet, or at each change of direction of more than 45 degrees. All cleanout openings shall extend to finished grade.

(i) Industrial waste control. All building sewers serving manufacturing or industrial processing plants or service stations (gas and oil) which are connected to a public sewer system shall have installed therein a manhole for periodic sewage sampling purposes. The manhole shall be of approved design and shall be located on public right-of-way where possible. When manholes are installed on private property they shall be readily accessible at all times.

1. Location. Sampling manholes should be located on public property whenever possible. When located on private property they shall be within 5 feet of the lot line fronting on the public right-of-way and authorized representatives shall be guaranteed the right of access.

2. Construction. Sampling manholes shall be a minimum of 36 inches in diameter and constructed in a watertight and substantial manner and may be of concrete, precast concrete, cast iron, bituminous fiber, enamel coated 14 gauge steel, or vitrified clay pipe. Construction details shall follow the general criteria as shown in H 62.22.

(j) Backfill completion. Due care shall be exercised in placing the balance of the backfill to prevent breakage of the pipe. Large boulders or rock or concrete slabs, or frozen masses shall not be used in the backfill nor shall machinery be operated within the trench until a cover of 6 feet over the pipe has been attained.

(5) INSPECTION. The building sewer should be inspected upon completion of placement of the pipe and before backfilling. A "T" or "Y" should be provided to

permit testing the pipe for leakage or infiltration. Such "T" or "Y" shall be located as near as possible to the point of connection with the street or main sewer.

(6) CONNECTIONS TO MAIN SEWER. When a building connection on the street or main sewer is not found within 3 feet of the point designated by the local governing body, or its authorized representative, a "Y" or "T" fitting approved by the department shall be used. The connection shall be set upon or in a carefully cut opening centered in the upper quadrant of the street sewer, and be secured by encasement of the main sewer pipe and the fitting with concrete at least 3 inches thick so as to assure permanency of connection and adequate backing of the street sewer pipe. In lieu of the use of fittings and in the event that the opening cannot be centered in the upper quadrant of the street sewer, a length of the street sewer pipe shall be removed and a "Y" branch section inserted in its place. The joints at the ends of such section shall be encased in concrete at least 3 inches thick. Such connection or insertion shall be made under the supervison of the authorized representative of the municipality.

(7) SEWER OPENINGS PROTECTED. The ends of all sewer pipes not immediately connected shall be securely closed so as to prevent the introduction of sand or earth or drainage from an excavation.

(8) LIMITATIONS AND PROHIBITIONS. (a) Location. The following minimum distances shall be maintained between building sewers and water wells.

1. Sanitary and storm sewers, including sanitary and storm building drains, of cast iron pipe with leaded or neoprene gasket joints -- 8 feet.

2. Sanitary and storm sewers, including sanitary and storm building drains, other than cast iron -- 25 feet.

(b) Use of building sewers. No person shall connect to a public sewer any building drain or sewer through which is discharged any substance likely to cause

undue corrosion, obstruction, nuisance, explosion or interference with sewage treatment processes. See section H 62.11 and H 62.14.

(c) Storm and clear water connections. Roof leaders, surface drains, ground water drains, foundation footing, refrigerator cooling water, storm water drains, drinking fountains, air-conditioning and other clear water drains not described herein shall whenever possible discharge to storm drains or sewers, but they shall not be discharged to a sanitary building drain or sewer or to a private sewage disposal system. Building storm sewers shall not be connected to a building sanitary sewer. The building sanitary sewer and building storm sewer shall be installed as 2 separate pipe lines and shall connect to the appropriate street or main sewer. In the event no main storm sewer exists, the building storm sewer shall extend to the ground surface terminating with a return bend type fitting with the discharge opening 18 inches above final grade. A bleeder drain shall extend to an open bottom catch basin and shall be reduced to a 1 inch inside diameter pipe size or other design methods as may be approved by the department.

SECTION H 62.06 05

BUILDING DRAINS

62.05

H ~~62.06~~ Building drains. (1) ELEVATION. All building drains shall be brought into the building underground, preferably below the level of the basement floor.

(2) MATERIALS. All building drains shall be constructed of concrete, vitrified clay, type L hard temper copper or cast iron pipe. The use of concrete or vitrified clay pipe is permitted only where there is a soil covering of 18 inches or more or where the pipe is covered with 9 inches of soil and a substantial concrete floor having a minimum 3 inch thickness. Where a building drain leaves the building at a point above the basement floor, it shall be constructed of cast iron or type L hard temper copper pipe to a point 5 feet from the inside of the building foundation wall or to such additional distance as necessary to reach undisturbed stable ground.

(3) SIZE. (a) Sanitary. The size of building drains and building sub-drains shall be determined by the number of fixture units tributary thereto. The minimum size of a building drain shall be 4 inches. The minimum size of an underground building sub-drain shall be 3 inches. The minimum size of underground waste pipe may be 2 inches in diameter and shall not exceed 4 feet in length. See subsections H 62.05 (3) (a) and H 62.10 (1).

(b) Storm. The building storm drain size shall be determined on the total area to be drained thereby. The size of the roof leader piping should be determined from the following table or shall be calculated using the formula following the table.

Table 5

Type of Roof	Allowable Roof Area in Square Feet for Given Size of Inside Leader					
	2 1/2"	3"	4"	5"	6"	8"
Roof covered with gravel, slag or similar material with incline 1/4" to 1' or less----------	Up to 1,645	1,646 to 2,120	2,121 to 3,780	3,781 to 5,885	5,886 to 8,490	8,491 to 15,125
Same with incline 1/2" to 1' or more and sawtoothed roofs--	Up to 1,220	1,221 to 1,770	1,771 to 3,150	3,151 to 4,905	4,906 to 7,075	7,076 to 12,600
Metal, tile, brick, slate, or similar roofs of any incline--	Up to 975	976 to 1,415	1,416 to 2,520	2,521 to 3,925	3,926 to 5,660	5,661 to 10,080

(c) Barrett's formula. For vertical leaders serving roofs covered with gravel or slag, with an incline not exceeding one-quarter of an inch per foot, allow 300 square feet of roof surface to each square inch of leader opening; for roofs of greater incline or sawtooth roof construction, 250 square feet roof surface to each square inch of leader opening; for metal, tile, slate, or similar roofs of any incline, 200 square feet of roof surface to each square inch of leader opening. This formula using the 300 square feet of area for each square inch of leader opening can also be used for determining the size required for draining yards and other areas. To determine the diameter of the vertical leader required, the following formula can be used:

$$\text{vertical leader diameter} = 1.128\sqrt{\frac{\text{roof area}}{300 \text{ or } 250 \text{ or } 200}}$$

(4) CONTROLLED ROOF DRAINAGE. (a) Approval. Storm water roof drainage systems employing or incorporating special types of equipment, devices, weirs or other methods of controlling or delaying flow volume velocities or capacities for

the purpose of minimizing pipe diameter requirements shall receive department approval before installation.

(b) Design. The system shall be designed using the area rainfall rate criteria, the formulae applicable to the specific manufacturers roof drain equipment to be installed, other pertinent design data and applicable state plumbing code rules.

(c) Plans. Blueprints (isometric or schematic) shall be prepared in triplicate for submission to the department for review. The plans shall contain the entire system layout including the building storm drain and storm sewer. All criteria and data pertinent to the proposed installation shall be included with the plans including other clear water waste tributary thereto. The installation shall not be revised or deviate from the approved plan without prior authorization from the department.

(5) BACKFLOW VALVES. Building drains subject to backflow or backwater at the time of installation shall be provided with adequate backwater valves, installed to prevent interference with the flow and be readily accessible for cleaning.

(6) OTHER REQUIREMENTS. Installation of building drains shall also conform to subsection H 62.05 (4) (a) as to gradient, subsections H 62.05 (4) (f) and (g), (7) and (8); section H 62.15 and H 62.16, insofar as they are applicable and necessary for proper installation.

The rules contained herein shall take effect on November 1, 1970 as provided in Section 227.026(1), Wisconsin Statutes, subject to the provisions of Section 14.225, Wisconsin Statutes.

Wilbur J. Schmidt
Secretary
Department of Health & Social Services

Dated September 24, 1970

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