DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

1) Heading of the Part: Illinois Plumbing Code

2) Code Citation: 77 Ill. Adm. Code 890

3)

Section Numbers:	Proposed Action:
890.110	Amend
890.120	Amend
890.130	Amend
890.180	Amend
890.190	Amend
890.320	Amend
890.330	Amend
890.340	Amend
890.410	Amend
890.510	Amend
890.520	Amend
890.530	Amend
890.630	Amend
890.640	Amend
890.650	Amend
890.680	Amend
890.690	Amend
890.700	Amend
890.720	Amend
890.730	Amend
890.740	Amend
890.745	Amend
890.750	Amend
890.800	Amend
890.810	Amend
890.1010	Amend
890.1110	Amend
890.1120	Amend
890.1130	Amend
890.1140	Amend
890.1150	Amend
890.1170	Amend
890.1180	Amend
890.1190	Amend
890.1210	Amend

890.1220	Amend
890.1230	Amend
890.1310	Amend
890.1320	Amend
890.1330	Amend
890.1340	Amend
890.1360	Amend
890.1370	Amend
890.1380	Amend
890.1420	Amend
890.1430	Amend
890.1440	Repeal
890.1450	Amend
890.1460	Repeal
890.1470	Amend
890.1480	Amend
890.1490	Repeal
890.1500	Amend
890.1510	Repeal
890.1520	Amend
890.1560	Repeal
890.1580	Amend
890.1590	Amend
890.1600	Amend
890.1720	Amend
890.1730	Amend
890.1750	Amend
890.2010	New
890.2015	New
890.2020	New
890.2025	New
890.2030	New
890.2035	New
890.2040	New
890.2045	New
890.2050	New
890.2055	New
890.2060	New
890.2065	New
890.2070	New

890.2075	New
890.2080	New
890.2085	New
890.2090	New
890.2095	New
890.2100	New
890.2105	New
890.2110	New
890.2115	New
890.2120	New
890.2125	New
890.2130	New
890.2135	New
890.2140	New
890.2145	New
890.2150	New
890.Appendix A	Amend
890.Appendix A.Table A	Amend
890.Appendix A.Table B	Amend
890.Appendix A.Table D	Amend
890.Appendix A.Table M	Amend
890.Appendix A.Table N	Amend
890.Appendix A.Table O	Amend
890.Appendix A.Table R	New
890.Appendix A.Table S	New
890.Appendix A.Table T	New
890.Appendix A.Table U	New
890.Appendix A.Table V	New
890.Appendix A.Table W	New
890.Appendix A.Table X	New
890.Appendix A.Table Y	New
890.Appendix B.Illustration C	Amend
890.Appendix B.Illustration G	Amend
890.Appendix B.Illustration H	Amend
890.Appendix B.Illustration I	Amend
890.Appendix B.Illustration Q	Amend
890.Appendix B.Illustration X	Repeal
890.Appendix B.Illustration Y	Amend
890.Appendix B.Illustration Z	Amend
890.Appendix B.Illustration BB	New

890.Appendix B.Illustration CC	New
890.Appendix C.Illustration C	Amend
890.Appendix D.Illustration A	Amend
890.Appendix D.Illustration C	Amend
890.Appendix D.Illustration E	Amend
890.Appendix D.Illustration F	Amend
890.Appendix D.Illustration G	Amend
890.Appendix D.Illustration H	Amend
890.Appendix E.Illustration A	Amend
890.Appendix E.Illustration B	Amend
890.Appendix E.Illustration C	Amend
890.Appendix F.Illustration A	Amend
890.Appendix F.Illustration B	Amend
890.Appendix F.Illustration D	Amend
890.Appendix F.Illustration E	Amend
890.Appendix F.Illustration F	Amend
890.Appendix G.Illustration B	Amend
890.Appendix H.Illustration A	Amend
890.Appendix H.Illustration B	Amend
890.Appendix H.Illustration C	Amend
890.Appendix H.Illustration D	Amend
890.Appendix H.Illustration E	Amend
890.Appendix H.Illustration F	Amend
890.Appendix I.Illustration A	Amend
890.Appendix I.Illustration B	Amend
890.Appendix I.Illustration C	Amend
890.Appendix I.Illustration E	Amend
890.Appendix I.Illustration H	Amend
890.Appendix I.Illustration J	Amend
890.Appendix I.Illustration L	Amend
890.Appendix I.Illustration M	Amend
890.Appendix I.Illustration N	Amend
890.Appendix I.Illustration O	Amend
890.Appendix J.Illustration A	Amend
890.Appendix J.Illustration C	Amend
890.Appendix J.Illustration E	Amend
890.Appendix J.Illustration F	Amend
890.Appendix J.Illustration G	Amend
890.Appendix J.Illustration H	Amend
890.Appendix J.Illustration I	Amend

890.Appendix J.Illustration J	Amend
890.Appendix J.Illustration K	Amend
890.Appendix J.Illustration L	Repeal
890.Appendix K.Illustration A	Amend
890.Appendix K.Illustration B	Amend
890.Appendix K.Illustration C	Amend
890.Appendix K.Illustration D	Amend
890.Appendix K.Illustration E	Amend
890.Appendix K.Illustration F	Amend
890.Appendix K.Illustration G	Amend
890.Appendix K.Illustration H	Amend
890.Appendix K.Illustration I	Amend
890.Appendix K.Illustration J	Repeal
890.Appendix K.Illustration K	Repeal
890.Appendix K.Illustration L	Amend
890.Appendix K.Illustration M	Amend
890.Appendix K.Illustration N	Amend
890.Appendix K.Illustration O	Amend
890.Appendix K.Illustration P	Amend
890.Appendix K.Illustration Q	Amend
890.Appendix K.Illustration R	Amend
890.Appendix K.Illustration S	Amend
890.Appendix K.Illustration T	Amend
890.Appendix K.Illustration U	Amend
890.Appendix K.Illustration V	Amend
890.Appendix K.Illustration W	Amend
890.Appendix K.Illustration X	Repeal
890.Appendix K.Illustration Y	Amend
890.Appendix K.Illustration Z	Amend
890.Appendix K.Illustration AA	Amend
890.Appendix K.Illustration BB	Amend
890.Appendix K.Illustration CC	Amend
890.Appendix K.Illustration DD	Amend
890.Appendix K.Illustration EE	Amend
890.Appendix K.Illustration FF	Amend
890.Appendix K.Illustration GG	Amend
890.Appendix L.Illustration A	New

4) Statutory Authority: Illinois Plumbing License Law [225 ILCS 320/35]

DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

5) A Complete Description of the Subjects and Issues Involved: Changes to these rules include amendments recommended by the Plumbing Code Advisory Council to the existing minimum code of standards for plumbing and the fixtures, materials, design, and installation methods of plumbing systems to reflect advances in those technologies and methods that use natural resources more effectively and protect public health. Modifications to format, style, and numbering are being made to increase uniformity between the Part and the required codification system established by the Secretary of State. Edits were introduced to clarify ambiguity and eliminate redundancy. Repealed Sections were relocated within the Part. New illustrations have been added for clarity. Repealed illustrations have been relocated or deleted because of duplication. The purpose of the new Subpart N is to provide a comprehensive set of technically sound provisions that encourage sustainable practices and work towards enhancing the design and construction of plumbing systems that result in a positive long-term environmental impact.

The economic effect on this proposed rulemaking is unknown. Therefore, the Department requests any information that would assist in calculating this effect.

The Department anticipates adoption of this rulemaking approximately six to nine months after publication of the Notice in the *Illinois Register*.

6) Published studies or reports, and sources of underlying data used to compose this rulemaking:

IAPMO 2012 Uniform Solar Energy Code. IAPMO 2012 Green Plumbing and Mechanical Code Supplement.

7) Will this rulemaking replace any emergency rulemaking currently in effect? No

8) Does this rulemaking contain an automatic repeal date? No

9) Does this rulemaking contain incorporations by reference? Yes

10) Are there any other proposed rulemakings pending on this Part? No

11) Statement of Statewide Policy Objectives: Plumbing ordinances adopted by local governments must be no less restrictive in their applications than the proposed rules.

12) Time, Place and Manner in which interested persons may comment on this proposed rulemaking:

DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Interested persons should present their comments concerning this rulemaking within 45 days after the publication of this issue of the *Illinois Register* to:

Susan Meister
Division of Legal Services
Illinois Department of Public Health
535 W. Jefferson St., 5th floor
Springfield, Illinois 62761

217-782-2043
e-mail: dph.rules@illinois.gov

13) Initial Regulatory Flexibility Analysis:

A) Types of small businesses, small municipalities and not for profit corporations affected: Because the proposed rules deal with optional plumbing, small businesses, and not for profit corporations will not be affected. However, local governments with a plumbing ordinance must ensure their inspectors enforce the proposed standards. No economic impact is expected.

B) Reporting, bookkeeping or other procedures required for compliance: None

C) Types of professional skills necessary for compliance: Plumbing License

14) Regulatory Agenda on which this rulemaking was summarized: January 2013

The full text of the Proposed Amendments begins on the next page:

DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

TITLE 77: PUBLIC HEALTH
CHAPTER I: DEPARTMENT OF PUBLIC HEALTH
SUBCHAPTER r: WATER AND SEWAGE

PART 890
ILLINOIS PLUMBING CODE

SUBPART A: DEFINITIONS AND GENERAL PROVISIONS ~~REGULATIONS~~

Section

SUBPART B: PLUMBING MATERIALS

Section

SUBPART C: JOINTS AND CONNECTIONS

Section

SUBPART D: TRAPS AND CLEANOUTS

SUBPART E: INTERCEPTORS-SEPARATORS AND BACKWATER VALVES

SUBPART F: PLUMBING FIXTURES

SUBPART J: DRAINAGE SYSTEM

SUBPART K: VENTS AND VENTING

SUBPART L: PLUMBING SYSTEMS/CORRECTIONAL FACILITIES

SUBPART M: INSPECTIONS, TESTS, MAINTENANCE, AND ADMINISTRATION

SUBPART N: SUSTAINABLE PLUMBING SYSTEMS

890.ILLUSTRATION V Stack Vent
890.ILLUSTRATION W Trap
890.ILLUSTRATION X Vent Stack (Repealed)
890.ILLUSTRATION Y Wet Vent
890.ILLUSTRATION Z Yoke Vent~~Section 890.ILLUSTRATION AA Sleeves~~
890.ILLUSTRATION AA Sleeves
890.ILLUSTRATION BB Buried Piping Parallel to Footing
890.ILLUSTRATION CC Individual Dry Vent
890.APPENDIX C Illustrations for Subpart C
890.ILLUSTRATION A Caulked Joints
890.ILLUSTRATION B Flared Joints
890.ILLUSTRATION C Positions of Application for Compression Type Joints
890.APPENDIX D Illustrations for Subpart D
890.ILLUSTRATION A Fixture Traps
890.ILLUSTRATION B Distance of Trap to Fixture
890.ILLUSTRATION C Types of Traps
890.ILLUSTRATION D Trap Cleanouts
890.ILLUSTRATION E Prohibited Traps
890.ILLUSTRATION F Underground Drainage
890.ILLUSTRATION G Concealed Piping
890.ILLUSTRATION H Cleanout Clearance
890.APPENDIX E Illustrations for Subpart E
890.ILLUSTRATION A Grease Interceptor
890.ILLUSTRATION B Typical Grease Interceptor/Catch Basin
890.ILLUSTRATION C Interceptor/Separator Vents
890.ILLUSTRATION D Interceptors for Bottling Plants (Repealed)
890.ILLUSTRATION E Laundry Interceptors (Repealed)
890.ILLUSTRATION F Backwater Valve Location (Repealed)
890.APPENDIX F Illustrations for Subpart F
890.ILLUSTRATION A Prohibited Fixtures
890.ILLUSTRATION B Circular Wash Sinks
890.ILLUSTRATION C Commercial Type Grinder #1 (Repealed)
890.ILLUSTRATION D Commercial Type Grinder #2
890.ILLUSTRATION E Protective Guard
890.ILLUSTRATION F Trap and Strainer
890.APPENDIX G Illustrations for Subpart G
890.ILLUSTRATION A Cast Iron Soil Pipe Support #1
890.ILLUSTRATION B Cast Iron Soil Pipe Support #2

890.ILLUSTRATION C Horizontal Piping Support (Repealed)
890.ILLUSTRATION D Cast Iron Soil Stack Support (Repealed)
890.APPENDIX H Illustrations for Subpart H
890.ILLUSTRATION A Indirect Waste Piping #1
890.ILLUSTRATION B Indirect Waste Piping #2
890.ILLUSTRATION C Indirect Waste Piping #3
890.ILLUSTRATION D Indirect Waste Piping #4
890.ILLUSTRATION E Indirect Waste Connection
890.ILLUSTRATION F Air Gaps
890.APPENDIX I Illustrations for Subpart I
890.ILLUSTRATION A Cross Connection #1
890.ILLUSTRATION B Cross Connection #2
890.ILLUSTRATION C Cross Connection #3
890.ILLUSTRATION D Flushometer Valve
890.ILLUSTRATION E Underground Water Piping #1
890.ILLUSTRATION F Underground Water Piping #2
890.ILLUSTRATION G Underground Water Piping #3
890.ILLUSTRATION H Water Supply Control
890.ILLUSTRATION I Shut-Off Valve at Meter
890.ILLUSTRATION J Separate Controls for Each Family Unit
890.ILLUSTRATION K Shut-Off Valves in Buildings Other Than Dwellings
890.ILLUSTRATION L Typical Gas Water Heater
890.ILLUSTRATION M Typical Electric Water Heater
890.ILLUSTRATION N P & T Valve Installed in Hot Outlet Line
890.ILLUSTRATION O P & T Relief Valve
890.APPENDIX J Illustrations for Subpart J
890.ILLUSTRATION A Dead Ends
890.ILLUSTRATION B Horizontal to Vertical Change of Direction
890.ILLUSTRATION C Horizontal to Horizontal Change of Direction
890.ILLUSTRATION D Vertical to Horizontal Change of Direction
890.ILLUSTRATION E Fixture Connections
890.ILLUSTRATION F Waste Stacks
890.ILLUSTRATION G Offsets on Drainage Piping
890.ILLUSTRATION H Relief Vent
890.ILLUSTRATION I Above Highest Branch
890.ILLUSTRATION J Below Lowest Branch
890.ILLUSTRATION K Drainage Below Sewer Level
890.ILLUSTRATION L Sanitary Wastes Below Sewer (Repealed)

890.APPENDIX K Illustrations for Subpart K
890.ILLUSTRATION A Installation of Vent Stack or Main Vent
890.ILLUSTRATION B Vent Terminal
890.ILLUSTRATION C Main Vent ~~Stack~~
890.ILLUSTRATION D Roof Extensions ~~Garden~~
890.ILLUSTRATION E Location of Vent Terminal
890.ILLUSTRATION F Vent Grade and Vertical Rise ~~Grade~~
890.ILLUSTRATION G Vertical Rise
890.ILLUSTRATION H Height Above Fixtures
890.ILLUSTRATION I Heel or Side-Inlet ~~Quarter Bends~~
890.ILLUSTRATION J Heel or Side-Inlet (Repealed)
890.ILLUSTRATION K Fixtures Back-to-Back and Side-by-Side (Repealed)
890.ILLUSTRATION L Distance from Trap to Vent
890.ILLUSTRATION M Trap Vent ~~Weir~~
890.ILLUSTRATION N Trap Weir /Hydraulic Gradient ~~Vent~~
890.ILLUSTRATION O Common Vent
890.ILLUSTRATION P Vertical Wet Vent
890.ILLUSTRATION Q Horizontal ~~Vertical~~ Wet Vent
890.ILLUSTRATION R Vertical / Horizontal Wet Vent ~~Hydraulic Gradient~~
890.ILLUSTRATION S Single Bathroom Group Venting ~~Groups~~
890.ILLUSTRATION T Bathroom Group Back to Back ~~Double Bath~~
890.ILLUSTRATION U ~~Mutistory~~ Bathroom Groups − Plan
890.ILLUSTRATION V ~~Mutistory~~ Bathroom Groups − Elevation
890.ILLUSTRATION W One Bathroom Group − Plan
890.ILLUSTRATION X One Bathroom Group − Elevation (Repealed)
890.ILLUSTRATION Y Battery Venting
890.ILLUSTRATION Z Dual Branches
890.ILLUSTRATION AA Right and Wrong Vent Connections
890.ILLUSTRATION BB Fixtures Back-to-Back in Battery
890.ILLUSTRATION CC Fixture Connections − Offset Vents
890.ILLUSTRATION DD Circuit Vented Fixtures
890.ILLUSTRATION EE Vent Stacks ~~Main Vents~~
890.ILLUSTRATION FF Combination Waste and Vent
890.ILLUSTRATION GG Special Venting for Island Fixtures
890.APPENDIX L Illustrations for Subpart N
890.ILLUSTRATION A Symbol for Hose Bibbs

DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

AUTHORITY: Implementing and authorized by Section 35 of the Illinois Plumbing License Law [225 ILCS 320/35].

SOURCE: Filed August 20, 1969; amended at 7 Ill. Reg. 4245, effective March 24, 1983; emergency amendment at 7 Ill. Reg. 7328, effective May 31, 1983, for a maximum of 150 days; amended at 7 Ill. Reg. 13930, effective October 12, 1983; codified at 8 Ill. Reg. 19993; amended at 8 Ill. Reg. 24621, effective December 12, 1984; amended at 9 Ill. Reg. 13340, effective August 21, 1985; amended at 10 Ill. Reg. 7862, effective May 16, 1986; amended at 11 Ill. Reg. 9278, effective April 30, 1987; amended at 14 Ill. Reg. 1385, effective January 10, 1990; Part repealed, new Part adopted at 17 Ill. Reg. 21516, effective December 1, 1993; emergency amendment at 18 Ill. Reg. 14444, effective September 1, 1994, for a maximum of 150 days; emergency expired January 28, 1995; amended at 22 Ill. Reg. 21540, effective December 1, 1998; amended at 28 Ill. Reg. 4215, effective February 18, 2004; amended at 29 Ill. Reg. 5713, effective April 8, 2005; amended at 37 Ill. Reg. _____, effective _____.

SUBPART A: DEFINITIONS AND GENERAL PROVISIONS ~~REGULATIONS~~

Section 890.110 Applicability ~~General Regulations~~

~~a)~~ ~~Authority~~
~~These rules are promulgated pursuant to authority granted by Section 35 of the Illinois Plumbing License Law (Ill. Rev. Stat. 1991, ch. 111, par. 1133) [225 ILCS 320/35].~~

a)~~b)~~ The ~~These~~ rules in this Part govern the design and installation of new plumbing or plumbing systems and the alteration of plumbing systems. They apply to all new construction and any remodeling or renovation that alters, renovates or replaces existing plumbing or plumbing systems.

b) The ~~These~~ rules in this Part do not apply to existing buildings unless the plumbing or plumbing system is being altered, the building use is being changed or the existing plumbing creates a health or safety hazard.

c)~~ 1)~~ If an existing building is changed from one use to another or from one classification to another, as provided in Appendix A,~~,~~Table B, it shall be treated as a new building and shall comply with the requirements of this Part for its new use or occupancy.

DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.120 Definitions

For the purpose of administering and enforcing this Part, the following terms, which consist of words or expressions that have a precise meaning in plumbing, shall have the meaning indicated. Refer to Appendix A for standards applicable to plumbing appurtenances and fixtures defined in this Section.

"Abut" or "Abutting": To ~~Abutting means to~~ border, to touch, to terminate at point of contact, adjacent.

"Accessible": Easily ~~Accessible means easily~~ approached or entered with minor modifications, such as the removal of an access panel, door, or similar obstruction~~,~~ (e.g., sheetrock or paneling). Concrete, asphalt, and ceramic tile are not considered accessible.

"Air Break"~~:~~ (See "Air Gap".).

"Air Gap": The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank or plumbing fixture and the flood-level rim of the receptacle. An air gap in a drainage system is a piping arrangement in which a drain from a fixture, appliance, or device discharges indirectly into another fixture, receptacle, or interceptor at a point above the flood level rim. (See Appendix B.~~:~~ Illustrations A and B.)

"Alternate Water Source": Non-potable source of water that includes but is not limited to graywater, rainwater, reclaimed, or recycled water.

"Anchor": An approved support for securing pipe, fixtures, and equipment to walls, ceilings, floors, or any other structural members.

"Antimicrobial": An additive or surface coating that prohibits the growth of bacteria or staphylococci.

"Anti-siphon Ballcock ~~Ball Cock~~": A ~~An anti-siphon ball-cock is a~~ device consisting of a float valve with a flow-splitter to provide for tank and trap refill, which has an integral vacuum breaker, and which is used in conjunction with

water closet flush tanks.

"Approved": Accepted ~~Approved means accepted~~ or acceptable under an applicable specification stated or cited in this Part or accepted as suitable for the proposed use.

"Area Drain": A drain placed in the floor of a basement areaway, a depressed or basement entry way, a loading platform, or a paved driveway that ~~which~~ cannot otherwise be drained.

"Aspirator": A device supplied with water under positive pressure, which passes through an integral orifice, causing a partial vacuum and resulting in movement of fluid by siphonage.

"Atmospheric Vacuum Breaker": A device consisting of a soft disc, reaction cup, fully guided stem guide, air vent port, and air port shield or hood to prevent fouling of the vent port, used for protection against back siphonage.

"Authority Having Jurisdiction (AHJ)": The Department or a unit of local government or a Certified Plumbing Inspector specifically authorized by statute, rule, or ordinance to enforce this Part.

"Back Pressure": A condition caused when a force is exerted and reverses the flow of gas, water, or air in a direction opposite the intended normal direction of flow.

"Back Siphonage": A condition caused when a negative force or vacuum is exerted and reverses the flow of gas, water, or air to a direction opposite the intended normal direction of flow.

"Back Siphonage Preventer": A device designed to prevent reverse flow in a water system, specifically back siphonage. The device should be used only where no back pressure may occur.

"Back Water Valve": A device or valve that is installed in a sanitary sewer, storm drain, or storm sewer to prevent sewage or drainage from backing up.

"Backflow": The reversal of flow from that normally intended. Hydraulic

conditions that cause backflow include back siphonage, back pressure, and aspiration.

"Backflow Preventer": A device or an assembly used to prevent contamination of the potable water supply through an actual or potential cross-connection.

"Backflow Preventer, Double Check Valve Backflow Preventer Assembly (DCV)": A plumbing appurtenance consisting of two ~~2~~ internally force loaded ~~force-loaded~~, independently acting check valves that ~~which~~ operate normally in the closed position; two ~~2~~ tight-closing, resilient seated shut-off valves; and four ~~4~~ test cocks.

"Backflow Preventer, Dual Check Valve Type with Atmospheric Vent": A plumbing appurtenance consisting of two ~~2~~ internally force loaded ~~force-loaded~~, independently acting check valves, designed to operate normally in the closed position, separated by an intermediate chamber able to automatically vent to atmosphere.

"Backflow Preventer, Double Check Detector Backflow Prevention Assembly (DCDA)": A plumbing appurtenance consisting of two ~~2~~ internally force loaded ~~force-loaded~~, independently acting check valves, designed to operate normally in the closed position; two ~~2~~ tight-closing, resilient seated shut-off valves; and four ~~4~~ test cocks. The assembly must include a bypass line with a water meter and double check assembly.

"Backflow Preventer, Dual Check Valve Type": A plumbing appurtenance consisting of two ~~2~~ internally force loaded ~~force-loaded~~, independently acting check valves, designed to operate normally in the closed position.

"Backflow Preventer, Dual Check Valves, Post-Mix Carbonated Beverage Dispenser Type": A plumbing appurtenance used to prevent carbonated water or carbon dioxide from backflow ~~backflowing~~ into a potable water system. The assembly consists of two ~~2~~ internally force loaded ~~force-loaded~~, independently acting check valves, designed to operate normally in the closed position, residing in a common body.

"Backflow Preventer, Reduced Pressure Detector Backflow Prevention Assembly (RPDA)": A plumbing appurtenance consisting of two ~~2~~ internally force loaded

~~force-loaded~~, independently acting check valves, designed to operate normally in the closed position, separated by an intermediate zone that includes an internally force loaded ~~force-loaded~~ hydraulic operated relief for venting to atmosphere, designed to operate normally in the open position, two ~~2~~ tight-closing, resilient seated shut-off valves, four ~~4~~ test cocks, and a metered reduced pressure backflow prevention assembly bypass.

"Backflow Preventer, Reduced Pressure Principle Backflow Prevention Assembly (RPZ)": A plumbing appurtenance consisting of two ~~2~~ internally force loaded ~~force-loaded~~, independently acting check valves, designed to operate normally in the closed position, separated by an intermediate zone that includes an internally force loaded ~~force-loaded~~, hydraulically operated relief for venting to atmosphere, designed to operate normally in the open position, two ~~2~~ tight-closing resilient seated shut-off valves, and four ~~4~~ test cocks.

"Ballcock ~~Ball Cock~~": A device consisting of a float valve equipped with a flow-splitter to provide a tank and trap refill; used in conjunction with a flush tank on a water closet.

"Battery of Fixtures": Any ~~A battery of fixtures is any~~ group of two ~~2~~ or more identical adjacent fixtures that ~~which~~ discharge into a common horizontal waste or soil branch. (See Appendix B.~~:~~ Illustration C.)

"Boiler Blow-Down": A controlled outlet on a boiler to permit emptying or discharging of sediment.

"Branch": Any part of the piping system other than a main, riser, or stack. (See Appendix B.~~:~~ Illustration D.)

"Branch Interval": A length of 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 floor or story of a building are connected to the stack.

"Branch Vent": A horizontal vent connecting one or more individual vents with a vent stack or stack vent. (See Appendix B.~~:~~ Illustration E.)

"Building Classification": The ~~Refers to the~~ Department's designation of buildings into differing types based upon use or occupancy, such as ~~e.g.,~~

residential buildings, dormitories, office buildings, food service establishments, etc.

"Building Drain": The ~~That~~ part of the lowest horizontal piping of a drainage system that ~~which~~ receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it to the building (house) sewer. The building drain's developed length terminates 5 feet outside the building foundation wall. (See Appendix B.~~:~~ Illustration F.)

"Building Sewer": The ~~That~~ part of the horizontal piping of a drainage system that ~~which~~ extends from the end of the building drain, receives the discharge of the building drain and conveys it to a public sanitary sewer or private sewage disposal system. The building sewer commences 5 feet outside the building foundation wall. (See Appendix B.~~:~~ Illustration F.)

"Building Storm Drain": The lowest horizontal portion of the storm drainage system used for conveying rain water, surface water, ground water, subsurface water, site drainage, condensate, or cooling water inside the walls of a building to a point 5 feet beyond the outside of the building foundation wall.

"Building Sub-drain": The ~~That~~ portion of a sanitary drainage system (see definition of "Drainage System") that ~~which~~ cannot drain by gravity into the building drain. (See Appendix B.~~:~~ Illustration G.)

"Building Trap": A device, fitting, or assembly of fittings installed in a building drain to prevent circulation of air between the drainage system of the building and the building sewer.

"Chemical Waste System": Piping that ~~which~~ conveys corrosive or toxic chemical waste to the drainage system.

"Circuit Vent": A branch vent that serves two ~~2~~ or more traps and extends from the front of the last fixture connection of a horizontal waste branch to the vent stack. This type of venting applies only to floor drains and floor outlet fixtures ~~which depend on siphonage for proper operation~~. (See Appendix B.~~:~~ Illustration H.)

"Clear Water" or "Clear Water Waste": Cooling water and condensate waste

from refrigeration or air conditioning equipment, cooled condensate from steam heating systems, and seepage water.

"Closed Water System": A system that has a backflow device or assembly installed in the water supply system to contain backflow within the premises. Other plumbing appurtenances, such as a single check valve or a water pressure regulator installed in the water supply system, may also create a closed water system.

"Code": ~~The term "code" is commonly used to mean~~ State or local statutes, ordinances, or administrative rules ~~or regulations,~~ e.g., requirements for plumbing methods, materials, etc. This administrative rule (77 Ill. Adm. Code ~~Part~~ 890)~~,~~ ~~the Illinois Plumbing Code,~~ will be referenced in this rule as "Part". ~~In order for a State plumbing code to be enforceable, it must be authorized by Illinois statute and be promulgated pursuant to such statute.~~ At the local level, a county, city, township, village, or sanitary/water district shall ~~must~~ adopt a plumbing ordinance or resolution and ~~a~~ plumbing rules ~~code~~, and the ~~such~~ ordinance or resolution and rules ~~code~~ shall ~~must~~ be filed with the clerk's office. A standard for plumbing contained in any local rule or ordinance ~~code~~ that has not been officially adopted can ~~only~~ be construed only as a recommended standard**.**

"Cold Water": Water ~~Cold water is water~~ below 85 degrees Fahrenheit ~~°F~~.

"Combination Fixture": A fixture combining two ~~2~~ or more compartments or receptors.

"Combination Waste and Vent System": A system of waste piping with the horizontal wet venting of one or more floor drains by means of a common waste and vent pipe adequately sized to provide free movement of air above the flow line of the drain.

"Combined Building Sewer": A ~~combined building~~ sewer that ~~is one which~~ receives storm water and sewage.

"Common Vent": A vent connecting at the junction of two ~~2~~ fixture drains and serving as a vent for both fixtures. (See Appendix B.~~:~~ Illustration I.)

"Connection": The joining of two ~~2~~ pieces of pipe, or pipes and fittings, valves,

or other appurtenances.

"Contaminant": Any solid, liquid, or gaseous matter that, when present in a potable water supply distribution system, may cause the water to degrade so that water quality standards are not met or physical illness, injury, or death to persons consuming the water could result.

"Contaminated Water": Water ~~Contaminated water means water~~ not suitable for human use or that does not meet the water quality standards of rules of the Illinois Pollution Control Board titled ~~entitled~~ Primary Drinking Water Standards (35 Ill. Adm. Code 611).

"Continuous Vent": A vertical vent that is a continuation of the drain to which it connects. The drain may be either vertical or horizontal. ~~A continuous vent is also known as a back vent or an individual vent.~~ (See Appendix B.~~:~~ Illustration J.)

"Continuous Waste": A drain or waste line from two ~~2~~ or more fixtures or sink compartments (of a single fixture), such as a combined three- ~~3~~ compartment sink, connected to a single common trap.

"Critical Level": The mark on an atmospheric vacuum breaker established by the manufacturer and stamped "-CL-". This determines the minimum elevation above the flood-level rim or top of the fixture, whichever shall apply, at which the device shall be installed. When an atmospheric vacuum breaker does not bear a critical level marking, the bottom of the vacuum breaker shall constitute the critical level.

"Cross Connection": Any actual or potential connection or arrangement between two ~~2~~ otherwise separate piping systems, one containing potable water and the other containing fluids or gases of any kind that do not meet potable water quality standards, in which the non-potable substances in one system may flow into the potable water system or enter it through a means such as back pressure, back siphonage, or aspiration.

"Cross-Connection Control Assembly": A tested and approved plumbing appurtenance, complete with shut-off valves, installed in a potable water line to prevent potable water from being mixed with any substance from a piping system

containing non-potable substances, connected in any manner to the potable water supply.

"Cross-Connection Control by Containment": The installation of a backflow prevention device or assembly on the service line to a premises to protect water quality.

"Cross-Connection Control by Isolation": The installation of a backflow prevention device or assembly at each actual or potential cross-connection within a premises to protect water quality.

"Cross-Connection Control (CCC)": The identification and elimination of all unprotected connections between a potable water system and any other substance.

"Cross-Connection Control Device": A plumbing appurtenance installed in a potable water line to prevent any substance of any kind from being mixed.

"Cross-Connection Control Device Inspector": An individual who holds an Illinois Plumbing License and who has been certified ~~by the Illinois Environmental Protection Agency~~ in accordance with Section 653.802 (Specific Conditions and Installation Procedures) of the Illinois Environmental Protection Agency's rules titled Design, Operation and Maintenance Criteria (35 Ill. Adm. Code 653~~.802~~) to inspect, test, maintain and repair cross-connection control devices and assemblies. The ~~Such~~ certification attests to an inspector's understanding of the principles of backflow and back siphonage, and the public health hazard presented by the improper installation of cross-connection control devices.

"Cross-Connection, Non-pressure ~~Nonpressure~~ Type": A submerged inlet installation where a potable water pipe is connected or extended below the overflow rim of a receptacle, or an environment that contains a non-potable substance at atmospheric pressure.

"Cross-Connection, Pressure Type": An installation where a potable water pipe is connected to a closed vessel or piping system that contains a non-potable substance above atmospheric pressure.

"Dead End": A pipe that is terminated at a developed distance of 2 feet or more

by means of a plug or other closed fitting, except piping serving as a cleanout extension to an accessible area. (See Appendix B.~~:~~ ~~–~~Illustration K.)

"Debris Excluder": A device installed on the rainwater catchment conveyance system to prevent the accumulation of leaves, needles, or other debris in the system.

"Department": The Illinois Department of Public Health.

"Developed Length": The length of a pipe measured along the center line of the pipe, including fittings.

"Diameter": The length of a straight line passing through the center of an object, e.g., a circle. (For the diameter of a pipe, see "Pipe Diameter.")

"Drain": Any pipe that carries waste water in a building drainage system. (See Appendix B.~~:~~ ~~–~~Illustration L.)

"Drain Laying": The laying and connecting of piping from 5 feet outside the foundation wall of a building to the public sanitary sewer system in the street or alley.

"Drainage Fixture Unit (DFU)": The mathematical factor used by the plumbing industry to estimate the probable load on the drainage system caused by discharge from various plumbing fixtures. One drainage fixture unit is equivalent to 7½ gallons per minute or 1 cubic foot per minute.

~~"Drainage Fixture Unit (D.F.U.)": (See "Fixture Unit, Drainage.").~~

"Drainage Piping"~~:~~ (See "Drainage System.").

"Drainage System": All piping within public or private premises that ~~which~~ conveys sewage, rain, or other liquid wastes to a point of disposal, but does not include the mains of a public sewer system or a private or public sewage treatment or disposal plant. The drainage system does not include the venting system. Drainage and venting are separate systems, although both are part of the overall plumbing system.

"Durham System": A soil or waste system where all piping is of threaded pipe, using recessed drainage fittings.

"Effective Opening": The minimum cross-sectional area at the point of water supply discharge, measured or expressed in terms of the diameter of a circle or, if the opening is not circular, the diameter of a circle of equivalent cross-sectional area. (This is applicable to sizing an air gap.)

"Existing Plumbing" or "Existing Work": A plumbing system or any part of a plumbing system that has been installed prior to January 1, 2014 ~~the effective date of this Part~~.

"Extracted Mechanical Joint": A joint that is developed with a special drilling tool used to penetrate a copper pipe wall, after which two ~~2~~ steel pins are extended from the drill. While rotating, the drill head is withdrawn from the pipe under power, raising an external collar from the hole in the pipe. The branch pipe is then brazed into the collared outlet.

"Fixed": Stationary, immovable, or immobile, as in a fixed air gap.

"Fixture Branch": A water supply pipe, soil pipe, or waste pipe serving one or more fixtures.

"Fixture Carrier": A device designed to support an off-the-floor plumbing fixture.

"Fixture Drain": The vertical or horizontal outlet pipe from the trap of the fixture to the junction of that pipe with any other drain pipe. (See Appendix B. ~~:~~ Illustration M.)

"Fixture Supply": A water supply pipe connecting the fixture to a branch or main water supply pipe.

"Fixture Supply Stop": A valve used to control water supply to an individual plumbing fixture, appurtenance, or appliance.

~~"Fixture Unit, Drainage" or "Drainage Fixture Unit (D.F.U.)": The mathematical factor used by the plumbing industry to estimate the probable load on the drainage system caused by discharge from various plumbing fixtures. One fixture unit,~~

~~drainage is equivalent to 7½ gallons per minute or one cubic foot per minute.~~

~~"Fixture Unit, Water Supply" or "Water Supply Fixture Unit (W.S.F.U.)": The mathematical factor used by the plumbing industry to estimate the probable demand on the water supply system (considering the volume, duration of flow, and intervals between operations) caused by various plumbing fixtures.~~

"Float Valve": An automatic opening valve, operated by a float, used to control the water level in a vessel, tank, or other container.

"Flood Level": The elevation at which a liquid will overflow the fixture or receptacle.

"Flood Level Rim": The top edge of a receptacle or fixture over which a liquid will flow when the receptacle or fixture is filled beyond its capacity (or flooded). "Overflow rim" is used interchangeably with flood level rim.

"Flooded": When ~~A fixture is flooded when~~ the liquid in a fixture ~~therein~~ equals the maximum capacity of the fixture or when the level of the liquid in the fixture ~~therein~~ rises to the fixture's flood level rim. Any attempt to add ~~additional~~ liquid to a flooded fixture causes liquid to overflow.

"Flush Valve": A device for the purpose of flushing water closets and other similar fixtures.

"Flushometer Valve": A device actuated by hand, a photoelectric cell, or other electronic control that ~~which~~ discharges a predetermined quantity of water to fixtures for flushing purposes. The valve is closed by direct water pressure.

"Food Service Establishment": Any establishment selling or serving, to the public, food or liquid beverages that can be consumed on the premises.

"Geologically Sensitive Area": An area that because of its susceptibility to erosion, sliding, earthquake, or other geological events, are not suited for development of sustainable alternate water systems design.

"Grade": The fall, pitch, or slope of a line of pipe in reference to a horizontal plane. In drainage, it is usually expressed as the fraction of an inch fall per foot

length of pipe. This may also be expressed as a percentage. (See Appendix B.~~:~~ Illustration O.)

"Graywater": ~~"Gray Water":~~ Waste water, such as dishwater, or other waste water not containing fecal matter or urine. Also know as gray water, grey water, and greywater.

"Graywater Diverter Valve": A valve that directs graywater to the sanitary drainage system or to a subsurface irrigation system.

"Grease Interceptor": A device used to separate and retain grease, oils, and other floating matter from sewage waste while permitting the remaining flow to discharge into the drainage system. See "Interceptor."

"Group of Fixtures": Two ~~2~~ or more fixtures adjacent to or near each other.

"Hangers": Devices for supporting and securing pipe, fixtures, and equipment to walls, ceilings, floors, or any other structural member.

"High Hazard Substance": Any substance that, when present in the potable water system, can cause illness, injury, or death if consumed.

"Historic Buildings": All buildings, parts of buildings, facilities, or sites individually listed in or eligible for listing in the National Register of Historic Places~~;~~, a "contributing" building or site in a National Register Historic District as determined by the Illinois Historic Preservation Agency (IHPA) or as determined by a "Certified Local Government" designated by the IHPA~~;~~, a building or site designated as a historic or architectural landmark by a local Landmarks Commission or local Historic Preservation Commission~~;~~ or buildings that undergo historic reconstruction.

"Horizontal Branch": A drain pipe extending laterally from a soil or waste stack or building drain, with or without vertical sections or branches, which receives the discharge from one or more fixture drains and conducts the discharge to the soil or waste stack or to the building drain. (See Appendix B.~~:~~ Illustration P.)

"Horizontal Pipe": Any pipe or fitting that makes an angle of less than 45 degrees ~~º~~ with the horizontal.

"Hose": A flexible tube for conveying fluids (as from a faucet or hydrant).

"Hose Bibb": A faucet to which a hose may be attached.

"Hot Water": Water at a temperature of not less than 120 degrees Fahrenheit ~~°F~~.

"House Drain": See "Building Drain."

"House Trap": See "Building Trap."

"Indirect Waste": A pipe that does not connect directly with the drainage system but conveys liquid waste by discharging through an air gap into the drainage system.

"Individual Dry Vent": A pipe installed to vent a single fixture trap that ~~which~~ connects with the vent system above the fixture served, or that ~~which~~ terminates in the outside atmosphere. (See Appendix B.Illustration CC.)

"Individual Water System ": A piping system that supplies potable water for a single family dwelling, and includes the water service line and all potable water piping.

"Industrial Wastes": Liquid wastes resulting from the processes employed in industrial and commercial establishments.

"Insanitary": Contaminated. Not hygienic, or unclean enough to endanger health.

"Interceptor": A device designed and installed to separate and retain hazardous or undesirable matter from normal waste and to permit normal sewage or liquid waste to discharge into the drainage system. Interceptors may be designed to remove gas, oil, sand, grit, and grease. "Separator" is also commonly used to mean an "interceptor."

"Invert": The lowest part of the internal cross-section of a pipe or conduit.

"Island Fixture Vent": A vent in which the vent pipe rises as near as possible to or above the highest water level in the fixture vented and then turns down before rising to connect ~~connecting~~ to the vent system 6 inches above the flood level rim

or terminating to the atmosphere ~~stack or main vent~~. (See Section 890.1600, "Special Venting for Island Fixtures".)

"Joint": The juncture of two ~~2~~ pipes, a pipe and a fitting, or two ~~2~~ fittings.

"Kiosk": A freestanding place of employment that has five ~~5~~ or fewer employees at any time, located inside or outside a building.

"Kitchen and Bar Sink Faucets": A faucet that discharges into a kitchen or bar sink in domestic or commercial installations. Supply fittings that discharge into other types of sinks, including clinic sinks, floor sinks, service sinks and laundry trays, are not included.

"Labeled": An indication that an agency approved by the Department or that is an ANSI-accredited certification program has certified the plumbing material to be in compliance with applicable standards in accordance with this Part.

"Lavatory Faucet": A faucet that discharges into a lavatory basin in a domestic or commercial installation.

"Lead Free": When used with respect to solder and flux, ~~lead free~~ refers to solders and flux containing not more than 0.2 percent ~~%~~ lead; and when used with respect to pipe and pipe fittings, ~~lead free~~ refers to pipes and fittings containing no more than 8.0 percent ~~%~~ lead.

"Length of Pipe": The overall distance measured along the center line of a pipe. See "Developed Length."

"Line Valve": A valve in the water supply distribution system, except those immediately controlling one fixture supply.

"Liquid Waste": The discharge from any fixture, appliance, or appurtenance, in connection with a plumbing system that ~~which~~ does not receive fecal matter.

"Load Factor": The percentage of the total connected fixture unit flow rate that ~~which~~ is likely to occur at any point in the drainage system. The load factor varies with the type of occupancy, the total flow above the point being considered, and probability of simultaneous use. Load factor represents the ratio

of the probable load to the potential load.

"Local Ventilating Pipe": A pipe on the fixture side of the trap through which vapors or gases or foul air is ~~are~~ removed from a room or fixture to the outside atmosphere. Certain special apparatus, such as sterilizers, are sometimes provided with a local ventilating pipe ~~in order~~ to remove vapors. A local ventilating pipe is not connected into the vent piping of the drainage system.

"Loop Vent": A circuit vent that ~~which~~ loops back to connect with a stack vent instead of a vent stack. Its use is limited to floor drains and floor outlet fixtures ~~which depend on self siphonage for proper operation~~.

"Low Hazard Substance": Any substance that, when present in the potable water system, may cause the water to be discolored or have an unusual odor or an unpleasant taste, but will not cause illness, injury or death if consumed.

"Main": The principal artery of a piping system, to which branches may be connected.

"Maintenance": The upkeep of property or equipment by the owner of the property in compliance with the requirements of this Part.

"Main Vent": The principal artery of the venting system, to which vent branches may be connected. A main vent may be a vent stack or stack vent. (See Appendix B.~~:~~ ~~–~~Illustration Q.)

"Maximum Demand": In plumbing, the greatest requirement of flow of either water supply or waste discharge from the fixtures of a building, or any specific segment of the building fixtures ~~thereof~~.

"Manhole": An opening constructed to permit a person to gain access to an enclosed space. In a sewer or any portion of the plumbing system, it is used to eliminate restriction of flow at changes of direction or junctions and to facilitate cleaning.

"Metering Faucet": A self-closing faucet that dispenses a specific volume of water for each actuation cycle. The volume or cycle duration can be fixed or adjustable.

"Minor Repairs": Repairs that do not require changes in the piping to or from plumbing fixtures or involve the removal, replacement, installation, or reinstallation of any pipe or plumbing fixture.

"Mulch": Organic materials, such as wood chips and fines, tree bark chips, and pine needles, that are used in a mulch basin to conceal graywater outlets and permit the infiltration of graywater.

"Mulch Basin": A subsurface catchment area for graywater that is filled with mulch and of sufficient depth and volume to prevent ponding, surfacing, or runoff.

"Multi-person Showers": Shower compartments designed and intended for use by two or more persons simultaneously.

"New Plumbing" or "New Work": Any plumbing system or part of a plumbing system, or any addition to or alteration of an existing system, being installed or recently completed.

"Non-Potable Water": Water that does not meet drinking water quality standards specified in the Pollution Control Board's rules titled ~~35 Ill. Adm. Code 611~~, Primary Drinking Water Standards (35 Ill. Adm. Code 611), and is not suitable for human consumption or culinary use, or is of unknown quality.

"Non-Toxic Transfer Fluids": Fluids having no normal detrimental effect on humans.

"Occupancy": The purpose for which a building is currently used. In the case of a single family residence, occupancy shall mean taking possession of and living in the premises as one's sole and exclusive residence for a period of not less than six ~~6~~ months after the completion of construction, or issuance of a Certificate of Occupancy by a unit of local government.

"Offset": A combination of elbows or bends that brings one section of pipe into a line parallel with another section.

"Open Plumbing": Installation of plumbing so that traps and drainage pipes and their surroundings beneath fixtures are ventilated, accessible, and open to

inspection. Open plumbing is also referred to as an exposed plumbing installation.

"Overflow Rim": The top edge of a receptacle or fixture over which a liquid will flow when the receptacle or fixture is filled beyond its capacity (or flooded). "Flood level rim" is used interchangeably with overflow rim.

~~"p.s.i"; "P.S.I."; or "psi": Pounds per square inch of pressure.~~

"Part": The Illinois Plumbing Code in its entirety~~, Part 890 (referenced as~~ (77 Ill. Adm. Code 890), subsequent amendments ~~thereto~~, or any emergency rule that ~~which~~ the Department ~~lawfully~~ adopts, during the effective period of the emergency rule.

"Peppermint Oil": A pungent, aromatic mint oil sometimes used in testing a drain, waste, and vent system by means of a "Peppermint Test."

"Peppermint Test": A test for leakage using peppermint oil and hot water as the media, and the sense of smell to determine any leak; also known as a "scent test" (see Section 890.1930(e)).

"Pet Cock": A small faucet or valve used to drain water, steam, or air.

"pH": An expression of acidity and alkalinity on a scale from zero to 14, with 7.0 being neutral. Numbers less than 7.0 indicate increasing acidity as the number decreases, and numbers greater than 7.0 indicate increasing alkalinity as the number increases.

"Pipe": A cylindrical conduit or conductor, the wall thickness of which is sufficient to receive a standard pipe thread.

"Pipe Diameter": The distance measured from the inside wall of a pipe (passing through the center of the pipe) to the opposite inside wall. Any referenced pipe diameter or pipe size shall mean the nominal size or diameter.

"Pipefitting": The installation of piping other than that piping which is defined as plumbing.

"Pipe Increments": Increasing ~~For increasing~~ or decreasing pipe size by a given number ~~of pipe increments~~ - the following examples constitute one pipe size change: 1, 1¼, 1½, 2, 2½, 3, 3½, 4, 4½, 5.

"Piping": An assembly of pipes or conduit with fittings of compatible design. This term is commonly interchanged with "Pipe."

"Pitch": Synonymous ~~"Pitch" is synonymous~~ with "grade." See "Grade."

"Plumbing": See the Illinois Plumbing License Law [225 ILCS 320/2].

"Plumbing Appliance": A special class of plumbing fixture intended to perform a special function. This term includes water heaters, water coolers, drinking fountains, and heat exchanger and water treatment equipment other than water softeners.

"Plumbing Appurtenance": An accessory or device used in a plumbing system, which demands no additional water supply, nor adds any discharge load to a fixture or the drainage system. Plumbing appurtenances ~~shall~~ include instruments, gauges, relief valves, limit switches, backflow assemblies, solenoid valves, and devices between solenoid valves.

"Plumbing Fixture": Approved, installed receptacles, devices, or appliances that are supplied with water or that receive or discharge liquid or liquid-borne waste, with or without discharge of the ~~such~~ waste into the drainage system to which they may be directly or indirectly connected; an installed appurtenance to the potable water supply system that makes available intended potable water, or a receptor that receives and discharges liquids or liquid-borne waste either directly or indirectly into the drainage system; or a permanent appendage usually designed as a receptacle and intended to receive or ~~and/or~~ discharge liquid or liquid-borne waste to a drainage system. Industrial or commercial tanks, vats, and similar processing equipment are not plumbing fixtures, but they may be connected to, or discharged into, approved traps or plumbing fixtures.

"Plumbing Inspector": An employee or agent of State or local government who holds a valid Illinois Plumbing License and is authorized to inspect plumbing.

"Plumbing System": See the Illinois Plumbing License Law ~~[225 ILCS 320/2]~~.

"Pop-Up Waste": A waste outlet into which a sliding metal or plastic stopper is fitted, and the stopper can be raised to drain the waste. A common pop-up waste used for lavatories has a lever that ~~which~~ passes out the side of the drain fitting and connects to a lift rod that extends on top of the lavatory or sink. The rod is lifted to lower the stopper, or depressed to raise the stopper and drain the lavatory.

"Potable Water": Water that meets drinking water quality standards specified in the Pollution Control Board's rules titled Primary Drinking Water Standards (35 Ill. Adm. Code 611), and is suitable for human consumption or culinary use. ~~Water that is safe for human consumption and meets the water quality standards of 35 Ill. Adm. Code 611, Primary Drinking Water Standards.~~

"Pre-Rinse Spray Valve": A hand-held device for use with commercial dishwashing and ware-washing equipment that sprays water on dishes, flatware, and other food service items for the purpose of removing food residue before cleaning and sanitizing the items.

"Pressure Gradient Monitor": A device used to protect the quality of water, failsafe by design, securing the potable water system by isolating a heat exchanger when the pressure between the potable water and the heat exchange medium drops below a preset level.

"Pressure Relief Valve": See "Relief Valves."

"Private" or "Private Use": In the classification of plumbing fixtures, private applies to fixtures in residences, apartments, and private bathrooms of hotels or motels where the fixtures are intended for the use of a single family or an individual; handwashing stations (lavatories) within residents' rooms, within shared or common resident restrooms, or designated for staff use only in hospitals/long-term care units/mental health facilities, and hand-washing stations where food is being prepared.

"Private Sewage Disposal System": Any sewage handling or treatment facility receiving domestic sewage from fewer than 15 people or population equivalent and having a ground surface discharge; or any sewage handling or treatment facility receiving domestic sewage and having no ground surface discharge. Refer to the Private Sewage Disposal Licensing Act [225 ILCS 225/3] and Private Sewage Disposal Code (77 Ill. Adm. Code 905).

"Private Sewer": A sewer privately owned and not directly controlled by a public authority.

"Private Water Supply": Any potable water supply that provides water for drinking, culinary, and sanitary purposes and serves an owner-occupied single family dwelling. ~~(Section 9(a)(5) of the Illinois Groundwater Protection Act [415 ILCS 55/9(a)(5)].)~~

"Proper" or "Properly": To be accurate or meeting the standard of competence for the given situation and properties of the materials involved, based upon the standards in this Part and manufacturer's recommendations.

"p.s.i"; "P.S.I."; or "psi": Pounds per square inch of pressure.

"Public" or "Public Use": Any installation or use of plumbing fixtures or facilities except those in residences, apartments, or private bathrooms of hotels/motels where the fixtures are intended for the personal use of an individual or single family only.

"Public Area": An area within a building accessible to all persons, including, but not limited to, mercantile units, private clubs, and membership organizations.

"Public Sanitary Sewer": A ~~public sanitary~~ sewer that is controlled by a public authority and is intended to receive and transport sewage.

"Public Water System": A system for providing ~~the provision to the public of~~ piped water to the public for human consumption, if the system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days per year. The term public water system includes: any collection, treatment, storage, and distribution facility under the control of the operator of the ~~such~~ system and used primarily in connection with the ~~such~~ system; and any collection or pretreatment storage facilities not under ~~such~~ control of the operator of the system that ~~which~~ are used primarily in connection with the ~~such~~ system. The public water system ends at and with the water service connection.

"Quarter Bend": A fitting changing direction of 90 degrees ~~º~~.

"Quick Closing Valve": A valve or faucet that closes automatically when released or one that has fast action closing.

"Quick-Disconnect Device": A hand-operated device that provides a means for connecting and disconnecting a hose to a water supply and that is equipped with a means to shut off the water supply when the device is disconnected.

"Rainwater": Natural precipitation that has not been contaminated by use.

"Rainwater Catchment System": A system that uses the principle of collecting, storing and using rainwater from a rooftop or other manmade, aboveground collection surface. Also known as a rainwater harvesting system.

"Rainwater Storage Tank": The central component of the rainwater catchment system. Also known as a cistern or rain barrel.

"Readily Accessible": Direct access without the necessity of removing or moving any panel, door, or similar obstruction.

"Receptor": Devices or fixtures that ~~which~~ receive the discharge from indirect waste pipes.

"Recirculation System": A system of hot water supply and return piping with shutoff valves, balancing valves, circulating pumps, and a method of controlling the circulating system.

"Reclaimed Water": Non-potable water provided by a water/wastewater utility that, as a result of tertiary treatment of domestic wastewater, meets requirements of the Department for its intended uses. The Department will approve the level of treatment and quality of the reclaimed water. Also known as recycled water.

"Reduced Pressure Zone Principle Backflow Preventer Assembly (RPZ)": See "Backflow Preventer, Reduced Pressure Principle Backflow Preventer Assembly (RPZ)."

"Relief Valves":

Temperature relief valve − A valve designed to release water to the

atmosphere at a predetermined temperature setting.

Pressure relief valve − A valve designed to relieve excessive pressure to the atmosphere at a predetermined setting.

Temperature and pressure relief valve or pressure-temperature relief valve − A valve incorporating a temperature relief valve and a pressure relief valve in one unit.

Vacuum relief valve − A valve that ~~which~~ admits air to the system when the system is attempting to reduce its pressure to less than atmospheric.

"Relief Vent": A vent that ~~which~~ permits circulation of air in or between drainage and vent systems. (See Appendix B.~~:~~ Illustration S.)

"Restroom": As a minimum, will consist of one water closet and one lavatory all located in the same room.

"Return Offset": A double offset installed so as to return the pipe to its original alignment.

"Revent Pipe": See "Individual Vent". (See Appendix B.~~:~~ Illustration U.)

"Rim": An unobstructed open edge of a fixture.

"Riser": A water supply pipe that ~~which~~ extends vertically one full story or more to convey water to branches or to a group of fixtures.

"Roof Washer": A device or method for removal of sediment and debris from a collection surface by diverting initial rainfall from entry into the cistern or cisterns. Also known as a first flush device.

"Roughing-In": The installation of all parts of the plumbing system that ~~which~~ can be completed prior to the installation of fixtures. This includes drainage, water supply, and vent piping, and the necessary fixture supports.

"Run Out": The developed length of pipe that extends away from the circulating loop system to a fixture.

"Safe Pan": An appurtenance installed beneath piping or ~~and/or~~ a fixture to collect and drain any leakage. Safe pans are generally found in food preparation/storage areas and sterile areas of health care facilities that have overhead, exposed~~,~~ drainage piping. Safe pans are not intended to receive discharges from temperature and pressure relief valves.

"Safe Waste": See "Indirect Waste."

"Sanitary Sewer": A public or private sewer into which building sewers are connected.

Sanitary Waste": Sewage containing excrement and liquid wastes or ordinary wastes derived from a plumbing system.

"Self Closing Faucet": A faucet that closes itself after the actuation or control mechanism is deactivated. The actuation or control mechanism can be mechanical or electronic.

"Semi-Private Water System": A water supply that is not a public water system and that serves a segment of the public other than an owner-occupied single family dwelling. (See the Illinois Groundwater Protection Act [415 ILCS 55/19].)

"Separator": See "Interceptor."

"Service Connection": The tap at the water main and any pipe to the property line.

"Sewage": Any waste containing animal, human, or vegetable matter in suspension or solution, and may include liquids containing chemicals in solution.

"Sewage Ejector": A device for lifting sewage by pumping means.

~~"Side Vent": A vent connecting to the drain pipe through a fitting at an angle not greater than 45º to the vertical.~~

"Sillcock": A type of lawn faucet. A faucet used on the outside of a building to which a garden hose may be attached.

"Size of Pipe or Tubing": Pipe is generally sized according to the approximate dimension of its bore or inside diameter, whereas tubing is usually sized by measuring its outside diameter. Both are expressed in inches and fractions of inches ~~thereof~~. For purposes of this Part, any referenced pipe or tubing size shall mean the nominal size or diameter as designated by the commercial manufacturer.

"Slope": Synonymous ~~"Slope" is synonymous~~ with "grade." See "Grade."

"Soil Pipe": Any pipe that conveys the discharge of water closets or fixtures having similar functions, with or without the discharge from other fixtures, to the building drain.

"Special Waste Pipe": Piping that ~~which~~ conveys special waste. Piping that has been designed and manufactured of special material to handle special waste such as acids.

"Special Wastes": Wastes that ~~which~~ require special handling and treatment before they may be discharged into the plumbing system. (See Subpart H of this Part.)

"Sprinkler System": ~~There are 2 basic types of sprinkler systems.~~

Fire ~~A fire~~ sprinkler system – ~~is~~ a system of piping and necessary appurtenances for conveying water or other extinguishing substances to outlets for the purpose of fire extinguishment.

Lawn ~~A lawn~~ sprinkler system – ~~is~~ a system of piping installed for irrigation purposes.

"Stack": Any vertical line of soil, waste, or vent piping.

"Stack Vent": The extension of a soil or waste stack above the highest horizontal drain connected to the stack. (See Appendix B.~~:~~ Illustration V.)

"Stack Venting": A method of venting a fixture or fixtures through the soil or waste stack.

"Sterilizer":

Boiling Type Sterilizer − a fixture (non-pressure type) used for boiling instruments, utensils, or other equipment (used for sterilization). Some devices are portable; others are connected to the plumbing system.

Instruments Sterilizer − a device for the sterilization of various instruments.

Pressure (Autoclave) Sterilizer − a fixture (pressure vessel) designed to use steam under pressure for sterilizing.

Pressure Instrument Washer-Sterilizer − a fixture (pressure vessel) designed to both wash and sterilize instruments during the operating cycle of the fixture.

Sterilizer Vent − a separate pipe or stack that is trapped below the lowest exhaust and indirectly connected to the building drainage systems and that receives the vapors from non-pressure sterilizers, or the exhaust vapors from pressure sterilizers, and conducts the vapors directly to the outside atmosphere. Sometimes called a vapor, steam, atmospheric, or exhaust vent.

Water Sterilizer − a device for sterilizing water and storing sterile water.

~~"Sterilizer, Boiling Type": A fixture (non-pressure type) used for boiling instruments, utensils, and/or other equipment (used for sterilization). Some devices are portable, others are connected to the plumbing system.~~

~~"Sterilizer, Instruments": A device for the sterilization of various instruments.~~

~~"Sterilizer, Pressure (Autoclave)": A fixture (pressure vessel) designed to use steam under pressure for sterilizing.~~

~~"Sterilizer, Pressure Instrument Washer-Sterilizer": A fixture (pressure vessel) designed to both wash and sterilize instruments during the operating cycle of the fixture.~~

~~"Sterilizer Vent": A separate pipe or stack, which is trapped below the lowest~~

~~exhaust and indirectly connected to the building drainage systems, which receives the vapors from non-pressure sterilizers, or the exhaust vapors from pressure sterilizers, and conducts the vapors directly to the outside atmosphere. Sometimes called a vapor, steam, atmospheric, or exhaust vent.~~

~~"Sterilizer, Water": A device for sterilizing water and storing sterile water.~~

"Storage Tank": The central component of the rainwater, stormwater, or dry weather runoff catchment system used for storing water at atmospheric pressure. Also known as a cistern or rain barrel.

"Storm Sewer": A sewer that ~~which~~ is used for conveying rain water, surface water, ground water, subsurface water, site drainage, condensate, cooling water, or other similar liquid waste (excluding sewage) from the building storm drain to an approved point of discharge.

"Submeter": A meter installed subordinate to a site meter. Also known as a dedicated meter.

"Sub-soil Drain": A drain that ~~which~~ collects sub-soil drainage and conveys it to a place of disposal.

"Sub-soil Drainage": Liquid waste, such as run-off water, seepage water, or clear water waste, free of fecal matter and graywater. ~~grey water.~~

"Subsoil Irrigation Field": A graywater irrigation field installed in a trench within the layer of soil below the topsoil. This system is typically used for irrigation of deep-rooted plants.

"Subsurface Irrigation Field": A graywater irrigation field installed below finished grade within the topsoil.

"Sump": A receptacle that receives sanitary or storm waste, located below the normal grade level of the gravity system, and emptied by pumping or gravity.

"Sump Pump": A pump for the removal of storm, subsoil, and clear water waste drainage from a sump.

"Supports": A hanger, anchor, or other device for securing or holding pipe fixtures to walls, ceilings, floors, or structural members.

"Surge Tank": A reservoir to modify the fluctuation in flow rates to allow for uniform distribution of graywater to the points of irrigation.

"Swimming Pool": See ~~Refer to~~ the Swimming Facility ~~Pool and Bathing Beach~~ Act [210 ILCS 125] for minimum sanitary requirements for the design and operation of swimming facilities ~~pools and bathing beaches~~.

"Tempered Water": Water ranging in temperature from 85 degrees Fahrenheit ~~°F~~ to, but not including, 120 degrees Fahrenheit ~~°F~~.

"Terminal Heating Device": A device located within the environment to be conditioned that ~~which~~ directly transfers its heating energy by radiation or forced or gravity convection.

"Test Cock": A small cock, faucet, or valve set in a water pipe, pump, backflow device, or water jacket and used to drain water or test pressure.

"Toxic": Not fit for human consumption; poisonous. ~~Poisonous.~~

"Toxic Transfer Fluids": Sanitary waste, graywater, ~~grey water~~ or mixtures containing harmful substances, including, but not limited to, ethylene glycol, hydrocarbons, oils, ammonia refrigerants, and hydrazine.

"Trap": A fitting or device ~~so~~ designed and constructed ~~as~~ to provide, when properly vented, a liquid seal that ~~which~~ will prevent the back passage of air without materially affecting the flow of sewage or waste water through it. (See Appendix B.~~:~~ Illustration W.)

"Trap Arm": The ~~That~~ portion of a fixture drain between a trap and its vent.

"Trap Primer": A device or system of piping to maintain a water seal in a trap.

"Trap Seal": The vertical distance between the crown weir and the top of the dip of the trap. (See Appendix B.~~:~~ Illustration W.)

"Tube": A cylindrical conduit or conductor, the wall thickness of which is less than that needed to receive a standard pipe thread. Compare with "Pipe."

"Tuberculation": A condition that ~~which~~ develops on the interior of pipe due to corrosion, resulting in the creation of small, hemispherical lumps (tubercules) on the inner walls of the pipe.

"Union": A coupling device used to join two ~~2~~ pipes end~~-~~to~~-~~end, but allow them to be disconnected and re-connected. This joint can be assembled and disassembled without removing any adjacent pipes.

"Unisex Restroom": A restroom shared by males and females and having only one water closet and one lavatory located in the same room. In addition, a single urinal may be installed.

"Vacuum": A pressure less than atmospheric pressure, sometimes referred to as suction. It is usually measured in inches of mercury below atmospheric pressure, such as 10 or 20 inches of mercury. To vacuum also means to siphon.

"Vacuum Breaker": A device that ~~which~~ prevents the creation of a vacuum by admitting air at atmospheric pressure, used to prevent back siphonage.

"Vacuum Breaker, Hose Type (HVB)": A back siphonage prevention device designed for hose connections that ~~which~~ are not under continuous pressure, and meeting the requirements of ~~ANSI/~~ASSE 1011.

"Vacuum Relief Valve": A device to prevent excessive vacuum in a pressure vessel.

~~"Vent, Main": See "Main Vent."~~

"Vent Pipe": A pipe in a plumbing system that is used to equalize pressure and ventilate the plumbing system. Also see the definition of "Vent System."

"Vent Stack": A vertical vent pipe installed primarily for the purpose of providing circulation of air to and from any part of the drainage system and terminating to the atmosphere or in the stack vent. ~~(See Appendix B: Illustration X.)~~

"Vent System": The pipe or pipes installed to provide a flow of air to or from a drainage system and to provide a circulation of air within the system to protect trap seals from siphonage and back pressure.

"Venturi": A short section in a pipe with a reduced diameter or cross-sectional area (forming a throat) compared to the larger ends, thereby increasing the velocity of the fluid passing through the throat and decreasing the pressure at the throat. This decrease in pressure allows another fluid to be drawn into the venturi.

"Vertical Pipe": Any pipe or fitting that ~~which~~ makes an angle of 45 degrees º or less with the vertical.

"Wall Hung Water Closet": A water closet installed so ~~in such a way~~ that no part of the water closet touches the floor.

"Waste": See "Sanitary Waste."

"Waste Pipe": A pipe that ~~which~~ conveys only waste material.

"Water Closet": A fixture with a water-containing receptor that receives liquid and solid body waste and on actuation conveys the waste through an exposed integral trap into a drainage system. Also referred to as a toilet.

"Water Distribution Pipe": A pipe within the building or on the premises that ~~which~~ conveys water from the water service to the point of usage.

"Water Factor (WF)": A measurement and rating of appliance water efficiency, most often used for residential and light commercial clothes washers, as follows:

> "Clothes Washer (residential and commercial)": The quantity of water in gallons used to complete a full wash and rinse cycle per measured cubic foot capacity of the clothes container.

"Water Hammer": A concussion or sound of concussion of moving water against the sides of a containing pipe or vessel due to a sudden stoppage of flow. A pressure that results from a sudden deceleration of flow of water in a closed

conduit. It is also called hydraulic shock.

"Water Hammer Arrester": A device to absorb hydraulic shock.

"Water Heater": An appliance for supplying hot water for domestic or commercial purposes. It may be used for space heating if the water temperature does not exceed 150 degrees Fahrenheit ~~°F~~.

"Water Main": A water supply pipe for public or community use.

"Water Outlet": An opening through which water is supplied to a fixture, device, appliance, or ~~an~~ appurtenance, or into the atmosphere.

"Water Riser Pipe": See "Riser."

"WaterSense": A voluntary program of the U.S. Environmental Protection Agency designed to identify and promote water-efficient products and practices.

"Water Service" or "Water Service Pipe": The pipe from the water main or source of potable water supply to the water distribution pipe of the building served.

"Water Supply Fixture Unit (WSFU)": The mathematical factor used by the plumbing industry to estimate the probable demand on the water supply system (considering the volume, duration of flow, and intervals between operations) caused by various plumbing fixtures. ~~(W.S.F.U.)": See "Fixture Unit, Water Supply."~~

"Water Supply Stub": A vertical pipe less than one story in height supplying one or more fixtures.

"Water Supply System": The water service pipe, the water distribution pipe, and all fittings, valves, and appurtenances in or associated with the building or premises being served.

"Water/Wastewater Utility": A public or private entity that may treat, deliver, or do both functions to reclaimed water, potable water, or both to wholesale or retail customers.

"Wet Vent": A vent that ~~which~~ also serves as a drain. ~~A vent which receives the discharge of wastes other than from water closets.~~ (See Appendix B.~~:~~ ~~–~~Illustration Y.)

"Yard Hydrant": A valve or faucet for drawing water from a buried pipe, which ~~that~~ includes a stand pipe with a valve or faucet at the upper end and a threaded valve outlet to which a hose may be attached.

"Yoke Vent": A pipe connecting upward from a soil or waste stack to a vent stack for the purpose of preventing pressure changes in the stack. (See Appendix B.~~:~~ ~~–~~Illustration Z.)

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.130 Incorporated and Referenced Materials ~~Incorporation by Reference~~

a) The following State and federal statutes and State administrative rules are referenced in this Part:

1) Illinois Plumbing License Law [225 ILCS 320]

2) Private Sewage Disposal Licensing Act [225 ILCS 225]

3) Illinois Groundwater Protection Act [415 ILCS 55]

4) Swimming Facility Act [210 ILCS 125]

5) Illinois Safe Bottled Water Act [410 ILCS 655]

6) Illinois Bottled Water Act [815 ILCS 310]

7) Bed and Breakfast Act [50 ILCS 820]

8) Hazardous Substances Act (15 USC 1263)

9) Primary Drinking Water Standards (35 Ill. Adm. Code 611)

10) Design, Operation and Maintenance Criteria (Specific Conditions and Installation procedures) (35 Ill. Adm. Code 653.802)

11) Private Sewage Disposal Code (77 Ill. Adm. Code 905)

12) Illinois Accessibility Code (71 Ill. Adm. Code 400)

13) Food Service Sanitation Code (77 Ill. Adm. Code 750)

14) Youth Camp Code (77 Ill. Adm. Code 810)

15) Recreational Area Code (77 Ill. Adm. Code 800)

16) Boiler and Pressure Vessel Safety (41 Ill. Adm. Code 120)

17) Drinking Water Systems Code (77 Ill. Adm. Code 900)

18) Water Quality Standards (35 Ill. Adm. Code 302)

19) Energy Policy Act of 1992 (P.L. 201-486)

20) Lawn Irrigation Contractor and Lawn Sprinkler System Registration Code (77 Ill. Adm. Code 892)

b) See Appendix A for approved materials and standards that are incorporated by reference in this Part.

c) The following nationally recognized standards and federal regulations are incorporated by reference in this Part (See also Appendix A):

1) 2012 International Association of Plumbing and Mechanical Officials (IAPMO) Uniform Solar Energy Code

2) 2012 International Association of Plumbing and Mechanical Officials (IAPMO) Green Plumbing and Mechanical Code Supplement

3) 2011 American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Handbook – HVAC Applications

4) 2012 American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Handbook – HVAC Systems and Equipment

5) 2007 U.S. Environmental Protection Agency (EPA) High-Efficiency Lavatory Faucet Specification

6) 2009 U.S. Environmental Protection Agency (EPA) WaterSense Specification for Flushing Urinals

7) 2007 U.S. Environmental Protection Agency (EPA) WaterSense Tank-Type High Efficiency Toilet Specification

20) January 20, 2004, Department of Energy: Conservation Program for Consumer Products (10 CFR 430)

d) All incorporations by reference of federal regulations and the standards of nationally recognized organizations in this Part refer to the regulations or standards on the date specified and do not include any amendments or editions ~~additions or deletions~~ subsequent to the date specified.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.180 Sewer and Water Pipe Installation

a) Trenching and Bedding. Trenches shall be of sufficient width to permit proper installation of the pipe. If ~~Where~~ shoring is required, ample allowance shall be made in the width of the trench for working conditions, based on the materials and installation methods. If ~~Where~~ trenches are excavated to a depth so ~~such~~ that the bottom of the trench forms the bed for the pipe, solid and continual bearing between joints shall be provided, and bell holes shall be provided at points where the pipe is joined. If ~~Where~~ trenches are excavated to a depth so ~~such~~ that the bottom of the trench does not form the bed for the pipe, the trench shall be backfilled to the grade of the pipe with sand or fine gravel placed in layers of 6 inches maximum depth and compacted after each placement. The pipe shall not be supported on blocks. If ~~Where~~ rock is encountered in trenching, it shall be removed to a point at least 3 inches below the grade line of the trench; ~~and~~ the trench shall be backfilled to grade with the sand tamped in place, ~~so as~~ to provide a uniform bearing for the pipe between joints. The pipe shall not be allowed to

rest on rock at any point. If soft materials of poor bearing qualities are found at the bottom of the trench, stabilization shall be achieved by over-excavating at least 2 pipe diameters and refilling with fine gravel or sand or a concrete foundation. A concrete foundation shall be bedded and sand tamped in place ~~so as~~ to provide a uniform bearing for the pipe joints. All piping in the ground shall be laid on a firm bed for its entire length.

b) Backfilling. Trenches shall be backfilled until ~~Until~~ the crown of the pipe is covered by at least 18 inches of tamped earth~~, care shall be exercised in backfilling trenches~~ to ensure that the pipe beneath is secure. Loose earth that is ~~,~~ free of rocks, broken concrete, frozen chunks or other rubble~~,~~ shall be carefully placed in the trench in 6 inch layers and tamped in place. The ~~Care shall be taken to thoroughly compact the~~ backfill under and beside the pipe shall be thoroughly compacted to ensure that the pipe is properly supported. Backfill shall be placed evenly on both sides of the pipe and tamped ~~in a manner~~ to retain proper alignment.

c) Breakage and Corrosion. Pipes passing under or through walls or floors shall be protected from breakage caused by stress or strain. Pipes passing under or through cinder, concrete, or other corrosive material shall be protected from external corrosion, stress, or strain by a protecting sleeve or a wrap-on material. (See Appendix B.~~:~~ Illustration AA.)

d) Sleeves. In exterior walls or floors, the annular space between sleeves and pipes shall be filled or tightly caulked with a cold tar, asphalt compound, or other equally effective material. (See Appendix B.~~:~~ Illustration AA.)

e) Buried Piping Parallel to Footings. No buried piping shall be laid parallel to inside or outside footings, closer than 18 inches to the footing. (See Appendix B.Illustration BB.)

f) Depth. Piping installed parallel to footings or bearing walls shall not extend below the 45 degrees º bearing plane of the wall or footing. (See Appendix B.Illustration BB.)

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.190 Piping Measurements

DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Except where otherwise specified in this Part, all measurements between pipes, or between pipes and walls or footings, shall be made from the outside edge nearest the parallel pipe, wall, or footing ~~(see Appendix B, Illustration I)~~.

(Source: Amended at 37 Ill. Reg._____, effective _____)

SUBPART C: JOINTS AND CONNECTIONS

Section 890.320 Types of Joints

a) Caulked joints. Caulked joints for (drain, waste and vent systems only) cast iron hub-and-spigot pipe shall be firmly packed with oakum or hemp and filled with molten lead at least 1 ~~one~~ inch deep and be firmly caulked not to extend more than [inches " below the rim of the hub. Paint, varnish, or other coatings shall not be permitted on the jointing material until after a plumbing inspector has been given the opportunity to test and approve or disapprove the joint. (See Appendix C.~~:~~ ~~–~~Illustration A.)

b) Threaded/Screwed Joints. Threaded joints shall conform to American National Taper Pipe Thread, ASME B.1.20.1 (General Purpose). All burrs shall be removed; pipe ends shall be reamed or filed to size of the bore, and all chips shall be removed. Pipe joints compound shall be insoluble in water and non-toxic.

c) Wiped Joints. Joints in lead pipe or fittings, or between lead pipe fittings and brass or copper pipe ferrules, solder nipples, or traps shall be full-wiped joints. Wiped joints shall have exposed surface on each side of the joint at least ¾ inches " and at least as thick as the material being joined. Wall or floor flange lead-wiped joints shall be made by using a lead ring or flange placed behind the joints at the wall or floor. Joints between lead pipe and cast iron, steel or wrought iron shall be made by means of a caulking ferrule, soldering nipple, or bushing.

d) Soldered Joints. The surface to be soldered shall be cleaned bright. The joints shall be properly fluxed (lead free) and made with approved lead-free solder conforming to ASTM Standard B32~~-1989~~. Joints in copper water tubing shall be made with approved cast bronze or wrought copper pressure fittings, properly soldered together. All solders or flux containing more than 0.2 percent ~~%~~ lead shall bear a warning label that ~~which~~ states that the solder or flux is not approved for private or potable water use as required by Section 4 of the federal Hazardous

Substances Act (15 USC 1263). Use of this product in ~~the~~ making ~~of~~ joints or fittings in any private or public potable water system is prohibited. No part of a ~~DWV (~~drain, waste, and vent~~)~~ (DWV) system shall be joined or fitted with a solder or flux containing more than 0.2 percent ~~%~~ lead.

e) Flared Joints. Flared joints for plastic pipe and tubing and soft copper water tubing shall be made with approved fittings. The tubing shall be expanded with a proper flaring tool. (See Appendix C. ~~-~~ Illustration B.)

f) Hot-Poured Joints. Hot-poured compound for clay or concrete sewer pipe shall not be water absorbent and when poured against a dry surface shall have a bond of at least 100 pounds per square inch (psi) ~~(p.s.i.)~~. All surfaces of the joint shall be cleaned and dried before pouring. If wet surfaces are unavoidable, a ~~suitable~~ primer such as oil or tar shall be applied. The compound shall not soften sufficiently to destroy effectiveness of the joint when subjected to a temperature of 160 degrees Fahrenheit ~~°F~~, and not be soluble in any of the waste carried by the drainage system. Approximately 25 percent of the joint space at the base of the socket shall be filled with jute or hemp. A pouring collar rope or other device shall be used to hold the hot compound during pouring. Each joint shall be poured in one operation until the joint is filled. Joints shall not be tested until one hour after pouring.

g) Precast Joints. Precast collars shall be formed in both the spigot and bell of the pipe in advance of use. Prior to making joint contact, surfaces shall be cleaned. When the spigot end is inserted in the collar, it shall bind before contacting the base of the socket.

h) Brazed Joints. Brazed joints shall be made by first cleaning the surface to be joined down to the base metal, applying flux approved for such joints and for the filler metal to be used, and making the joints by heating to a temperature sufficient to melt the approved brazing filler metal on contact. (See Section 890.330 (b).) An extracted mechanical joint may be made in copper tube types K or L only for water distribution. The joint shall be made with a mechanical extraction tool and joined by brazing. To prevent the branch tube from being inserted beyond the depth of the extracted joint, depth stops shall be provided. This joint shall be for above-ground use only.

i) Cement Mortar Joints. Except for repairs, cement mortar joints are prohibited.

j) Burned Lead (Welded). (For DWV ~~drain, waste and vent~~ system only) Every burned (welded) joint shall be made so ~~in such manner~~ that the two ~~2~~ or more sections to be joined shall be uniformly fused together into one continuous piece. The ~~thickness of the~~ weld shall be at least as thick as the lead being joined.

k) Bituminized Fiber Pipe Joints. Joints in bituminized fiber pipe shall be made with tapered type couplings of the same composition as the pipe. Joints between bituminized fiber pipe and metal pipe shall be made by means of an adaptor coupling caulked as required in subsection (a) of this Section.

l) Plastic Pipe Joints~~.~~

1) Every joint in plastic piping shall be made with approved fittings by either solvent-welded or fusion-welded connections, compression fittings, approved insert fittings, metal clamps and screws of corrosion-resistant material, or threaded joints. (See Appendix A.~~:~~ Table A for approved pipe, fittings, and solvent.)

2) Joints and Fittings in Plastic Pipe. Potable water piping fittings and joints shall be in accordance with the manufacturer's recommendations subject to the following: (See Appendix A.~~:~~ Table A "Approved Standards for Fittings".)

A) Polyethylene (PE) pipe shall be installed only with compression fittings, insert and clamp type fittings or thermal-welded joints and fittings. All clamps shall be of corrosion-resistant material. The inside diameter (I~~.~~D~~.~~) of any insert fitting shall not be less than the minimum allowable size for water service/distribution piping. (See Appendix A.~~:~~ Tables D, N and O, for minimum allowable sizes for water service/distribution piping.)

B) Polyvinyl chloride (PVC) pipe shall be installed with solvent-welded or flanged joints only. The pipe shall not be threaded. Transition to metallic or other piping shall be made with the use of adaptor fittings. The fittings shall be molded from PVC ~~polyvinyl chloride~~. The primer and solvent cement used shall be in accordance with the manufacturer's recommendation for PVC

~~polyvinyl chloride~~ piping.

C) Polybutylene (PB) pipe shall be installed only with insert and clamp type fittings, compression type, flanged type, or thermal-welded joints and fittings. All clamps shall be of corrosion-resistant material. The ID ~~inside diameter (I.D.)~~ of any insert fitting shall not be less than the minimum allowable size for water service/distribution piping. (See Appendix A.~~:~~ ~~Tables~~ D, N and O, for minimum allowable sizes for water service/distribution piping.)

3) Joints in Plastic Drainage. Joints in plastic drainage piping or vent piping within a building shall be solvent welded. Threaded or flanged joints may be used with adaptor fittings. The solvent cement shall be specific for the type of piping material listed in Section 890.Appendix A.Table A. O-ring expansion joints are acceptable if accessible.

m) Ground Joint Connections. Ground joint connections (when accessible) may be used on the inlet or outlet side of a fixture trap or within the trap seal. Ground joint connections shall not be used in any inaccessible drainage piping.

n) No-Hub Soil Pipe Joints. Shielded joints for no-hub cast iron soil pipe shall be made with an elastomeric gasket covered by either a stainless steel shield secured by two ~~2~~ or more stainless steel bands or clamps, or covered by cast iron couplings secured with stainless steel nuts and bolts. When a stainless steel shield is used, the shield and clamps shall be corrosion resistant and homogeneous throughout. The joint materials shall comply with ASTM C564~~-78~~ and CISPI 310-~~90~~ or ~~and/or~~ FM 1680~~-1989~~.

o) Compression Type Joints~~.~~

1) Compression type joints for hub and spigot cast iron soil pipe shall be made with neoprene insert gaskets in accordance with ASTM C564. The pipe shall comply with the specifications contained in ASTM A-74 with regard to hub and spigot dimensions and tolerances. (See Appendix C.~~:~~ Illustration C.)

2) Compression type joints for copper water tube or brass tube shall be made

with brass ferrules and ground joint connections.

p) Grooved Type Mechanical Couplings~~.~~

1) Cut grooved type mechanical couplings, fittings, and valves used on standard weight galvanized steel pipe, cast iron pipe, or ductile iron pipe shall comply with the grooving dimensions of the AWWA specifications C606~~-78~~, limited to water distribution piping and downspout pipe above ground.

2) Rolled grooved type mechanical couplings, fittings and valves used on standard weight galvanized steel pipe or type K or L copper tubing shall comply with the manufacturer's standard, limited to water distribution piping above ground. Fittings, couplings, and valves shall be compatible with the pipe material. Transition adapters shall be dielectric type.

3) Gaskets for use with potable water piping shall be fabricated from material that is non-toxic, durable, and impervious.

q) Copper Press Fittings. Copper press fittings for joining copper water tubing shall have an elastomeric o-ring that forms the joint. The fitting shall be made by pressing the socket joint under pressure in accordance with the manufacturer's installation requirements and NSF/ANSI Standard 61.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.330 Special Joints

a) Copper Tubing to Screwed Pipe Joints. Joints from copper tubing to threaded pipe shall be made by the use of a cast bronze or wrought copper adaptor fitting. The joint between copper tubing and the fitting shall be soldered or, if flared or compression, must be accessible.

b) Welding or Brazing. Brazing or welding shall be in accordance with the provisions of Section 6 of the Code for Pressure Piping, ASME B31.1.~~ANSI B.3.1 and ANSI B.3.L.1.~~

c) Slip Joints. In drainage and water piping, slip joints may be used on the inlet side

of the trap or in the trap seal, and on the exposed fixture supply. Slip joints shall not be used in any inaccessible piping. Push-on angle stop valves are permitted, provided that they meet the following specifications: they are installed by being pushed onto copper or Chlorinated Polyvinyl Chloride (CPVC); they are mechanically secured by metal tabs that ~~which~~ grip the piping; they are sealed with o-rings; and they are capable of withstanding a water pressure of 150 psi ~~pounds per square inch~~ and a temperature of 210 degrees Fahrenheit.

d) Expansion Joints. Expansion joints shall ~~must~~ be accessible and may be used where necessary to provide for expansion or contraction of the piping. The expansion joint material shall conform to the type of piping on which it is installed.

e) Compression type couplings shall not be used in unexposed water piping except for water services, water meter yokes, and stop box connections.

f) Grooved Type Mechanical Couplings. Grooved type mechanical couplings, in accordance with Section 890.320(p), may be used in potable water and roof drain piping. These ~~Such~~ couplings shall not be used in waste, soil, or vent piping.

g) Plastic Pipe to Non-Plastic Pipe Joints. Joints between plastic pipe and non-plastic pipe shall be made only by one of the following methods:

1) Pressure piping~~.~~

A) Approved insert fittings (in accordance with Appendix A~~,~~ Table A);~~.~~

B) Threaded adaptors;~~.~~

C) Flanges; or~~.~~

D) Flared fittings.

2) Non-pressure piping - ~~Drain Waste Vent (~~DWV~~)~~

A) Caulked lead joints with caulked adaptors;~~.~~

B) No-hub soil pipe shielded couplings with approved adaptor having a raised bead;~~.~~

C) Compression type joints for hub and spigot cast iron pipe; or~~.~~

D) Threaded adaptors.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.340 Use of Joints

a) Clay Sewer Pipe. Joints in vitrified clay pipe or between vitrified clay ~~such~~ pipe and metal pipe shall be made with a neoprene gasket and stainless steel bands or as provided in Section 890.320(f), (g), or (o), if applicable.

b) Concrete Sewer Pipe. Joints in concrete sewer pipe or between concrete sewer ~~such~~ pipe and metal pipe shall be made with a neoprene gasket and stainless steel bands or as provided in Section 890.320(f), (g), or (o), if applicable.

c) Cast Iron Pipe. A joint in cast iron water supply pipe shall be made in accordance with Section 890.320(a) and (b) or shall be a mechanical joint in accordance with AWWA C151. ~~ANSI A21.12-71.~~ Joints in cast iron soil pipe shall be made in accordance with Section 890.320(a), (b), (n), (o), or (p).

d) Screw Pipe to Cast Iron. Joints between wrought iron, steel, brass, or copper pipe~~,~~ and cast iron pipe shall be either caulked or threaded joints that ~~which~~ are made as provided in Section 890.320(a) or (b) and shall be made with proper adaptor fittings.

e) Lead to Cast Iron, Wrought Iron or Steel. Joints between lead and cast iron, wrought iron, or steel pipe shall be made by means of wiped joints to a caulking ferrule, soldering nipple, or brushing as provided in Section 890.320(c).

f) Copper Water Tube. Joints in copper tubing shall be made with cast bronze or wrought copper pressure fittings, properly soldered or brazed, or by means of compression or flared joints as provided in Sections 890.320(d), (e), (h) and (p)(2). Flared joints and compression fittings shall not be installed underground except for water services, water meter yokes, and stop box connections.

g) Plastic Pipe. Joints between plastic pipe and non-plastic material shall be made only with an appropriate type adaptor as provided in Section 890.320(l) and 890.330(g).

1) Plastic-Commingling. There shall be no commingling of plastic materials within the same plumbing system except through the use of proper adaptors or approved solvent as listed in 890.Appendix A.Table A, for connections transitioning from one material to another, only.

2) Plastic Pipe. Plastic pipe shall not be installed in any tunnel or chase that contains un-insulated ~~uninsulated~~ hot water, hot air, or steam piping that ~~which~~ causes the ambient air temperature in the tunnel or chase to exceed 180 degrees Fahrenheit ~~°F~~.

h) Building Sewer Connections. An elastomeric coupling seal conforming to ASTM C 425 ~~(1988)~~, ASTM C 443 ~~(1985)~~, ASTM C 564 ~~(1988)~~, ASTM D 4161 ~~(1986)~~, ASTM F 477 ~~(1985)~~, or ASTM D 3139 ~~(1989)~~, ASTM D 3212 ~~(1989)~~, or ASTM D 412 ~~(1980)~~ tests may be used to adapt any two ~~2~~ building sewer pipes for different materials or size changes. The flexible couplings shall be attached to the pipe with stainless steel clamps or bolts. The manufacturer's recommended method of installation shall be followed.

(Source: Amended at 37 Ill. Reg._____, effective _____)

SUBPART D: TRAPS AND CLEANOUTS

Section 890.410 Fixture Traps/Continuous Waste ~~Traps~~

a) Fixture Traps. All directly connected plumbing fixtures, except those having integral traps, shall be separately trapped by a water-seal trap, placed as close to the fixture outlet as possible. A kitchen sink with up to three ~~3~~ basins may be installed on one trap if one compartment is not more than 6 inches deeper than the other and the waste outlets are not more than 30 inches apart. (See Appendix D.~~:~~ Illustration A.)

b) Distance of Trap to Fixture. The developed length from the fixture outlet to the

trap weir shall not exceed 24 inches, except that ~~when~~ an interceptor ~~is~~ used as a trap~~, it~~ shall be located as close as possible to the fixture. The maximum developed length from the fixture outlet to the inlet of the interceptor shall not exceed 5 feet. (See Appendix D.~~:~~–Illustration B.) The standpipe inlet for an automatic clothes washer shall not exceed 48 inches above the weir of a trap.

c) Trap Size. The size of trap for a fixture shall comply with Appendix A.~~:~~–Table E for minimum size of traps. No trap shall be larger than the fixture drain to which it is connected or the drainage pipe into which it discharges.

d) Type of Traps. Traps shall have a uniform and smooth interior, and shall have no partitions or movable parts. The trap seal shall be non-adjustable. (See Appendix D.~~:~~–Illustration C.)

e) Drum Traps. Drum traps shall be 3 or 4 inches in diameter and provided with a fixed water seal of at least 2 inches. The trap cleanout shall be one size less than the trap diameter.

f) Trap Seal. Each trap shall have a water seal of 2 inches except where a deeper seal is required to prevent the loss of the trap seal by evaporation. Where loss of the trap seal may occur due to evaporation, one of the following shall be used:

1) Vegetable oil may be added to the trap.

2) A deeper seal not to exceed 8 inches may be used.

3) An automatic trap primer may be used.

g) Trap Cleanouts

1) Each fixture trap, except those cast integrally or in combination with fixtures in which the trap seal is readily accessible or except when a portion of the trap is readily removable for cleaning purposes, shall have an accessible threaded or cam lock cleanout plug of ample size protected by the water seal. (Exception: See subsection (g) (4) of this Section.) The cleanout plug shall be of brass or other non-corrosive type material. (See Appendix D.~~:~~–Illustration D.)

2) Trap cleanouts shall be made gas and water-tight ~~watertight~~ with a threaded cleanout plug and approved washer.

3) A~~When a~~ P-trap that is used on a bath waste~~, it~~ shall be directly below the tub overflow. The overflow shall be fastened to the tub by means other than the face plate.

4) A P-trap on a plumbing fixture that ~~whic~~h is not accessible may be installed without a cleanout plug or having a portion of the trap readily removable, provided that there is access to a cleanout within 3 feet of the trap.

h) Trap Level and Protection. Traps shall be set level with respect to their water seals and, where necessary, they shall be protected from freezing.

i) Traps Underground. Underground traps shall be provided with accessible and removable cleanouts, except for separate "P" traps into which floor drains, urinals, and other fixtures with removable drain strainers discharge.

j) Building (House) Traps. No trap shall be installed at the base of a soil or waste stack or in a building drain.

k) Prohibited Traps. Use of the following traps is prohibited (see Appendix D.~~:~~ Illustration E):

1) Traps that ~~which~~ depend upon the action of movable parts for their seal;~~.~~

2) Full "S" traps. Exception: Water closet and similar fixtures that ~~which~~ depend on self-siphonage for their proper operation;~~.~~

3) Bell traps;~~.~~

4) Crown vented traps;~~.~~

5) Unvented running traps; and~~.~~

6) Fixtures with concealed interior partitioned traps. Exception: Fixtures with integral traps constructed of vitrified earthenware and penal institutional fixtures with integral traps constructed of ferrous material.

l) Double Trapping. No fixture shall be double trapped.

(Source: Amended at 37 Ill. Reg._____, effective _____)

SUBPART E: INTERCEPTORS - SEPARATORS AND BACKWATER VALVES

Section 890.510 Grease Interceptor Requirements

Plumbing systems for institutions or commercial establishments in which grease, fats, culinary oils, or similar waste products from kitchens or food processing areas are wasted, or in which grease, fats, or culinary oils are wasted in connection with utensil, vat, dish, or floor cleaning processes, shall include grease interceptors. All waste lines and drains carrying grease, fats, or culinary oil, in these ~~the above type~~ establishments shall be directed to one or more interceptors. (See Appendix E.~~:~~ Illustrations A and B.)

a) All required grease interceptors shall comply with the following:

1) Material and Covers. Grease interceptors shall be constructed of durable, corrosion-resistant materials and shall have water-tight covers securely fastened in place.

2) Minimum Size. A grease interceptor installed on the same floor as the fixture shall have one-half the liquid-holding capacity of the fixture. A grease interceptor located on a floor below the fixture shall have sixty percent of the liquid-holding capacity of the fixture. To determine the liquid-holding capacity in gallons of a plumbing fixture, ~~multiply~~ the length is multiplied by the width by the height in inches~~,~~ and divided ~~divide~~ by 231. Where two ~~(2)~~ or more sinks or receptacles are connected to an interceptor the liquid holding capacity shall be based on the combined volume of the fixtures served.

3) No grease interceptor shall receive the discharge from a food waste disposal ~~or a commercial dishwashing machine~~. Grease interceptors may receive discharge from a commercial dishwashing machine when properly sized with an external interceptor of a minimum 1000 gallon capacity.

4) The flow rate of the interceptor shall be sufficient to handle the maximum demand of the connected system.

5) All interceptors shall be installed in an accessible location to permit the convenient removal of the lid and internal contents.

6) All interceptors shall be designed and installed with proper venting so that they do not become air bound. (See Appendix E.~~:~~ ~~–~~Illustration C.)

b) Prohibited Type. Water cooled grease interceptors are prohibited.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.520 Gasoline, Oil and Flammable Liquids

a) Commercial vehicle repair garages, gasoline stations with grease racks or pits, and oil change facilities shall be provided with floor drains or trench drains connected to a gas and oil interceptor. If ~~When~~ these facilities are connected to a private sewage disposal system, the floor or trench drains shall be connected to a holding tank in lieu of a gas and oil interceptor in accordance with the Private Sewage Disposal Licensing Act. ~~and USEPA regulations.~~ Where trench drains are used to carry wastes to a gas and oil interceptor, the trench drain shall either extend the entire length of the work area or shall be installed in each working stall. For all facilities specified in this Section in which floor drains are installed, a minimum of one floor drain per working stall or one floor drain for each 500 square feet shall be installed.

b) Commercial and residential vehicle storage areas greater than 1,000 square feet with floor or trench drains installed shall comply with subsection (c) (1), (2) or (3) of this Section. Exception: residential garages with fewer than five ~~5~~ vehicle bays are exempted from this requirement.

c) All facilities, other than those specified in subsection (a) of this Section, that generate fuel oil or flammable waste shall meet one of the following requirements:

1) provide floor drains or trench drains connected to a gas and oil interceptor.

2) provide floor or trench drains connected to a holding tank in lieu of a gas and oil interceptor when these drains are connected to a private sewage disposal system.

3) provide an alternative system approved by the Department (i.e., an oil reclamation system or containment area).

d) General Requirements

1) Gas and oil interceptors shall be of cast iron, steel, polyethylene, polymer concrete or equally durable fiberglass materials suitable for gas and oil. Fiberglass interceptors shall not be used for receiving any substance other than gas and oil. Poured concrete interceptors are prohibited.

2) Each gas and oil interceptor or basin shall be provided with a heavy metal cover, which shall be bolted into place and made gas and water-tight.

3) Each gas and oil interceptor and, if provided with separate compartments, each compartment and basin shall be provided with a vent of at least 2 inches, which shall extend independently to the outer air. Two or more vents may be connected to a header, which shall be 6 inches or higher than the lowest floor drain served.

4) The inlet of the gas and oil interceptor or the first basin shall be trapped except when floor drains are individually trapped.

5) Floor drains above the level of the gas and oil interceptor or basins shall connect to a stack vent extending independently to the outer air.

6) Gas and oil interceptors must be constructed in accordance with the Illinois State Fire Marshal's rules and regulations for underground storage tanks (41 Ill. Adm. Code 174, 175, 176, 177 ~~170~~), where applicable, and shall be maintained to prevent loss of gas, oil, etc. Gas and oil interceptors using ~~utilizing~~ an automatic draw off feature shall have ~~must install~~ a separate U.L. approved underground storage tank or storage tank installed integral with the interceptor.

7) Minimum Dimension. Gas and oil interceptors shall have a depth of at least 2 feet below the invert of the discharge drain.

8) Performance. The gas and oil interceptor shall have at least a 12-inch

water seal with a minimum 90 percent efficiency rating or have a minimum of an 18-inch water seal. Gas and oil in the effluent from the gas and oil interceptor or triple basin shall not exceed the levels specified by the sewage treatment authority having jurisdiction, in accordance with ~~as promulgated by~~ local ordinances and regulations.

9) Poured concrete trench drains are prohibited for gas and oil discharges.

e) Aircraft hangars used exclusively for storing ~~the storage of~~ aircraft shall be exempt from ~~the provisions of~~ this Section under the following conditions:

1) No operation of aircraft or maintenance of any kind, including, but not limited to, mechanical work upon an aircraft, or aircraft fueling ~~of aircraft~~, oiling, ~~or~~ lubricating ~~aircraft~~, or washing ~~of an aircraft~~, may be performed in the hangar.

2) Oil ~~No oil~~, gasoline, or flammable materials of any kind shall not ~~may~~ be stored in the hanger.

3) The hangar shall not be provided with floor drains or trench drains.

4) The hangar shall not contain drains of any kind that are connected to a public sewer/private sewage disposal system/holding tank.

5) In lieu of the requirements of subsection (e)(1)-(4), aircraft storage hangars may install floor drains or trench drains that comply with the requirements of subsections (a)-(e).

f) Sizing~~.~~

1) The minimum size interceptor for all facilities required to comply with subsection (a) of this Section shall be 6 cubic feet (45 gallons) for the first 500 square feet of floor area plus 1 cubic foot per each additional 500 square feet to be drained into the interceptor.

2) The minimum size interceptor for all facilities, except those facilities required to comply with ~~conform to~~ subsection (a) of this Section, shall be 6 cubic feet (45 gallons) for the first 3,000 gross square feet plus 1 cubic

foot per each additional 1,000 square feet to be drained into the interceptor. Floor area for parking decks or garages shall be determined by the gross square feet of the parking spaces.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.530 Special Waste Interceptors

a) Catch Basins. In all motor vehicle wash racks, drainage shall discharge into a water-tight ~~watertight~~ catch basin at least 36 inches in diameter, or 3 feet by 2½ feet (rectangular shape). The bottom shall not be less than 27 inches below the invert of the outlet pipe. The outlet pipe shall be trapped with a catch basin trap and shall be constructed of cast iron or schedule 40 plastic with a trap seal of at least 6 inches ~~in diameter~~ and a cleanout of at least 4 inches in diameter.

b) Commercial laundries shall be equipped with an interceptor having a removable wire basket or similar device that will prevent materials detrimental to the sewage system from passing into the system. ~~(See Appendix E: Illustration E.)~~

c) Sand, bottle, and slaughter houses that will produce wastes that either settle or float (Example: oil or grease from meat packing operations, bottling establishments, or heavy solids~~, etc.~~) shall have an interceptor installed that ~~which~~ complies with Section 890.510(a).

d) Interceptor for Special Waste. Before installing any interceptor for any other flammable or special wastes, a drawing including all pertinent information shall be submitted to the Department for approval.

(Source: Amended at 37 Ill. Reg._____, effective _____)

SUBPART F: PLUMBING FIXTURES

Section 890.630 Installation

a) Cleaning. Plumbing fixtures shall be installed in a manner to afford easy access for cleaning.

b) Securing Fixtures. Floor outlet or wall hung fixtures shall be secured by screws or bolts of copper, brass, or other equally durable corrosion resistant materials.

c) Wall-Hung Fixtures . Wall-hung fixtures shall be rigidly supported by a concealed metal supporting member so that no strain is transmitted to the fixture connection.

d) Setting. Plumbing fixtures and traps shall be set level and in a true alignment.

e) Potable Water Supply Connection. Hot and cold, tempered and cold, or tempered water only shall be supplied to all plumbing fixtures that are designed for hot and cold, tempered and cold, or tempered water. All mixing faucets and single lever faucets shall have both hot or tempered and cold water connected to them with the hot or tempered water supply on the left side of the faucet. The cross piping of hot or tempered and cold water to a mixing faucet by internal modification of the faucet shall not be allowed. Each lavatory and sink faucet shall have supply pipes that ~~which~~ are accessible.

f) Improper Location. Piping, fixtures, or equipment shall not be located or installed so ~~in such a manner~~ as to interfere with the normal operation of windows, doors, or other exit openings. Plumbing fixtures shall be installed in an area where there is sufficient room for the fixture to be used for its intended purpose.

g) When ~~Where~~ plumbing is installed it shall meet the requirements of the Illinois Accessibility Code ~~(71 Ill. Adm. Code 400)~~.

h) Surrounding Materials. Where water closets or urinals are installed for public use, the flooring under the fixture base extending to at least 18 inches from the front and both sides of the water closet or urinal, and extending from the back of the water closet or urinal to the wall, shall be of non-absorbent material.

i) A hot water heater thermostat shall not be an acceptable alternative water temperature control device.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.640 Prohibited Fixtures

a) Drinking fountains shall not be installed in public toilet rooms.

b) Fixed wooden, concrete, cement or tile wash trays or sinks used for food preparation, utensil washing, or hand washing shall not be installed in any food service establishment or commercial food establishment.

c) Bathtub liners/inserts are prohibited unless all of the following conditions are met:

1) Bathtub liners/inserts must be manufactured to an exact fit over existing bathtubs or be custom fabricated according to the dimensions of an existing bathtub;

2) The floor (bottom surface) of the liner/insert must have a slip-resistant surface; and

3) The bathtub liner/insert must be manufactured/fabricated from high-impact plexiglass/ABS or acrylic/plastic material complying with IAPMO/ANSI Z124.8 ~~1990~~ or from porcelain enameled formed steel complying with ASME A112.19.1/CSA 45.2 ~~/ANSI A112.19.4M-1994~~.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.650 Water Closets

a) Public Use~~.~~

1) Water closet bowls for public use shall be the elongated type, and the seat shall be an antimicrobial plastic open-front seat. Exception: Water closet bowls for public use may have closed-front seats provided that the seat is encased with a continuous plastic sleeve capable of providing a clean surface for every user.

2) The activating handle, button, or mechanism of the flush valve shall be at least 10 inches above the overflow rim of the bowl and not more than 44 inches above the floor.

3) In schools that are not licensed by the Illinois Department of Children and Family Services as day care centers or homes, water closets provided for

the use of children under five ~~5~~ years of age shall be of size and height suitable for children's use, either child or juvenile type in accordance with ASME~~/ANSI~~ A112.19.2/CSA B45.1~~M-1998~~**.**

4) Water closets designed for institutional use may be used in intensive care facilities and intensive coronary care facilities provided that the water closet swings only horizontally and has an integral trap. A water closet flushometer shall be used to flush the fixture. The plans and specifications shall be submitted to the Department for approval prior to installation, and ~~such~~ approval will ~~shall~~ be in writing from the Department provided that the ~~above~~ requirements of this subsection are met.

b) Water Closet Tanks. Water closet tanks shall have a volume sufficient to properly flush the water closet bowls with which they are connected.

c) Ballcocks. Ballcocks ~~Ball-cocks. Ball-cocks~~ for flush tanks shall be of the anti-siphon type, properly installed, and have a provision for trap refill.

d) Flushing Device. The flush valve seat in all water closet tanks shall be 1 inch or more above the flood level rim of the water closet bowl, with the exception of one-piece water closets in accordance with ASME~~/ANSI~~ A112.19.2/CSA B45.1~~M-1998~~.

e) Flushometer Valve. Flushometer valves shall comply with ~~ANSI~~/ASSE 1037-~~1990~~. Flushometer valves shall be installed so that they are readily accessible for repair. When the valve is operated, it shall complete the cycle of operation automatically, opening fully and closing completely under the service pressure. At each operation, the valve shall deliver water in sufficient volume and at a rate that will thoroughly flush the fixture and refill the fixture trap. Flush ~~Means shall be provided for regulating flush~~ valve flow shall be regulated. Protection against backflow shall be provided by an approved vacuum breaker installed on the discharge side of the flushing valve. The bottom of the vacuum breaker, or the critical level line shown on the vacuum breaker, shall be at least 4 inches above the overflow rim of the bowl (see Section 890.1140(a) and (b)). Not more than one water closet shall be served by a single flushometer valve.

f) Seats. Water closets shall be equipped with seats of smooth, non-absorbent material. All seats of water closets provided for public use shall be an

antimicrobial plastic material and an open-front style, except that closed-front seats may be provided if the seat is encased with a continuous plastic sleeve ensuring a clean surface for every user. No water closet seat shall be more than 1½ inches thick. Seats for accessible water closets may be open or closed front, and may have a lid or not have a lid. ~~Exception: Facilities for the physically disabled shall comply with the Illinois Accessibility Code.~~

g) A flushometer tank (or pressurized flushometer valve in accordance with ~~ANSI/~~ASSE 1037~~-1990~~) shall be used only with a water closet bowl specifically designed for that type tank/flushing device (i.e., in accordance with ASME~~/ANSI~~ A112.19.2/CSA B45.1~~M-1998~~) and where the flow pressure at the fixture meets the manufacturer's minimum recommendations.

h) Water closets that ~~which~~ rely on substances other than water for proper operation shall comply with ~~requirements of~~ the Private Sewage Disposal Code (77 Ill. Adm. Code 905). Privies and chemical toilets shall not be used inside any building.

i) Bidet. A bidet shall be equipped with hot and cold, tempered and cold, or tempered water only. An atmospheric vacuum breaker shall be installed on the discharge side of the flushing valve. The bottom of the vacuum breaker, or the critical level line shown on the vacuum breaker, shall be at least 4 inches above the overflow rim of the bidet.

j) Prohibited Water Closets. Hopper-style water closets and water closets with concealed couplings or submerged side inlets are prohibited. (See Appendix F.~~:~~ Illustration A.)

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.680 Lavatories

a) Waste Outlets. Wastes shall have a strainer or stopper and have a waste outlet at least 1¼ inches in diameter.

b) Lavatory Faucets. All lavatory faucets shall have air gaps as specified in Appendix A.~~:~~ Table C.

c) When metering faucets are located on lavatories in public restrooms, they shall be adjusted to remain open for a minimum of 10 seconds, and shall comply with the water consumption requirements of ASME/ANSI 112.18.1~~-2000~~. Metering faucets shall be designed for hot and cold, tempered and cold, or tempered water only.

d) Fixture Calculation. Eighteen lineal inches of wash sink or 18 inches of a circular basin, when provided with water outlets for the ~~such~~ space, shall be considered equivalent to one lavatory. (See Appendix F.~~:~~ Illustration B.)

e) Water Temperature. All lavatory faucets for public use shall be provided with an automatic safety water mixing device to prevent sudden unanticipated changes in water temperature or excessive water temperatures. The automatic safety water mixing device shall comply with ~~ANSI/~~ASSE 1070 ~~1016-1996~~ or 1017-~~1998~~ in accordance with Section 890.210, and shall be adjusted to a maximum setting of 110 degrees Fahrenheit ~~°F,~~ at the time of installation. Exception: Units constructed in accordance with Section 890.1220(a)(9~~10~~)(B) may be used in lieu of an automatic safety water mixing device to provide hot or tempered water to public lavatories.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.690 Shower Receptors and Compartments

a) Shower Installation. All shower compartments, except those built directly on a slab floor or having receptors constructed of precast stone, terrazzo, concrete, molded stone, molded fiberglass, or an equally durable material such as cultured stone or synthetic stone, shall have a lead, copper, ABS, PVC or fiberglass shower pan. (See Section 890.230 ~~entitled Safe Pans~~.) All sides of the shower pan shall turn up at least 2 inches above the finished shower floor level. Precast molded receptors shall have a minimum ¼ inch thick flange. Traps shall be constructed so that the pan is fastened to the trap at the seepage entrance, making a water-tight joint between the pan and the trap. Shower receptacle waste outlets shall be at least 2 inches in diameter and have a removable strainer.

b) Water Temperature Safety. All shower compartments and shower-bath combinations shall be provided with an automatic safety water mixing device to prevent sudden, unanticipated changes in water temperature or excessive water

temperatures. The automatic safety water mixing device shall comply with ~~ANSI/~~ASSE 1016/ASME A112.1016/CSA B125.16~~ 1996~~, in accordance with Section 890.210, and be designed with a maximum handle rotation limit/stop, or comply with ASSE 1017or ASSE 1070 ~~1998~~, in accordance with Section 890.210. The automatic safety water mixing device shall be adjusted to a maximum setting of 115 degrees Fahrenheit ~~°F~~ at the time of installation. The temperature of mixed water provided to multi-shower units or multi-person ~~gang~~ showers shall be controlled by a master automatic safety water mixing device, or the mixed water temperature ~~for such showers~~ shall be individually regulated by automatic safety mixing valves for each shower unit. A ~~hot~~ water heater thermostat shall not be an acceptable alternative water temperature control device.

c) Dimensions. Single family shower compartments or stalls shall have at least 1,024 square inches outside dimension (O~~.~~D~~.~~) floor area and shall be at least 32 inches in shortest outside dimension. All other shower compartments or stalls shall have no less than 1,296 square inches outside dimension floor area and shall be at least 32 inches in shortest outside dimension.

d) Materials. Shower walls shall be constructed of durable, smooth, non-absorbent, non-corrosive, and waterproof materials, such as fiberglass, enameled metal, or plastic sheeting~~, etc~~. All shower compartments or stalls shall have a slip-resistant floor (bottom) surface.

e) Public or Institution Showers. Floors of public shower rooms shall be drained so that no waste water from any bather will pass over areas occupied by other bathers. This will not prohibit the use of column showers.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.700 Sinks

a) Waste Outlets. Kitchen sinks shall be provided with waste outlets at least 1½ inches in diameter. Other special purpose sinks such as bar sinks, lab sinks, and dipper wells may have smaller waste outlets. Waste outlets shall be of the flat or basket (cup) strainer type.

b) Food Grinders. Sinks in which food grinders are installed shall have a waste opening inlet for the food grinder at least 3½ inches in diameter.

c) No special purpose sink shall be substituted for kitchen purposes.

d) Service sinks, mop sinks, laundry trays or similar utility sinks shall be provided with hot water.

e) Sinks in laboratories that are not designated for hand washing or personal hygiene may be supplied with cold water only.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.720 Drinking Fountains

a) Design and Construction. Drinking fountains shall conform to the standard Specifications for Drinking Fountains (ARI 1010~~ – 1985~~ or ASME~~/ANSI~~ A.112.19.2~~M – 1990~~). No modification of the mouth guard or nozzle shall be made. (See Appendix F~~.: –~~Illustration E.)

b) Protection of the Water Supply~~.~~

1) All drinking fountain nozzles, including those which may at times extend through a water surface, with an orifice not greater than $^{7}/_{16}$ or 0.440 ~~of an~~ inch diameter or 0.150 square inches area, shall be placed so that the lower edge of the nozzle orifice is at an elevation at least ¾ ~~of an~~ inch above the flood level rim of the receptacle.

2) The ¾ inch elevation shall also apply to nozzles with more than one orifice, provided that the sum of the area of all orifices shall not exceed the area of a circle $^{7}/_{16}$ ~~of an~~ inch in diameter or shall not exceed 0.150 square inches area.

3) The nozzle shall be set at an angle from vertical ~~such as~~ to prevent the return of water in the jet to the orifice.

c) Material. The fountain shall be constructed of impervious materials such as vitreous china, porcelain, enameled cast iron, stainless steel, or other metals or stoneware. (See Section 890.610.)

d) Flow Regulator. The water supply for the drinking fountain shall be provided with an adjustable valve fitted with a loose key stop or an automatic valve

regulating the rate of flow of water through the fountain so that the valve manipulated by the user of the fountain will merely turn the water on or off.

e) Installation and Location. Drinking fountains shall not be installed as an integral part of or connected to any other plumbing fixture, such as a lavatory or sink, nor shall a drinking fountain be installed in a restroom or toilet room, except those in correctional facilities.

f) Substitution. Whenever a drinking fountain is required by this Part, bottled drinking water or a water dispensing faucet (water station) may be substituted for a drinking fountain, provided that drinking water is accessible to the public. When bottled drinking water is provided in lieu of a drinking fountain, the bottled water used shall must be commercially sealed in accordance with the Illinois Bottled Water Act ~~[815 ILCS 310]~~ and with the Illinois Safe Bottled Water Act. ~~or must comply with the Department's Public Area Sanitary Practice Code (77 Ill. Adm. Code 895).~~

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.730 Floor Drains/Trench Drains

a) Trap and Strainer. Floor drains shall be trapped and have a minimum water seal of 2 inches, and shall be provided with a removable strainer. The open area of the strainer shall be at least T of the area of the drain line to which it connects. (See Appendix F.~~:~~ ~~–~~Illustration F.)

b) Trench drains for gas or oil discharges shall be constructed of cast iron, steel, polymer concrete, fiberglass, high-density polyethylene (HDPE), or Schedule 40 PVC material. Continuous trench drains for gas or oil discharges shall have a trapped and vented opening no less than every 40 lineal feet. Intermittent trench drains shall be treated as individual floor drains and shall meet the trap and venting requirements for floor drains.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.740 Kidney Dialysis Machines

a) ~~Water Supply Inlet.~~ The water supply inlet to kidney dialysis equipment shall

have a reduced pressure principle backflow preventer assembly complying ~~conforming~~ with ASSE 1013~~ 1988~~ or a fixed air gap.

1) A portable dialysis unit or machine shall ~~must~~ have a reduced pressure principle backflow preventer assembly installed on the water supply inlet on the unit.

2) Stationary dialysis equipment within a facility shall require, at the filter room or the dialysis machines, a reduced pressure principle backflow preventer assembly on the water supply or a water supply with a fixed air gap.

3) Dialysis equipment shall be installed in accordance with this Part and the manufacturer's specifications. Any conflicts shall be submitted to the Department for resolution.

b) The water supply to a dialysis reuse room or dialysis machine repair room shall be isolated from all other deionized (D~~.~~I~~.~~) or reverse osmosis (R~~.~~O~~.~~) water lines by an RPZ or an air gap.

c) A sign no smaller than 8 inches by ~~" X~~ 10 inches~~"~~ with the wording "This Water For Dialysis Only" shall be placed above a sink with D~~.~~I~~.~~ water or R~~.~~O~~.~~ water supplied to the faucet.

d) ~~Discharge.~~ The discharge for each dialysis unit or machine, portable or stationary, shall be provided with an individual indirect waste connection to the sanitary drainage system. Each stand pipe shall be individually trapped and vented.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.745 Dental Units

a) A reduced pressure principle backflow preventer assembly conforming to ASSE 1013~~ 1999~~, or a fixed air gap, shall be installed on each dental unit or group of dental units.

b) Dental vacuum systems connected to the water supply shall be provided with backflow protection.

c) If a dental unit has a water outlet below the flood rim level of a cuspidor, then an approved reduced pressure principle backflow preventer assembly, a fixed air gap, an air vent hole on the outlet, or an approved vacuum breaker shall protect the water supply from each dental unit.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.750 Hydromassage/Whirlpool Bathtubs

a) Whirlpool bathtubs shall be installed so that the tub, pump, jets and pump tubing drain completely after each use. The pump shall be located above the weir of the whirlpool tub trap.

b) All whirlpool bathtubs shall comply with ASME~~/ANSI~~ A112.19.7/CSA 45.10~~M-1995~~ (titled ~~entitled~~ ~~"~~Whirlpool Bathtub Appliances~~"~~). The suction fittings used in whirlpool bathtubs shall conform to ANSI/APSP 16~~ASME/ANSI A112.19.8 M-1987~~ (titled Standard Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs).~~entitled "Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, Hot Tubs and Whirlpool Bathtub Appliances").~~

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.800 Special Fixtures and/or Items Designed for a Particular Purpose

a) Emergency showers and eye wash stations within a building shall be provided with potable water and a trapped and vented receptor and shall comply with ANSI Z358.1 ~~Z358.1-1998.~~

b) Emergency eye wash stations shall not be installed on a faucet spout.

c) Baptistries, ornamental and lily ponds, aquariums, ornamental fountain basins, and similar type constructions, when provided with water supplied from the potable water system, shall be protected from back siphonage as required in Section 890.1130(f).

d) ~~Approval.~~ A request for permission to install special fixtures ~~and/~~or items designed for a particular purpose requiring water and waste connections not otherwise provided for in this Part shall be submitted, in writing, to the Department for approval prior to installation.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.810 Minimum Number of Plumbing Fixtures

a) Minimum Number of Fixtures Required. Plumbing fixtures shall be provided, for each building type and occupant load, in the minimum numbers shown in Appendix A~~.~~, ~~Table B, Minimum Number of Plumbing Fixtures, except as noted in footnote 2. Questions concerning the minimum numbers of fixtures required for building types not listed in Appendix A~~.~~, ~~Table B, shall be referred to the Department in writing prior to construction for a decision concerning the minimum numbers (and types) of plumbing fixtures required. The Department's decision shall be in writing based on Appendix A~~.~~, ~~Table B.

1) Building Classification. For purposes of this Part, buildings shall be classified according to the types shown in Appendix A~~.~~, ~~Table B. Buildings that incorporate more than one type of building use or occupancy, as classified by the Department, shall provide the combined numbers of fixtures required for the individual uses. Individual businesses within the same building or within an enclosed mall may share public or employee restroom facilities, provided that the access to the restrooms does not require trespass on adjoining businesses or leased space. Restrooms shall be open at all times when any individual business within the same building or within an enclosed mall is open. ~~For example, a building that serves as both a food service establishment and office building shall provide the minimum numbers of plumbing fixtures required for that portion operating as a food service establishment plus the number of fixtures required for the office space.~~

2) Occupant Load. For those building types where the minimum number of plumbing fixtures required in Appendix A~~.~~, ~~Table B, is dependent upon the building's occupant load, the ~~such~~ occupant load shall be the estimated total occupant load. If ~~Where~~ the building's occupant load is not known or determinable, the following shall be used to estimate the total occupant

load:

A) In assembly places (sports arenas, stadiums, convention centers, theaters, auditoriums, gymnasiums, or other facilities for spectator events); worship places and funeral homes; schools; office buildings; food service establishments; and mercantile units, the total occupant load (employees and public users of the facility) shall be based on the capacity of the rooms or spaces used for assembly purposes or other intended occupancy, and shall be determined as follows:

i) In rooms or spaces with fixed seating, the occupant load shall be the actual number of seats provided. When no divisions between seats are provided (e.g., benches or pews), fixed seating shall be computed assuming 18 inches per person.

ii) In rooms or spaces without fixed seating, the occupant load shall be determined by dividing the gross floor area by the estimated floor area per person shown in the following table:

Building Type or Occupancy	Floor Area per Person (Sq. Ft.)
Assembly Places – Facilities for Spectator Events; Worship Places and Funeral Homes	<u>50</u> ~~15~~
Museums, Libraries, Exhibition Areas and Similar Uses	50
Schools	50
Day Care Centers	70
Office Buildings	200
Food Service Establishments, Clubs, Taverns, and Other Eating/Drinking Facilities	30

Mercantile Units, Except Grocery Stores, Auction Houses, Sale Barns, Car Auction Centers, and other similar Mercantile Units	
− First Floor	100
− All Other Floors	120
Combination Grocery Store/Non-Grocery Mercantile Units	150
Mercantile Units, such as Auction Houses, Sale Barns, Car Auction Centers, and other similar Mercantile Units	40
Grocery Stores	200
Storage/Shipping Area	400
Power Plants/Industrial Units	500

iii) For a drive-in food service establishment, the occupant load shall be considered as equal to the number of parking stalls.

B) Dormitories and Institutions. For dormitories, penal institutions and other residential institutions other than hospitals, the total occupant load shall be based upon the number of beds in the dormitory or institution.

C) Restroom Location and Requirements

The required number of plumbing fixtures for a restroom shall be located within the restroom area and not in the hallways or vestibules. Lavatories required by Appendix A.~~:~~ Table B shall be installed in restrooms at a ratio of not less than one lavatory per two ~~2~~ water closets or urinals. (See Footnote 2, Appendix A.~~:~~ Table B.)

b) Required Restroom Facilities and Drinking Fountains

1) Employee Restrooms and Drinking Fountains

A) Restroom facilities and drinking fountains shall be provided for all

employees within each place of employment. The minimum numbers of fixtures provided shall be based on the maximum number of male and female employees working at any one time, as shown in Appendix A.~~:~~ Table B. (The numbers of fixtures required for employees are included in the numbers shown in Table B for all building types/uses except hospital rooms, penal institutions, and other institutions ~~Hospital Rooms, Penal Institutions, and Other Institutions~~. The entry in Appendix A.~~:~~ Table B~~,~~ titled ~~entitled~~ All Facilities for Employee Use shall be used to determine the minimum number of fixtures required for employees in hospitals, penal/other institutions, and all other buildings/facilities that do not appear in Appendix A.~~:~~ Table B.)

i) If there are more than five ~~5~~ employees working at any one time, separate restrooms for men and women shall be provided.

ii) If there are no more than five ~~5~~ employees working at any time, one restroom may serve both sexes. A restroom shall ~~must~~ have a minimum of one water closet and one lavatory.

iii) ~~Location.~~ For schools, day care centers and office buildings, the employee restrooms and drinking fountains shall be located on the same floor or one floor above or below each location where employees regularly work.

iv) Individual businesses within the same building or within an enclosed mall may share public/employee restroom facilities, provided that the access to the restrooms does not require trespass on adjoining business or leased space. The restrooms shall ~~must~~ be designed for the combined occupant load of the individual businesses served, be open at all times when any individual business is open, and be located no more than 300 feet from the entrance of each business served. Exception: Any food service establishment that sells or serves food or beverages to be consumed on its premises or within the building/mall shall ~~must~~ be located no more than 100 feet from the shared

public/employee restrooms and shall ~~must~~ be on the same floor.

v) Kiosks, which are free-standing places of employment, that have five ~~5~~ or fewer employees at any time, who have access to public restrooms and a drinking fountain within 300 feet of the kiosks, shall not be required to have employee restroom facilities or a drinking fountain.

B) If public restrooms and drinking fountains are also required for the building type, employees may share the restrooms and drinking fountains with the public, provided that the numbers of fixtures are sufficient for the combined numbers of males and females and the restrooms and drinking fountains are provided within the place of employment (and within the required location for schools, day care centers and office buildings).

2) Public Restrooms and Drinking Fountains

A) General Requirements~~.~~

i) Buildings with 5,000 square feet of gross public area or with occupancies of 100 or more persons shall provide public restrooms and drinking fountains as shown in Appendix A~~.~~ ~~:~~ Table B. Buildings other than those exceptions in subsection (b)(2)(B) of this Section, with less than 5,000 square feet of gross public area, or with occupancies of fewer than 100 persons, need not provide public restrooms and drinking fountains.

ii) Individual businesses within the same building or within an enclosed mall, may share public/employee restroom facilities, provided that the access to the restrooms does not require trespass on adjoining business or leased space. The restrooms shall ~~must~~ be designed for the combined occupant load of the individual businesses served, always be open when any individual business is open or when employees are present, and be located no more than 300

feet from the entrance of any business served. Exception: Any food service establishment that sells food or beverages ~~beverage~~ to be consumed on its premises or within the building/mall shall ~~must~~ be located no more than 100 feet from the shared public/employee restrooms and shall ~~must~~ be on the same floor.

iii) Where public restroom facilities are required by this Part, separate facilities for males and females shall be provided. If additional public restroom facilities are provided in excess of the minimum requirements of this Part, they shall comply with one of the following:

- For each additional two ~~2~~ water closets or urinals installed in a restroom, one additional lavatory shall ~~must~~ be installed in that restroom.

- Unisex restrooms shall not have more than one water closet and one lavatory, and the option of one urinal.

iv) Plumbing ~~Where plumbing is installed it~~ shall meet the requirements of the Illinois Accessibility Code ~~(71 Ill. Adm. Code 400).~~

B) Additional Requirements for Special Building Types

i) All food service establishments that sell or serve food or beverages ~~beverage~~ to be consumed on the premises (regardless of their gross area) shall provide readily accessible restroom facilities for the public. If public restrooms are not provided within the premises of the food service establishment, they shall be located within the same building, on the same floor/level and within 100 feet of an entrance to the food service establishment; and they shall be available for public use at all times that the food service establishment is open. Exception: Food service establishments with no more than 10 combined employees

and seats (for patrons) at any one time need not provide public restrooms, provided that the employee restrooms are accessible and made available to the public.

ii) All businesses selling motor vehicle fuel to the public (regardless of their gross area) shall provide at least one public restroom for male use and one public restroom for female use. Exception: Facilities that do not have any employees working as attendants during any part of a 24 hour period and sell only motor fuel to the public using automated machines need not provide male/female public restrooms or drinking fountains. One ~~There shall be, however, one~~ employee restroom shall be provided for use by maintenance staff when maintenance staff are ~~such personnel is~~ present.

(Source: Amended at 37 Ill. Reg._____, effective _____)

SUBPART H: INDIRECT WASTE PIPING, SPECIAL WASTE

Section 890.1010 Indirect Waste Piping

a) Food and Beverage Handling. Commercial dishwashing machines, dishwashing sinks, pot-washing sinks, pre-rinse sinks, silverware sinks, bar sinks, soda fountain sinks, vegetable sinks, potato peelers, ice machines, steam tables, steam cookers and other similar fixtures shall have their drain lines indirectly discharged to a proper receptor. The only exception shall be when the ~~such~~ fixtures are located adjacent to a floor drain. The waste may be directly connected on the sewer side of the floor drain trap provided that the fixture waste is trapped and vented as required by this Part (see Appendix H.~~:~~ Illustrations A and B), and the floor drain is located within 4 feet horizontally of the fixtures and in the same room. In the case of direct connection, no other fixture waste shall be connected between the floor drain trap and the fixture being protected. All indirect waste shall discharge to a vented trap located as close as possible to the fixture and in the same room. (See Appendix H.~~:~~ Illustrations C and D.)

b) Connection. Indirect waste connections shall be provided for drains, overflows,

and relief valves from the water supply system. (See Appendix H.~~:~~ ~~–~~Illustration E.) A clear water waste shall discharge through an indirect waste into a sanitary or storm drain system located on the same floor.

c) Sterile Materials. Stills, sterilizers and other appliances, fixtures, devices and water and waste connections used for preparation of sterile material shall be indirectly discharged to the drainage system.

d) Swimming Pools. When backwash or other waste water from a swimming pool filter discharges to the sanitary waste system, it shall be indirectly wasted. When deck drains around a pool discharge to the sanitary waste system, they shall be indirectly wasted.

e) Clear Water Wastes. Water lifts, expansion tanks, cooling jackets, sprinkler systems, drip or overflow pans, refrigerated cases, or similar devices that ~~which~~ discharge only clear water ~~only~~ shall discharge indirectly into a building storm drain, building drain or building sewer, located on the same floor, or into a vacuum waste system.

f) Fire Sprinkler Systems. The relief valve (port) of a backflow device located on a fire sprinkler system that ~~which~~ contains an additive shall drain indirectly to the building drain.

g) Cleaning. Indirect waste piping shall be ~~so~~ installed so as to permit access for flushing and cleaning.

(Source: Amended at 37 Ill. Reg._____, effective _____)

SUBPART I: WATER SUPPLY AND DISTRIBUTION

Section 890.1110 Quality of Water Supply

All premises intended for human habitation or occupancy shall be provided with a potable water supply. The potable water supply shall not be connected to non-potable water and shall be protected from backflow and back siphonage. (See Appendix I.Illustration A.)

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.1120 Color Code

Identification of piping. All piping conveying non-potable water shall be permanently identified by a continuous purple coloring ~~distinctive yellow-colored paint~~ so that the ~~such~~ piping is readily distinguishable from piping carrying potable water. (See the color codes of ANSI/NEMA Z535.1 and ASME A13.1. ~~(See USAZ 253.1-1953 Safety Color Code for Marking Physical Hazards and USA AB.1-1956 Scheme for the Identification of Piping Systems.)~~

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.1130 Protection of Potable Water

a) Cross Connection (Submergence). Potable water supply piping and water discharge outlets shall not be submerged in any sewage or toxic substance. Potable~~Where potable~~ water supply piping or water discharge outlets that are submerged in other substances~~, they~~ shall be provided with backflow protection as listed in Section 890.1130(f)~~1140(f)~~. (See Appendix I.~~:~~ Illustrations ~~A,~~ B and C.)

b) Approval of Devices and Maintenance. All devices and assemblies for the prevention of backflow shall comply with the standards listed in Appendix A.~~:~~ Table A of this Part. All reduced pressure principle (RP), reduced pressure detector (RPDA), double check (DCA) and double check detector (DCDA) backflow prevention assemblies shall be tested and approved by a Cross-Connection Control Device Inspector (CCCDI) before initial operation, and at least annually after initial inspection ~~thereafter~~. Records to verify testing and maintenance shall be available at the site of the installation.

c) Backflow. The water distribution system shall be protected against backflow. Each water outlet shall be protected from backflow by having the outlet end from which the water flows spaced a sufficient distance above the flood-level rim of the receptacle into which the water flows ~~sufficient~~ to provide a minimum fixed air gap. Where it is not possible to provide a minimum fixed air gap, the water outlet shall be equipped with an accessible backflow prevention device or assembly in accordance with subsection (f) of this Section or Section 890.1140.

d) Fire Safety Systems. The installation of any fire safety system involving the potable water supply system shall be protected against backflow as follows:

1) Backflow protection is not required for fire safety systems constructed as follows:

   A) The system shall be looped, with no dead ends, to allow circulation, to prevent the stagnation of water in the line;

   B) The system shall not have any non-potable connections, or a fire department hose (Siamese) connection;

   C) The system shall have 20 sprinkler heads or less; and

   D) The system shall be constructed of potable water supply quality pipe in accordance with Appendix A.~~:~~ ~~-~~Table A of this Part.

2) When backflow protection is required, ~~A~~ a double detector check valve or double check valve backflow preventer assembly shall be installed at the fire safety system's point of connection to the potable water supply when a fire safety system has no chemical additives or non-potable connection; and~~,~~

   A) The fire safety system has no fire department hose connections; or

   B) The fire safety system ~~but~~ has one or more fire department hose connections (for boosting pressure and flow to the fire safety system) that are served only by fire fighting apparatus connected to a public water supply or a fire department that does not use chemical additives or rely upon any non-potable water supply.

3) A fixed air gap with a break tank or other storage vessel or a reduced pressure principle backflow preventer assembly (RPZ) shall be installed at the fire safety system's point of connection to the potable water supply if ~~when~~:

   A) The fire safety system contains additives such as antifreeze, fire retardant or other chemicals. (The RPZ may be located at the point of connection to that section of the system containing ~~such~~ additives when the system's connection to the water supply is

protected by a double detector check valve backflow preventer assembly); or

B) Non-potable water flows into the fire safety system by gravity; or

C) There is a permanent or emergency connection whereby water can be pumped into the fire safety system from any other non-potable source; or

D) Fire department connections are available that could permit water to be pumped into the fire safety system from a non-potable source capable of serving the fire safety system. ~~(~~A non-potable source of water shall be considered capable of serving the fire safety system under the following conditions: It must be capable of year-round use, maintained with at least 50,000 gallons of usable water not subject to freezing, accessible to fire fighting pumper equipment, and located within 1,700 feet of the facility.~~)~~

e) Prohibited Connections~~.~~

1) Sewage Lines. There shall be no direct connection between potable water lines and sewage lines or~~,~~ equipment and vessels containing sewage. Connections ~~Such connections~~ shall be made only through a minimum fixed air gap as outlined in Section 890.1130(f)(5)~~1140(a).~~

2) Chemical or Petroleum Pressure Vessels. No ~~There shall be no~~ direct connection shall occur between any potable water supply and any pressure vessel, i.e., storage tank, tank car, tank truck or trailer or other miscellaneous pressurized tank or cylinder containing or having contained liquified gaseous petroleum products or other liquified gaseous chemicals. Where it is necessary to discharge from a potable water line to ~~such~~ a pressure vessel, the ~~such~~ discharge shall be through a minimum fixed air gap as outlined in Section 890.1130(f)(5).~~1140(a).~~ Exception: Chemical pressure vessels containing chemicals used in the water treatment process, for uses other than private purposes, are exempt from ~~the provisions of~~ this subsection.

3) If water under pressure is required, as in subsections (e)(1) and (2) of this

Section, it shall be supplied by means of an auxiliary pump taking suction from a tank provided for this purpose only with an over-rim supply having the required minimum fixed air gap.

4) ~~Refrigerant Condensers.~~ A potable water line to a single wall refrigerant condenser shall be provided with a backflow preventer complying with ASSE 1012 or 1013.

5) No pipe or fitting of the water supply system shall be drilled or tapped nor shall any band or saddle be used except at the water main in the street. Exception: See Section 890.320(h) for potable water use only.

f) Devices for the Protection of the Potable Water Supply. Approved backflow preventers or vacuum breakers shall be installed with all plumbing fixtures and equipment that may have a submerged potable water supply outlet and that are not protected by a minimum fixed air gap. Connection to the potable water supply system for the following fixtures or equipment shall be protected against backflow with one of the appropriate devices as indicated below:

1) Inlet to receptacles containing low hazard substances (steam, compressed air, food, beverages, etc.):

A) fixed air gap fitting;

B) reduced pressure principle backflow preventer assembly;

C) atmospheric vacuum breaker unit;

D) double check valve backflow preventer assembly;

E) double check backflow preventer with atmospheric vent assembly; or

F) dual check valve.

2) Inlet to receptacles containing high hazard substances (vats, storage containers, plumbing fixtures, etc.):

A) fixed air gap fitting;

B) reduced pressure principle backflow preventer assembly; or

C) atmospheric vacuum breaker unit.

3) Coils or jackets used as heat exchangers in compressors, degreasers, and other ~~such~~ equipment involving high hazard substances:

A) fixed air gap fitting; or

B) reduced pressure principle backflow preventer assembly.

4) Direct connections that ~~which~~ are subject to back pressure:

A) Receptacles containing low hazard substances (vats, storage containers, plumbing fixtures, etc.):

i) fixed air gap fitting;

ii) reduced pressure principle backflow preventer assembly;

iii) double check valve backflow preventer assembly;

iv) double check backflow preventer with atmospheric vent assembly; or

v) dual check valve.

B) Receptacles containing high hazard substances (vats, storage containers, etc.):

i) fixed air gap fitting; or

ii) a reduced pressure principle backflow preventer assembly.

5) Inlet to or direct connection with sewage or lethal substances: fixed air gap fitting.

6) Hose and spray units or stations shall be protected by one of the appropriate devices as indicated below:

A) Fixed air gap;

B) Reduced pressure principle backflow preventer assembly;

C) Double check valve backflow preventer assembly;

D) Double check valve backflow preventer with atmospheric vent assembly;

E) Dual check valve backflow preventer assembly;

F) Atmospheric Vacuum Breaker Unit.

g) Installation of Devices or Assemblies.

1) Devices of All Types. Backflow preventer assemblies and devices shall be installed to be accessible for observation, maintenance and replacement services. Backflow preventer devices or assemblies shall not be installed where they would be subject to freezing conditions, except as allowed in Section 890.1140(d).

2) All in-line backflow/back siphonage preventer assemblies shall have a full port type valve with a resilient seated shut-off valve on each side of the preventer. Relocation of the valve is not permitted.

3) A protective strainer shall be located upstream of the first check valve on all backflow/back siphonage preventers unless the device contains a built-in strainer. Fire safety systems are exempt from the strainer requirement.

4) ~~Atmospheric Vacuum Breakers.~~ Vacuum breakers shall be installed with the critical level above the flood level rim of the fixture they serve, and on the discharge side of the last control valve of the fixture. No shut-off valve or faucet shall be installed beyond the vacuum breaker.

5) ~~Double Check Valve, and Reduced Pressure Principle Backflow Preventer~~

~~Assemblies.~~ No in-line double check valve backflow preventer assembly (DCV) or reduced pressure principle backflow preventer assembly (RPZ) shall be located more than 5 feet above a floor, or be installed where it is subject to freezing or flooding conditions. After installation, each DCV and RPZ shall be field tested in-line in accordance with the manufacturer's instructions by a cross-connection control device inspector before initial operation. (See subsection (b) of this Section.)

6) A dual check backflow preventer with atmospheric vent assembly shall not be installed where it is subject to freezing or flooding conditions.

7) Closed water systems with hot water storage shall have a properly sized thermal expansion tank located in the cold water supply as near to the water heater as possible and with no shut-off valve or other device between the heater and the expansion tank. Exception: In existing buildings with a closed water system, a properly sized pressure relief valve may be substituted in place of a thermal expansion tank. For closed water systems created by backflow protection in manufactured housing, as required in Section 890.1140(i), a ballcock with a relief valve may be substituted for the thermal expansion tank.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.1140 Special Applications and Installations

a) Atmospheric Vacuum Breaker. An atmospheric vacuum breaker shall be installed between the control valve and the fixture and so ~~in such a manner~~ that it will not be subject to water pressure, except the pressure incidental to water flowing to the fixture. An atmospheric vacuum breaker shall be installed on the outlet side of the control valve.

b) Flushometer Valve. Flush valves shall be equipped with vacuum breakers installed on the discharge side of the flushing valve with the critical level at least 4 inches above the overflow rim of the bowl or 4 inches above the top of the urinal. (See Appendix I.~~:~~ ~~–~~Illustration D.)

c) Flushing Tanks. Flushing tanks shall be equipped with anti-siphon ballcocks ~~ball cocks~~. The ballcocks ~~ball cock~~ shall be installed with the critical level of the

vacuum breaker at least 1 ~~one~~ inch above the full opening of the overflow pipe. If the ballcock ~~In cases where the ball cock~~ has no hush tube, the bottom of the water supply inlet shall be installed 1 ~~one~~ inch above the top of the overflow pipe. (See Section 890.650(d).)

d) Lawn Sprinklers. Any lawn sprinkler system connected to a potable water supply shall be equipped with an ~~a reduced pressure principle backflow preventer assembly (~~RPZ~~)~~. The RPZ may be located outside provided that it is protected from freezing or is removed at the end of the season, and it complies ~~conforms~~ with Section 890.1130(g)(1).

e) Valve Outlets for Hose Attachments~~.~~

1) All threaded valve outlets shall have backflow protection in accordance with Section 890.1130. All outside threaded valve outlets shall not be subject to freezing.

2) Yard hydrants shall be installed as follows:

A) Potable Water. All hydrants with threaded spigots shall have backflow protection attached to the hydrant spigot (if threaded) and either:

i) Hydrants with buried drain down (weep) holes shall have the ~~drain down (~~weep~~)~~ holes protected from ground water backup by proper open site drainage. A backflow preventer shall not be used on the buried ~~drain down (~~weep~~)~~ hole to protect the hydrant from ground water backup; or

ii) A yard hydrant that automatically drains back to a sealed container when flow is shut off, such as a canister type hydrant.

B) Non-potable Water

One or more hydrants may be installed for non-potable use if they are isolated from the potable water supply by a ~~properly installed~~ backflow preventer device installed in accordance with Section

890.1130(f). The hydrants shall ~~must~~ be clearly identified as non-potable by color (see Section 890.1120) and bear a sign that reads as follows: "This water unsafe for drinking."

3) In a campground licensed in accordance with the Department's rules titled ~~entitled~~ Youth Camp Code ~~(77 Ill. Adm. Code 810)~~ or Recreational Area Code ~~(77 Ill. Adm. Code 800)~~, backflow protection is not required if the water supply line is directly connected to a recreational vehicle and is under constant pressure.

f) Commercial Laundry Machines. The potable water supply to commercial laundry machines shall be protected against back siphonage by an air gap or backflow protection device. If a vacuum breaker is used, it shall be a minimum of 26 inches above the top of the machine.

g) Commercial Dishwashers. Commercial dishwashers shall be equipped with an approved vacuum breaker located in the rinse water supply line on the discharge side of the final control valve, a minimum distance of 6 inches above the uppermost spray outlets. The cold water or make-up water supply line shall be provided with an air gap or a vacuum breaker located on the discharge side of the final control valve, a minimum distance of 6 inches above the overflow level or flood rim.

h) Aspirators. Water-operated aspirators shall meet the following specifications:

1) The water supply line shall be equipped with a shut-off valve.

A) If aspirators are used in ~~In~~ operating rooms, emergency rooms, recovery rooms, delivery rooms, autopsy rooms, dental offices and laboratories ~~where aspirators are installed~~ for removing blood, pus ~~and/~~or other fluids, a vacuum breaker shall be installed on the discharge side of the control valve, at ceiling height (a minimum of 7 feet, 6 inches); and the water supply shall be protected against backflow and back siphonage by an air gap; or an RPZ ~~a reduced pressure principle backflow preventer assembly~~ shall be used.

B) Chemical dispensing units shall have a dedicated water supply and shut-off valves to each unit. Each unit shall have a backflow device

installed to protect against backflow and back siphonage. ~~Water operated aspirators used for dispensing detergent shall be protected against backflow and back siphonage by an atmospheric vacuum breaker or a reduced pressure principle backflow preventer assembly.~~

2) The aspirator water discharge shall be provided with a 2-inch air gap to the receiving fixture.

i) Manufactured Housing and Mobile Home Units Manufactured Prior to June 15, 1976. At the time of water service connection, backflow protection shall ~~must~~ be installed between the water service line and any manufactured housing or mobile home unit that was manufactured prior to June 15, 1976. Backflow protection shall be provided by at least a dual check valve backflow preventer assembly (DuC) conforming to ~~ANSI/~~ASSE 1024~~ – 1990~~. This backflow protection shall ~~must~~ be installed in all instances where a unit manufactured prior to June 15, 1976 is connected or re-connected to a water service line, e.g., for connection of a relocated unit, or re-connection of a unit that was disconnected to allow repairs to the water line; however, backflow protection is not required for existing units unless a new connection or re-connection to the water service line occurs.

j) Carbonated Beverage Dispensers Water Supply. The water supply to carbonated beverage dispensers shall be protected by one of the following methods:

1) Air gap;~~.~~

2) ASSE 1022~~ – 1996~~ backflow preventer; or~~.~~

3) ASSE 1022~~ – 1980~~ backflow preventer with vent port added.

k) Water-Powered Sump Pump. Sump pumps powered by potable or reclaimed water pressure shall be used only as an emergency backup pump. The water-powered pump shall be equipped with a battery powered alarm having a minimum rating of 85 dBa at 10 feet. Water-powered pumps shall have a water efficiency factor of pumping at least 1.4 gallons of water to a height of 10 feet for every gallon of water used to operate the pump, measured at a water pressure of 60 psi. Pumps shall be clearly labeled as to the gallons of water pumped per gallon of potable water consumed. Water-powered stormwater sump pumps

shall be equipped with a dual check valve with atmospheric vent conforming to ASSE 1012 or CSA B64.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.1150 Water Service Pipe Installation

a) Underground Water Service~~.~~

Water service pipe shall be installed outside the foundation wall in accordance with either subsection (a)(1) or (2) of this Section and shall comply with ~~the requirements of~~ both subsections (a)(3) and (4) of this Section.

1) Water service and building drain or building sewer may be installed in separate trenches with a minimum of 10 feet horizontal separation. Material ~~Such installation shall use material~~ listed in Appendix A~~.~~, ~~-~~Table A (Approved Materials for Building Sewer and Approved Materials for Water Service Pipe) shall be used, provided that the ~~such~~ material is specific for this type of installation. (See Appendix I~~.~~: ~~-~~Illustration E.)

2) The water service and the building drain or building sewer may be installed in the same trench provided that the water service is placed on a solid shelf a minimum of 18 inches above the building drain or building sewer. The ~~For such installation, the~~ building sewer shall be of material listed in Appendix A~~.~~: ~~-~~Table A (Approved Building Drainage/Vent Pipe) for a building drain. (See Appendix I~~.~~: ~~-~~Illustration F for the proper installation of water service, building drain and building sewer.)

3) The minimum depth for any water service pipe shall be at least 36 inches or the maximum frost penetration of the local area, whichever is of greater depth.

4) No water service pipe shall be installed or permitted outside of a building or in an exterior wall unless the pipe is protected ~~provisions are made to protect such pipe~~ from freezing, in accordance with Section 890.1210(a).

b) Potable Water Piping and Sanitary Sewer Crossing Installation Requirements~~.~~

1) Potable ~~Where it is necessary for the potable~~ water piping that passes ~~to pass~~ above or below a sanitary sewer~~, such piping~~ shall be installed with a minimum vertical separation of 18 inches for a distance of 10 feet on either side from the center of the sanitary sewer.

2) If ~~Where it is necessary for the~~ potable water piping passes ~~to pass~~ beneath a sanitary sewer or drain, the sanitary sewer or drain shall be constructed of materials as specified in Appendix A.~~:~~ ~~Table~~ A (Approved Building Drainage/Vent Pipe) for building drains, and shall extend on each side of the crossing to a distance of at least 10 feet as measured at right angles to the water line. The potable water piping shall comply with Appendix A.~~:~~ Table A as specified for a water service pipe (Approved Materials for Water Service Pipe). (See Appendix I.~~:~~ Illustration G.)

3) ~~Wet/Dry Bore:~~ When compliance ~~it is not possible to comply~~ with subsection (b)(1) or (2) is not possible, a pressure rated pipe, approved for building drain material listed in Appendix A.~~:~~ ~~Table~~ A, shall encase the water service pipe. The casing pipe shall be sealed with a casing seal and extend 10 feet on either side of the center of the sanitary sewer pipe. The sleeve or case shall be at least two ~~2~~ times the size of the water service.

c) When compliance ~~it is not possible to comply~~ with subsection (a) or (b) is not possible, the Department shall be contacted for consideration of alternative methods.

d) Stop-and ~~And~~-Waste Valve. Combination stop-and-waste valves and cocks shall not be installed in an underground potable water pipe. Frost-free hydrants and fire hydrants shall not be considered stop-and-waste valves. (See Section 890.1140(e).)

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.1170 Potable Water Supply Tanks and Auxiliary Pressure Tanks

a) Water Pressure. When the water pressure from the public water supply main is insufficient during periods of peak flow or due to the building height to supply all fixtures in accordance with Section 890.1210(c), the rate of supply shall be supplemented by a gravity tank or auxiliary pressure (booster) system. Auxiliary

pressure systems shall not substitute for adequate sizing of water distribution piping within the building.

b) Support. All water supply tanks shall be supported in accordance with local building codes or authorities having jurisdiction. ~~other regulations that apply.~~

c) Tank Supply Inlet and Outlet. The water supply inlet to the tank shall have a minimum air gap of at least 6 ~~six (6)~~ inches. The supply outlet shall be a minimum of 4 ~~four (4)~~ inches above the bottom of the tank.

d) Overflow For Water Supply Tanks. Overflow pipes for gravity tanks shall be indirectly connected to the drainage system with an air gap of at least 6 ~~six (6)~~ inches. Overflow pipes shall be full sized, unrestricted and screened with 24-mesh per inch stainless steel or bronze screen.

e) Size of Overflow. Overflow drains for gravity water supply tanks shall have an area of at least twice the size of the supply pipe.

f) Drains. Water supply tanks shall be provided with valved drain lines located at their lowest point and shall discharge through an indirect waste with an air gap of twice the diameter of the drain line. The ~~Such~~ drain line and valve shall have no restrictions and need not exceed 2 ~~two (2)~~ inches in diameter.

g) Gravity and Suction Tanks. Tanks used for potable water supply or only to supply fire-fighting equipment ~~only~~ shall be equipped with tight~~,~~ overlapping covers that ~~which~~ are rodent and insect proof. The ~~Such~~ tanks shall be vented with a return bend (turned down) pipe having an area at least ½ ~~one-half (1/2)~~ the area of the tank outlet pipe, and the vent opening shall be covered with a stainless steel or bronze screen of at least 24-mesh per inch.

h) Pressure Tanks. Pressure tanks used for supplying water to the water distribution system, or only to supply standpipes for fire equipment ~~only~~, shall be equipped with a vacuum relief valve located on top of the tank. An air inlet of this device shall be covered with a stainless steel or bronze screen of at least 24-mesh per inch. (See Section 890.1230(f)~~1220(a)~~.)

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.1180 Flushing/Disinfection of Potable Water System

New or repaired potable water systems shall be flushed or disinfected prior to use as follows:

a) Chlorinated Water Supply. If the potable water supply serving the water supply system is chlorinated, e.g., a community water system, the water supply system, or appropriate repaired portion, shall be flushed with clean, potable water until no dirty water appears at the point of outlet.

b) Non-Chlorinated Water Supply. The pipe system shall be flushed with clean~~,~~ potable water until no dirty water appears at the point of outlet.

1) The system ~~(~~or part of the system ~~thereof)~~ shall be filled with a chlorine solution containing at least 50 parts per million of chlorine, shall be valved off and allowed to stand for 24 hours; or the system ~~(~~or part of the system ~~thereof)~~ shall be filled with a chlorine solution containing at least 200 parts per million of chlorine and be allowed to stand for three ~~(3)~~ hours.

2) Following the required contact (standing) time, the system shall be flushed with clean~~,~~ potable water until the chlorine level in the water discharging from the system is within acceptable limits for potable water, i.e., generally until the water has no detectable chlorine odor.

3) To ensure that the water supplied by the water system is safe for drinking, a bacteriological examination of a water sample taken from the water supply system shall be secured. ~~This examination shall be performed by a laboratory certified in accordance with 35 Ill. Adm. Code 183.~~ The chlorine residual in any water sample collected for ~~such~~ examination shall ~~must~~ not exceed ~~four (4)~~ parts per million (or 4 milligrams/liter) for a reliable laboratory result. If the ~~such~~ examination reveals that contamination still persists in the system, the procedure ~~outlined above~~ for disinfection shall be repeated.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.1190 Water Supply Control Valves and Meter

a) A full-port shut-off valve shall be located near the curb or property line and

immediately inside the building~~, either~~ on the inlet and ~~or~~ outlet side of the water meter. When located underground, this valve shall be ~~located~~ in a stop box or meter vault. (See Appendix I.~~:~~ Illustration H.)

b) The utility meter may be installed outside in an accessible meter vault or within the building. The meter shall have unions on the inlet and ~~/~~outlet openings~~, but is not required to have a shut-off valve on the inlet side of the meter if it is inside a building~~. A full-port valve with an open area at least that of the water service shall be provided for all meters and shall be provided with a drain valve installed on the discharge side of the meter valve when located inside of a building. (See Appendix I.~~:~~ Illustrations H and I.)

c) Tank Controls. Supply lines taken from pressure or gravity tanks shall be valved at or near their source.

d) Water Heating Equipment. A shut-off valve shall be provided in the cold water branch ~~line~~ within 5 developed feet of each water storage tank or each water heater and located in the same room.

e) Separate Controls for Each Family Unit. In multiple family dwellings, the water service or water distribution pipe to each family unit shall be controlled by an arrangement of line ~~shut-off~~ valves that ~~which~~ permits each group of fixtures and each individual fixture to be shut off without interference with the water supply to any other family unit or portion of the building. The location of these ~~such~~ valves shall be uniform in each family unit of a multiple family dwelling. (See Appendix I.~~:~~ Illustration J.)

f) Buildings Other Than Dwellings. In all buildings other than dwellings and health care facilities as specified in subsection (g) of this Section, line ~~shut-off~~ valves shall be installed to permit the water supply to all equipment or ~~and/or~~ fixtures in each separate room to be shut off without interfering with the water supply to any other room or portion of the building. For plumbing equipment or fixtures that are installed back-to-back in adjacent rooms, e.g., in adjacent restrooms, a common line ~~shut-off~~ valve may be used to shut off the water supply to the back-to-back fixtures in no more than two ~~2~~ adjacent rooms. (See Appendix I.~~:~~ Illustration K.)

g) Health Care Facilities. In the residence rooms of health care facilities the water distribution pipe to each resident unit ~~or back-to-back rooms~~ shall be controlled by an arrangement of line valves that permits each group of fixtures, and each

individual fixture, to be shut off without interference with the water supply to any other unit or portion of the building.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.1210 Design of a Building Water Distribution System

a) Design and Installation. The design and installation of the hot and cold water building distribution systems shall provide a volume of water at the required rates and pressures to ensure the safe, efficient and satisfactory operation of fixtures, fittings, appliances and other connected devices during periods of peak use. No distribution pipe or pipes shall be installed or permitted outside of a building or in an exterior wall or attic unless the ~~provisions are made to protect such~~ pipe is protected from freezing~~, including but not limited to wrap-on insulation or heat tape tracer line or wire~~.

b) Size of Water Distribution Pipes. The fixture supply for each fixture shall be at least the minimum size provided in Appendix A.~~,~~ Table D. The size of all other water distribution pipes shall be determined by calculating the water supply demand (in water supply fixture units) for that portion of the water distribution system served by the pipe. Using Appendix A.~~,~~ Tables M, N, O, P and Q, the cumulative water supply demand or load shall be calculated for all fixtures, piping, valves and fittings served by the water distribution pipe, and the pipe shall meet the minimum size provided in Appendix A.~~,~~ Table N or O, as applicable. Exception: As an alternative to using Tables M, N, O, P and Q to design and size the piping in the water distribution system, the system may be designed and sized employing current engineering practices, provided that the design/plans are approved in writing by an Illinois licensed professional engineer, an Illinois licensed architect or an individual Certified in Plumbing Design (CPD) ~~Engineering (C.I.P.E.)~~ by the American Society of Plumbing Engineers and approved in writing by the Department.

c) Minimum Water Pressure. The minimum constant water service pressure on the discharge side of the water meter shall be (at least) 20 psi ~~p.s.i.~~; ~~and~~ the minimum constant water pressure at each fixture shall be at least 8 psi ~~p.s.i.~~ or the minimum recommended by the fixture manufacturer.

d) Auxiliary Pressure. Supplementary Tank. If the pressure in the system is below

the minimum 8 psi ~~p.s.i.~~ at the highest water outlet when the flow in the system is at peak demand, an automatically controlled pressure tank or gravity tank of a capacity to supply sections of the building installation that ~~which~~ are too high to be supplied directly from the public water main shall be installed.

e) Low Pressure Cut-Off. When a booster pump except those used for fire protection is used on an auxiliary pressure system, ~~there shall be installed~~ a low-pressure cut-off switch shall be installed on the booster pump to prevent the creation of pressures less than 5 psi ~~p.s.i.~~ on the suction side of the pump. A shut-off valve shall be installed on the suction side of the water system and within 5 feet from the pump suction inlet, and a pressure gauge shall be installed between the shut-off valve and pump.

f) Water Hammer. All building water supply systems shall be provided with air chambers or approved mechanical devices or water hammer arrestors to absorb pressure surges ~~high pressures~~. Water pressure absorbers shall be installed at the ends of long pipe runs or near batteries of fixtures.

1) Air Chambers – An ~~Where an~~ air chamber that is installed in a fixture supply~~, it~~ shall be at least 12 inches in length and the same diameter as the fixture supply, or an~~. An~~ air chamber with an equivalent ~~a~~ volume ~~equivalent to one with the dimension listed above~~ may ~~also~~ be used. An ~~Where an~~ air chamber that is installed in a riser~~, it~~ shall be at least 24 inches in length and at least the same size as the riser.

2) Mechanical Devices – If ~~Where~~ a mechanical device or water hammer arrestor is used, the manufacturer's specifications for location and installation shall be followed.

g) Excessive Static Water Pressure~~.~~

1) If ~~When~~ water main pressure exceeds 80 psi ~~p.s.i.~~, a pressure reducing valve and a strainer with a by-pass relief valve shall be installed in the water service pipe near the entrance to the building to reduce the water pressure to 80 psi ~~p.s.i.~~ or lower, except where the water service pipe supplies water directly to a water pressure booster system, an elevated water tank, or to pumps provided in connection with a hydropneumatic or elevated water supply tank system. Sill cocks and outside hydrants may be

left on full water main pressure.

2) If ~~When~~ the water pressure exceeds 80 psi ~~p.s.i.~~ at any plumbing fixture, a pressure reducing valve, pressure gauge and a strainer with a by-pass relief valve shall be installed in a water supply pipe serving the fixture to reduce the water pressure at the fixture to 80 psi ~~p.s.i.~~ or lower.

h) Approval of Auxiliary Pressure Systems. Whenever in any building, structure, or premises receiving its potable water supply from the public water system, a pump or any other device for increasing the water pressure is to be installed, installation plans ~~of such installation~~ shall be approved by the Department prior to installation in accordance with Section 890.1940.

i) Variable Street Pressures. If ~~When~~ the water main has a wide fluctuation in pressure, the water distribution system shall be designed for minimum pressure available at the main.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.1220 Hot Water Supply and Distribution

a) All water heaters shall comply with ~~the requirements of~~ Appendix A., ~~Table~~ A, (Approved Standards for Plumbing Appliances/Appurtenances/Devices), and ASHRAE 90 Standards. Hot water storage tanks shall meet construction requirements of ASME, AGA, or UL listed in Appendix A., ~~Table~~ A (Approved Standards for Plumbing Appliances/Appurtenances/Devices), as appropriate. Hot water supply boilers with heat input in excess of 200,000 BTU per hour, water temperature in excess of 200 degrees Fahrenheit ~~° F~~, or capacity in excess of 120 gallons shall ~~must~~ also comply with the requirements of ~~the~~ Boiler and Pressure Vessel Safety ~~Rules and Regulations (41 Ill. Adm. Code 120)~~. Smaller water storage tanks that are not subject to ASME requirements shall be constructed of durable materials and constructed to withstand 150 psi ~~p.s.i.~~ (See Appendix I., Illustrations L and M, for examples of typical water heater installations.)

1) All equipment used for heating and storage of hot water shall bear the marking of an approved testing agency certifying that it has been tested and approved and listed as meeting the requirements of the applicable standard. Listing by Underwriters Laboratories, the Canadian Standards

Association (CSA), ~~American Gas Association~~ or National Board of Boiler and Pressure Vessel Inspectors, or the ASME Standard shall constitute evidence of conformance with these standards.

2) Solar hot water heat exchangers ~~A solar-heated system shall use a double-walled heat exchanger which is exposed or vented to the atmosphere between the walls.~~

A) A hot water heat exchanger used in a solar-heated system may be of single wall construction if a non-toxic transfer fluid with no conditioning chemicals in the system is used.

B) A hot water exchanger used in a solar-heated system using a toxic transfer fluid or having conditioning chemicals in the system shall be separated from the potable water by double wall construction that has an air gap vented to the atmosphere between the walls.

3) A hot water heat exchanger ~~Heat exchangers~~ may be of single wall construction if a non-toxic transfer fluid with no conditioning chemicals in the system is used.~~, or if a pressure gradient monitor system is installed to isolate the heat exchanger from the potable water system. If pressure on the potable water side reaches a pressure less than 10 p.s.i. above the toxic transfer fluid pressure, an audible alarm shall be activated.~~

4) A hot water heat exchanger operating at or below 65 psi ~~Heat exchangers~~ using a toxic transfer fluid or having conditioning chemicals in the system shall be separated from the potable water by double wall construction, with~~. There shall be~~ an air gap open to the atmosphere between the two walls. ~~Where the boiler (heating chamber) operates in excess of 65 p.s.i., the requirements of subsection (a)(5) of this Section shall also apply.~~

5) A hot water ~~No~~ heat exchanger shall not ~~will~~ be permitted on any hot water boiler system operating in excess of 65 psi ~~p.s.i.,~~ or 250 degrees Fahrenheit ~~high temperature hot water system operating in excess of 250°F, or any steam boiler operating with a pressure in excess of 50 p.s.i.,~~ unless:

A) the heat exchanger is double-walled; ~~and~~

B) the heat exchanger has an air gap open to the atmosphere between the two ~~2~~ walls; and

C) the heat exchanger has a pressure gradient monitor system with a "fail-safe to off" switch installed to isolate the heat exchanger from the potable cold or hot water system. If pressure on the potable water side reaches a pressure less than 20 psi ~~p.s.i.~~ above the pressure of the transfer fluid or steam and a pressure-reducing valve is installed on the inlet to the heat exchanger with a setting 20 psi ~~p.s.i.~~ lower than the potable water pressure at the heat exchanger, an audible alarm shall be activated and the heat exchanger shall be automatically shut off until the alarm and heat exchanger can be reset manually.

6) Any boiler using toxic chemicals shall have a label with a minimum size of 5 inches by ~~X~~ 5 inches attached to the boiler in a conspicuous place. The label shall read as follows:

WARNING

Chemicals and additives used to treat the boiler feed water in this boiler are not approved for potable water. The steam or hot water produced by this boiler is not potable. If the steam or hot water produced by this boiler is used to heat water, the water will not be considered potable if the steam and potable water are mixed.

7) Indirect, External, Submerged Coils. Indirect, external, tankless or submerged coils used in heating water shall be equipped with a thermostatic mixing valve or valves when not connected to a storage tank. A pressure relief valve shall be installed on the cold water inlet of the tank. A properly sized temperature and pressure relief valve, based upon the energy input rating of the coils, shall be installed on the tempered line, with the temperature sensing element immersed in the tempered water line as close as possible to the mixing valve.

~~8) Direct Fired Instantaneous Heaters. (Storage tank of more than 64 fluid ounces.) Direct fired instantaneous water heaters shall be equipped with a thermostatic mixing valve or valves which conform to ASSE 1017-1999.~~

~~A pressure relief valve shall be installed on or adjacent to the heater. A properly sized temperature and pressure relief valve, based upon the energy input rating of the heater, shall be installed on the tempered line with the temperature sensing element immersed in the tempered water line as close as possible to the mixing valve.~~

8~~9~~) Water Heaters Used for Space Heating. Any water heater to be used for space heating, in addition to hot water supply, shall ~~must~~ conform to ANSI Z21.10.1, Z21.10.1a, and Z21.10.1b~~ – 1991~~, shall be constructed for continuous use, and the piping for space heating shall be conducted to a proper terminal heating device.

A) A thermostatic mixing valve, conforming to ASSE 1017~~ – 1999~~, shall be installed on the hot water line to the plumbing fixtures. (The mixing valve shall be set to prevent temperatures exceeding 120 degrees Fahrenheit ~~°F~~ from reaching the plumbing fixtures.)

B) A single check valve shall be installed in the cold water line supplying the water heater. ~~(~~This will prevent hot water backing up from the heating unit to the plumbing fixtures.~~)~~

C) A properly sized and approved expansion tank shall be located on the outlet side of the check valve in the water heater's cold water supply, with no shut-off valve between the heater and expansion tank.

D) Valves (manual, automatic) supplying hot water to the heat transfer unit for space heating shall have a minimum of a [-inch orifice. ~~(~~This will prohibit potable water from standing in the heat transfer unit when not in use.~~)~~ This does not prohibit full shut off/isolation valves on either side of the pump within a heat transfer unit, as needed, to permit the servicing of the pump.

E) The water heater instructions shall have a statement specifying that piping and components connected to the water heater for the space heating application shall be suitable for use with potable water, and the water heater shall not exceed a developed length of more than 25 feet from the heating coil.

F) A statement specifying that toxic chemicals, such as those used for boiler treatment, shall not be introduced into the potable water used for space heating shall be included in the instructions. A label with the following words shall be firmly attached to any water heater used for space heating: "DO NOT INJECT TOXIC MATERIALS INTO THIS TANK."

G) A statement specifying that a water heater that ~~which~~ will be used to supply potable water shall not be connected to any heating system or components previously used with a non-potable water heating appliance shall be included in the installation instructions.

H) Each water heater shall bear a statement on the rating plate as follows: "SUITABLE FOR POTABLE WATER HEATING AND SPACE HEATING."

9~~10~~) Point-of-Use ~~Instantaneous~~ Water Heaters. Point-of-use ~~instantaneous~~ water heaters ~~(high temperature, non-storage or storage of 64 fluid ounces or less, non-pressurized relative to atmosphere)~~ shall meet the following requirements:

A) Non-storage and non-pressurized units ~~Units~~ intended to deliver water temperatures exceeding 110 degrees Fahrenheit ~~°F~~, or with no mechanical or electrical temperature limiting device shall ~~must~~ have the faucet located at least 3 inches from the 110 degrees Fahrenheit ~~°F~~ hot water or cold water faucet. Faucet ~~All such faucet~~ outlets shall have labels clearly and conspicuously indicating extremely hot water. These units are exempt from required relief valve or valves to protect against excessive or unsafe temperature or pressure.

B) Units intended to deliver water temperatures 110 degrees Fahrenheit ~~°F~~ or less shall have an internal burnout element ~~or shall have a factory set thermostat that is not adjustable to higher than 110°F~~. These units are exempt from required relief valve or valves to protect against excessive or unsafe temperature and/or pressure.

C) All pressurized point-of-use water heaters, other than those in subsections (a)(9)(A) or (B) of this Section, shall be provided with proper ~~also have provisions as a part of the unit to provide~~ temperature and pressure relief. ~~Valves shall be set to relieve at 20°F above the intended water temperature and at 125 p.s.i. or at 15 p.s.i. below the pressure rating of the lowest rated part of the assembly, whichever is lower.~~

10~~11~~) Steam Heat. All water heaters, including storage heaters, instantaneous shell and tube heat exchangers, steam injection heaters and any other device using steam to heat water for potable use, shall meet the following requirements:

A) All chemicals and additives used to treat the boiler feed water in a boiler supplying steam to heat potable water shall ~~must~~ be approved ~~proper~~ for use with potable water. If ~~Where such~~ approved chemicals and additives are used with steam boilers generating at 15 psi ~~p.s.i.~~ or less, or are used with pressure reducing stations with pressure relief valves set at 15 psi ~~p.s.i.~~ or less downstream from the pressure reducing valves, single wall heat exchangers may be used.

B) All steam heat exchangers operating in excess of 15 psi but less than 50 psi shall be separated by double wall construction, with an air gap open to the atmosphere between the two walls. ~~Steam injection heaters must be supplied with steam from a generator or boiler which uses only United States Food and Drug Administration (FDA) approved additives or chemicals.~~

C) All steam heat exchangers operating in excess of 50 psi shall meet the following requirements:

i) The heat exchanger shall be double-walled;

ii) The heat exchanger shall have an air gap open to the atmosphere between the 2 walls; and

iii) The heat exchanger shall have a pressure gradient monitoring system with a "fail-safe to off" switch installed

to isolate the heat exchanger from the potable cold or hot water system. If the pressure on the potable water side reaches a pressure less than 20 psi above the pressure of the transfer fluid or steam and a pressure reducing valve is installed on the inlet to the heat exchanger with a setting 20 psi lower than the potable water pressure at the heat exchanger, an audible alarm shall be activated and the heat exchanger shall automatically shut off until the conditions resulting in an alarm are corrected and the heat exchanger pressure gradient monitoring system can be manually reset.

~~The following warning label with a minimum size of 5 inches X 5 inches shall be permanently attached to each steam injection heater:~~

~~"If the chemicals used to treat the feed water to provide steam for this steam injection water heater are not approved for potable water, the hot water from this heater shall not be considered potable. Therefore, each cross connection between the hot water and cold water connections to or from this heater must be provided with a device to prevent the backflow of hot water or steam condensate into the potable water supply."~~

D) The steam pressure to all the steam heat injectors shall be 15 psi lower than the water pressure at the ejector. Steam injection heaters shall be supplied with steam from a generator or boiler that uses only United States Food and Drug Administration (FDA) approved additives or chemicals.

E~~D~~) The following warning label with a minimum size of 5 inches by ~~X~~ 5 inches shall be permanently attached on the front of any boiler providing steam to direct-injection steam hot water heaters:

"If the chemicals used to treat the boiler feed water in this boiler are not approved for potable water, the steam produced by this boiler cannot be considered potable. Therefore, if steam from this boiler is used to heat water, the water shall not be considered potable and any cross connections between the hot water produced and a potable water supply must be provided with a device to

prevent the backflow of the non-potable hot water into the potable water supply."

b) Water Heaters – Food Service. Water heaters installed and used ~~utilized~~ in food service establishments with dishwashing machines shall comply with National Sanitation Foundation (NSF)/ANSI Standard Number 5.

c) Discharge. With the exception of special water heaters used for space heating in addition to hot water supply, as provided in subsection (a)(8~~9~~) of this Section, water that leaves the potable water system for heating, cooling, use in equipment or other similar uses shall not be returned to the potable water distribution system. If ~~When such~~ water is discharged to the building drainage system, it shall be discharged through a fixed air gap.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.1230 Safety Devices

a) All equipment used for heating water or storing hot water shall be provided, at the time of installation of the ~~such~~ equipment, with the required ~~an appropriate~~ relief valve or valves to protect against excessive or unsafe temperature and ~~and/or~~ pressure. This shall be achieved by installing either a pressure relief valve and a temperature relief valve or by installing a combination pressure-temperature relief valve.

b) Pressure and Temperature Relief Valves~~.~~

1) Pressure Relief Valves. Pressure relief valves shall have an ASME relief rating to meet the pressure conditions specified on the equipment served. They shall be installed in the cold water supply line to the heating equipment served, except where scale formation from hard water may be encountered, in which case they shall be installed in the hot water supply line from the heating equipment served. There shall not be a shut-off valve between the pressure relief valve and the tank. Except where an alternate design is approved by the Department in writing pursuant to Section 890.140(a)(2) or 890.1940, the pressure relief valve shall ~~must~~ be set to open at a maximum of the working pressure rating of the water heater, but shall not exceed 150 psi ~~p.s.i.~~ Each pressure relief valve shall

have a test lever.

2) Temperature Relief Valves. Temperature relief valves shall bear the Canadian Standard Association (CSA) ~~an American Gas Association (AGA)~~ relief rating, expressed in British Thermal Units (BTU) of heat input per hour, for the equipment served. They shall be installed so that the temperature-sensing element is immersed in the hottest water within the top 6 inches of the tank. The valve shall be set to open full when the stored water temperature is 210 degrees Fahrenheit ~~°F~~.

c) Combination Pressure-Temperature Relief Valves~~.~~

1) Combination pressure-temperature relief valves shall comply with the applicable requirements as listed in Appendix A., ~~-~~Table A (Approved Standards for Plumbing Appliances/Appurtenances/Devices) for individual pressure and individual temperature relief valves, and shall be installed so that the temperature-sensing element is immersed in the hottest water within the top 6 inches of the tank and shall have a test lever.

2) A check valve or shut-off valve shall not be installed between any safety device and the hot water equipment, nor shall there be any shut-off valve in the discharge pipe from the relief valve. (See Appendix I. ~~:~~ Illustrations N and O.)

3) Energy cut-off devices shall not be used in lieu of subsections (c)(1) and (2) of this Section and shall be of a design to properly serve the intended use of the plumbing appliance, appurtenance or device. Exception: Instantaneous cut-off devices are exempted or may be used.

d) Relief Discharge Outlet~~.~~

1) A relief discharge outlet shall be installed and be indirectly connected to waste. The discharge pipe from the relief valve shall not be located so as to create a safety hazard or to discharge so ~~in such a way~~ as to cause damage to the building or its contents. The relief valve shall not discharge through a wall into the outside atmosphere or where there is a possibility of freezing.

2) No reduced coupling, valve or any other restriction that would impede the flow of discharge shall be installed in the discharge line of any relief valve ~~that would impede the flow of discharge~~. The discharge line shall be installed from the relief valve to within 6 inches of the floor or receptor, and the end of the ~~such~~ line shall not be threaded.

3) Any piping used for discharge from the relief valve shall be of metallic material and comply ~~conform~~ with ~~the requirements of~~ Appendix A., ~~,~~ Table A (Approved Materials for Water Distribution Pipe) for potable water piping and shall drain continuously downward to the outlet.

4) The discharge piping shall discharge indirectly into a floor drain, hub drain, service sink, sump or a trapped and vented P-trap that ~~which~~ is located in the same room as the water heater. (See Sections 890.1010 and 890.1050(a), (b) and (c).) The trap shall ~~must~~ have a deep seal to protect against evaporation or shall be fed by means of a priming device designed and installed for that purpose. ~~(~~The use of a light grade oil in the trap will retard evaporation.~~)~~

e) Pressure Marking – Hot Water Storage Tank. Hot water storage tanks shall be permanently marked in an accessible place with the maximum allowable working pressure.

f) Vacuum Relief Valve. If ~~Where~~ a hot water storage tank or water heater is located at an elevation above the fixture outlets in the hot water system, or if the storage tank or water heater is bottom fed, a vacuum relief valve as listed in Appendix A., ~~,~~ Table A (Approved Standards for Plumbing Appliances/Appurtenances/Devices) shall be installed on the storage tank or heater.

g) Multiple Temperature Hot Water Systems. These ~~Such~~ systems shall be provided with thermostatic mixing valves to ~~properly~~ control the desired temperatures.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

SUBPART J: DRAINAGE SYSTEM

Section 890.1310 Materials

a) General. All materials used for drainage systems and clear water vacuum waste systems shall comply with Appendix A., ~~-~~Table A, ~~"~~Approved Building Drainage/Vent Pipe~~"~~.

b) Corrosive Waste. If corrosive waste is discharged to the drainage system, or if soil conditions are corrosive, only piping material listed in Appendix A., ~~-~~Table A, ~~"~~Approved Building Drainage/Vent Pipe,~~"~~ ~~-~~and approved for use with corrosive material shall be used. Fittings shall be of the same material as piping. No other material (piping, fitting, etc.) shall be used unless its use is approved in writing by the Department prior to installation, in accordance with Section 890.1940.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.1320 Drainage System Installation

a) Drain – Underground ~~Filled Ground~~. A building drainage system ~~drain~~ installed in the ~~filled~~ ground shall be of cast iron, copper Type "K", or non-metallic Schedule 40 or heavier. Drains ~~Except for cast iron, such drains~~ shall be installed on a continuous bed of undisturbed earth or granular fill so as to support the pipe and fittings ~~supporting system~~.

b) Existing Drain and Sewer Installation. Existing drain, waste, vent and sewer may be used in the renovation of the plumbing system of an existing structure if they are in serviceable condition and the materials comply ~~conform~~ with Appendix A., ~~-~~Table A, Approved Building Drainage/Vent Pipe and Approved Materials for Building Sewer.

c) Freezing. No soil or waste pipe shall be installed or permitted outside of a building or in an exterior wall unless the ~~provisions are made to protect such~~ piping is protected from freezing. This does not prohibit a soil or waste pipe from extending from a manufactured or mobile home unit to an approved point of discharge, provided that the ~~such~~ waste line is protected from freezing.

d) Dead Ends. Dead ends shall be avoided in a drainage system, except where necessary to extend the system to install a cleanout in an accessible location. A dead end intended for future connection (extension) that ~~which~~ is more than 2 feet above a floor or more than 10 feet horizontally from the nearest vented connection shall ~~must~~ have a vented connection to the outside atmosphere. (See

Appendix J.: Illustration A.)

e) Horizontal Drainage Piping. Horizontal drainage piping shall be installed at a uniform grade.

f) Small Piping. Horizontal drainage piping of 3 inches diameter or less shall be installed with a grade of at least ¼-inch per foot.

g) Large Piping. Horizontal drainage piping larger than 3 inches but less than 8 inches in diameter shall be installed with a grade of at least [-inch per foot. For piping 8 inches or larger in diameter, the grade is determined by the number of drainage fixture units connected to the drain pipe. (See Appendix A.: Table G.)

h) Minimum Velocity. If Where conditions do not permit building drains to be installed with a grade as great as that specified in subsections (f) and (g) of this Section, a lesser grade may be used, provided that the computed velocity will not be less than 2 feet per second.

i) Changes in Direction. Changes in direction shall be made in drainage piping by the use of 45 degree ° wyes, long sweeps, short sweeps, quarter, fifth, sixth, eighth, or sixteenth bends, or by a combination of these fittings. Single and double sanitary tees and short sweep quarter bends shall be used in drainage lines only where the direction of flow is from the horizontal to the vertical and may be used for making necessary vertical offsets between the ceiling and floor above. (See Appendix J.: Illustrations B, C and D.) Exception: A short sweep drainage quarter bend of less than 3 inches diameter and placed in a horizontal to horizontal position for a stack vent arm may be used to receive graywater. grey water.

j) No fittings having a hub in the direction opposite to flow, or tee branch, shall be used as a drainage fitting. No running threads, bands, or saddles shall be used in the drainage system. No drainage or vent pipe or fitting shall be drilled or tapped.

k) No fitting, connection, device or method of installation shall be used that which obstructs or retards the flow of water, waste, or air in the drainage or venting system by an amount greater than the normal frictional resistance to flow. The enlargement of a 3-inch closet bend or stub to 4 inches shall not be considered an obstruction if it is necessary to increase the bend or stub at the floor line to 4 inches in diameter in order to accommodate the water closet outlet.

l) Fixture Connections. Branch wastes and fittings for circuit-vented fixtures shall be installed so that the fixture drain enters the side of the branch drain. (See subsection (i) of this Section and Appendix J.~~:~~ ~~Illustration~~ E.)

m) Back-to-Back Fixtures. Back-to-back fixtures shall be installed with fittings that will prevent mixing of the discharge prior to a change in direction of flow of the discharge from each fixture, or shall be installed with fittings especially designed to eliminate throw-over or backflow of the discharge from one fixture to the other fixture.

n) Location of Drains. All building drains, branches of building drains, building sewers or any sanitary sewers shall be located at least 50 feet from a well or buried suction line; except where cast iron pipe with mechanical or compression joints or Schedule 40 PVC pipe with solvent weld and watertight joints is used for the building sewer, then ~~such~~ drains shall be located at least 10 feet from a well or buried suction line.

o) Backwater valves may be installed in the building storm drain or the building drain to prevent backflow into the building, where backflow of storm water or sewage could occur. Backwater valves may be installed in the branches of the building drain that are below grade. Backwater valves, when fully opened, shall have a capacity of at least that of the pipes in which they are installed. Backwater valves shall be installed to be accessible. ~~(See Appendix E: Illustration F.)~~ All backwater valves shall conform to ASME~~/ANSI~~ A112.14.1~~–1975~~ ~~(R1990)~~. All bearing parts of backwater valves shall be made of corrosion- resistant material.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.1330 Drainage Fixture Units (DFUs) ~~(D.F.U.)~~

a) Values for Fixtures. Drainage fixture units (DFUs) (~~D.F.U.~~) as given in Appendix A.~~:~~ Table E designate the relative load of different kinds of fixtures that ~~which~~ shall be used to calculate the total load carried by a soil or waste pipe, and shall be used with the tables of sizes for soil, waste, and drain pipes for which the permissible load is given in terms of DFUs ~~drainage fixture units (D.F.U)~~.

b) Values for Continuous Flow. For a continuous or semi-continuous flow into a

drainage system, such as from a pump, ejector, air-conditioning equipment or similar devices, two drainage fixture units shall be considered to be equal to each gallon per minute (gpm) of flow.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.1340 Determination of Sizes for Drainage System

a) Maximum Fixture Unit Load. The maximum number of drainage fixture units that may be connected to a given size of building drain, horizontal branch, or vertical soil or waste stack is given in Appendix A.~~:~~ ~~–~~Tables G and H. Exception: As an alternative to using Appendix A.Tables G and H to design and size the building drain, horizontal branch, or vertical soil or waste stack, the system may be designed and sized employing current engineering practices, provided that the design/ plans are signed and sealed by an Illinois licensed professional engineer, an Illinois licensed architect or an individual Certified in Plumbing Engineering by the American Society of Plumbing Engineers and approved in writing by the Department.

b) Minimum Size of Building Drain, Horizontal Branches, Drainage Piping

1) The minimum size of any gravity building drain shall be 4 ~~four (4)~~ inches in diameter.

2) Pressure-building drains shall not be used where gravity drains may be installed. Pressure-building drains shall be sized in accordance with the ejector pump manufacturer's recommendation but shall not be less than 2 ~~two (2)~~ inches in diameter.

3) Gravity drained horizontal branches of the building drain shall be sized in accordance with Appendix A.~~,~~ Table H.

4) No portion of the drainage system installed underground or below a basement or cellar shall be less than 2 ~~two (2)~~ inches in diameter. The venting system is excluded from this requirement.

5) The drainage piping shall not be reduced in size in the direction of flow.

c) Minimum Size of Soil and Waste Stacks. No soil or waste stack shall be smaller than the largest horizontal branch connected to the stack, ~~thereto~~ except that a 4 ~~four (4)~~ inch by ~~x~~ 3 ~~three (3)~~ inch water closet connection shall not be considered as a reduction in pipe size.

d) Waste Stacks Serving Kitchen Sinks. In one ~~(1)~~ or two ~~(2)~~ family dwellings in which the waste stack or vent receives the discharge of a kitchen-type sink and also serves as a vent for fixtures connected to the horizontal portion of the branch served by the waste stack, the minimum size of the waste stack up to the highest sink branch connection shall be 2 ~~two (2)~~ inches in diameter. Above that point the size of the stack shall be governed by the total number of drainage fixture units vented by the stack. (See Appendix J. ~~:~~ Illustration F.)

e) Future Fixtures. If ~~When provision is made for~~ the future installation of fixtures is provided for during initial construction, the fixtures ~~those~~ provided for shall be considered in determining the required size of drain pipes and vent piping ~~during initial construction~~. Piping provided for ~~such~~ future installation of fixtures shall be terminated with a plugged fitting or fittings at the stack so as to form no dead ends. In a multi-story building, when openings are roughed in for future fixtures below the uppermost level, properly sized vent piping shall be connected to the vent system and carried down to the appropriate lower level and be capped or plugged in an accessible location for venting of the future fixtures.

(Source: Amended at 37 Ill. Reg._____, effective _____)

Section 890.1360 Sanitary Wastes below ~~Below~~ Sewer

a) Sanitary Wastes below ~~Below~~ Sewer

1) Sanitary wastes that ~~which~~ cannot be discharged by gravity flow shall be discharged into a gas-tight, covered and vented sump from which the waste shall be lifted and discharged into a sanitary waste drain by automatic sewage ejection pumping equipment. (See Appendix J.Illustration K~~: Illustrations K and L~~.)

2) Sumps and ejectors handling sub-soil drainage and footing drains shall not receive any sewage. ~~Sumps and ejectors handling sewage shall not receive subsoil drainage and footing drains.~~

3) Sumps and ejectors handling sewage shall not receive subsoil drainage and footing drains.

b) Design. Sump and pumping equipment shall be designed and installed to discharge, during the pumping cycle, all contents accumulated in the sump except for sump contents that must remain in the sump for the continued proper operation of the pumping equipment (e.g., contents needed to submerge or prime the pump) according to the manufacturer's recommendations.

c) Sub-Drainage. The system of drainage piping below the building drain level shall be installed and vented in the same manner as that of the gravity drainage system.

d) Duplex Equipment. Sumps receiving the discharge of more than six ~~6~~ water closets or 60 DFUs ~~D.F.U.s~~ shall be provided with duplex pumping equipment.

e) Vent Sizes. Building sump vents shall be sized in accordance with Appendix A.~~:~~ Table K.

f) Connections. No direct connection of a steam exhaust, blowoff, or drip pipe shall be made with the building drainage system waste water. Steam ~~When steam~~ exhaust, blowoff or drip pipes ~~are~~ discharged into the building drainage system~~,~~ ~~they~~ shall not exceed a temperature of 180 degrees Fahrenheit ~~°F~~. When higher temperatures exist, cooling methods shall be provided to reduce the temperature to 180 degrees Fahrenheit ~~°F~~ or less.

g) Elevator Pits

1) Drains connected directly to sewers shall not be installed in elevator pits.

2) All discharges from elevator sumps shall indirectly discharge to the sanitary sewer or storm drain.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.1370 Floor Drains

a) Required. Any building or structure in which plumbing fixtures or piping is installed in or under a concrete floor to accommodate fixtures on the level of the

concrete floor shall have at least one trapped and vented floor drain. ~~When plumbing fixtures are installed on the level immediately above a concrete crawl space, at least one trapped and vented floor drain shall be installed.~~ Additional floor drains shall be required if the installation of fixtures and appurtenances requires the use of floor drains. In a multi-family dwelling, each unit shall have a floor drain if fixtures and appurtenances installed in the dwelling ~~therein~~ require the use of a floor drain.

1) Underground floor drains connected to a building drain or a building sub-drain within 4 feet of a stack shall be individually vented. All ~~other~~ floor drains shall be vented as required by Appendix A., ~~-~~Table I.

2) Each floor drain shall be connected to a sanitary waste drain, except those drains receiving only clear water discharges, which may be connected to the sub-soil drainage system.

3) Any sump or hub drain for receiving clear water waste shall extend 2 inches above the floor, and all indirect clear water waste lines shall be above the floor level. Any floor drain level with the floor shall discharge to a sanitary waste drain. (See Appendix A. ~~:~~ Tables F and I.)

4) At least one floor drain shall be located in every restroom having a masonry or concrete floor except those for private use.

5) In hospitals and nursing homes, floor drains will not be required in toilet/bath facilities serving four ~~4~~ or fewer individual residents where access to the facilities is direct from no more than two ~~2~~ resident rooms. Toilet/bath facilities in hospitals and nursing homes serving rooms with more ~~greater~~ than four ~~4~~ residents or consisting of multiple toilets, lavatories, etc., are required to have floor drains.

b) Size. Each floor drain shall be sized for its intended use and the surface area that it drains. Any floor drain or drain trap installed below a basement floor or underground shall be no less than 2 inches in diameter.

c) Accessibility. Floor drains shall connect into traps, shall be accessible and readily cleaned, and shall be located so that they are easily visible.

d) Provision for Evaporation. Floor drain seals subject to evaporation shall be of the deep seal type, shall be fed by means of a priming device designed for that purpose, or shall be filled with vegetable oil.

e) Floor Drains in Food Establishments. Floor ~~If floor~~ drains ~~are~~ installed in coolers, freezers, refrigerated holding areas, dressing rooms or processing rooms ~~in any food (meat, milk, vegetable, fruit) establishment, they~~ shall meet the following requirements:

1) Floor drains shall have a minimum inside diameter of 4 inches ~~and be of metallic construction~~.

2) Drainage lines from water closets and urinals shall not be connected with any other sanitary drainage lines having floor drains located in the food service establishments listed in Section 890.1370(e). ~~above places within the building.~~

3) Floor drains shall ~~mus~~t be indirectly discharged to the drainage system, or a backwater valve that conforms with the requirements of Section 1320(o) ~~890.550(b), (c), (d) and (e)~~ shall be installed to isolate these floor drains from other sanitary discharges.

4) Floor drains shall comply with the requirements of subsections (b), (c), and (d) of this Section.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.1380 Storm Water Drainage within ~~Within~~ a Building

Any piping installed within a building for the purpose of carrying storm water from a roof and connected to a building drain or building sewer shall comply ~~conform~~ with the requirements of Appendix A~~,~~ Table A ("Approved Building Drainage/Vent Pipe"), and Sections 890.910 through 890.930.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

SUBPART K: VENTS AND VENTING

Section 890.1420 Stack Vents, Vent Stacks, Main Vents

a) Design. A properly designed and installed venting system, in conjunction with the soil or waste system, is essential to protect trap seals and prevent siphonage, aspiration, or back pressure. The venting system shall be designed and installed to permit the admission or emission of air so that under normal and intended use the seal of any fixture trap shall never be subjected to a pneumatic pressure differential of more than a 1- ~~one (1)~~ inch water column. All fixture traps shall be protected by the use of a vent or venting system constructed in accordance with this Part. ~~If a trap seal is subject to loss by evaporation, means shall be provided to prevent loss of the trap seal. (See Section 890.410(f).)~~

b) Installation. Fixture traps shall be protected by the appropriate method as follows: an individual dry vent, a wet vent, a common vent, a circuit or loop vent, an island vent, or a combination waste and vent system. A stack vent, or vent stack ~~or a main vent~~ shall be installed with a soil or waste stack whenever ~~back~~ vents, relief vents, or other branch vents are required. (See Appendix K.~~:~~ Illustration A.)

~~c) Terminal. Vents shall terminate independently above the roof to the outside atmosphere, or shall be connected to another vent at least six (6) inches above the flood-level rim of the highest fixture. (See Appendix K: Illustration B.)~~

c~~d~~) Main Vent ~~Stack~~. Each building in which plumbing is installed shall have at least one main vent ~~stack~~ no smaller than 3 ~~three (3)~~ inches for each building drain installed. (See Appendix A.~~:~~ Table K, and Appendix K.~~:~~ Illustration C.)

~~e) Building Sub-drain Sump Vent Sizes. Building sub-drain sump vents shall be sized in accordance with Appendix A: Table K.~~

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.1430 Vent Terminals

a) Vent Terminals. Vents shall terminate independently above the roof to the outside atmosphere, or shall be connected to another vent at least 6 inches above the flood-level rim of the highest fixture served by the vent. (See Appendix K.Illustration B.)

b~~a~~) Roof Extensions. Extensions of vent pipes through a roof shall be terminated at least 12 inches above the ~~such~~ roof unless a roof is to be used for any purpose other than weather protection. If a roof is to be used for any purpose other than weather protection, the vent shall be extended at least 7 ~~seven (7)~~ feet above the roof. (See Appendix K.~~:~~ Illustration D.)

c~~b~~) Flashings. Each vent terminal shall be made water-tight with the roof by proper flashing.

d~~c~~) Location of Vent Terminal. No vent terminal from a drainage system shall be directly beneath a door, window, overhang or other ventilating intake opening of the building, nor shall any ~~such~~ vent terminals be within 12 feet horizontally of ~~such~~ an opening or within 4 feet of a vertical obstruction unless it is at least 2 ~~two (2)~~ feet above the top of the ~~such~~ opening. (See Appendix K.~~:~~ Illustration E.)

e~~d~~) Extensions Outside Building. No soil, waste or vent pipe extension (except for vent terminals as provided in subsections (b) and (d) of this Section ~~(a) and (c) above~~) shall be located on the outside of a wall of any building, but shall be installed inside the building. Wet vents ~~Vents~~ located within an exterior wall or in a wall adjacent to an unheated space shall be protected from freezing.

f~~e~~) Flag poles. Vent terminals shall not be used for the purpose of supporting flag poles, television aerials, or similar purposes.

g) Vent Terminal Size. Each vent extension through the roof shall be a minimum of 3 inches in diameter and no smaller than the vent that it terminates. Vent terminals shall not be screened.

h) Increasers. Changes in size or diameter of vent terminals shall be made by the installation of an increaser commencing at least 1 foot below the roof.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.1440 Vent Terminal Size (Repealed)

~~a) Vent Terminal Size. Each vent extension through the roof shall be a minimum of three (3) inches in diameter and no smaller than the vent which it terminates. Vent terminals shall not be screened.~~

~~b)~~ ~~Increasers. Changes in size or diameter of vent terminals shall be made by the installation of a long increaser commencing at least one (1) foot below the roof.~~

(Source: Repealed at 37 Ill. Reg. _____, effective _____)

Section 890.1450 Vent Grades and Connections

a) Grade. All vent and branch vent pipes shall be installed so as to drain back to the soil or waste pipe. (See Appendix K.~~:~~ Illustration F.)

b) Vertical Rise. Where vent pipes connect to a horizontal soil or waste pipe, the vent shall be taken off above the center line of the soil or waste pipe, and the vent pipe shall rise vertically, or at an angle not more than 45 degrees from the vertical before offsetting horizontally or before connecting to the branch vent. Exception: Wet vent and floor drain vents may connect horizontally. (See Appendix K.Illustrations~~: Illustration~~ F, G, and AA.)

c) Height above~~Above~~ Fixtures. The connection between a vent pipe and a vent stack or stack vent shall be made at least 6 ~~six (6)~~ inches above the flood-level rim of the highest fixture served by the vent. Horizontal vent pipes forming branch vents or relief vents shall be at least 6 ~~six (6)~~ inches above the flood-level rim of the highest fixture served. (See Appendix K.~~:~~ Illustration H.)

~~d)~~ ~~Kitchen Sinks: Horizontal kitchen sink vents shall be above the flood level rim of the fixture.~~

d~~e~~) Heel or Side-Inlet Bend. A heel or side-inlet quarter bend or closet bend shall not be used as a dry vent when the inlet is placed in a horizontal position. (See Appendix K.~~:~~ Illustration I.) Heel or side inlet quarter or closet bends are permitted only in cases where the fixture connecting ~~thereto~~ is vented. (See Appendix K.~~:~~ Illustration I~~J~~.)

e) All main vents or vent stacks shall connect full size at their base to the building drain or to the main soil or waste pipe, at or below the lowest fixture branch. (See Appendix K.Illustration EE).

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.1460 Fixtures Back-to-Back (Repealed)

~~Distance. Two fixtures set back-to-back, within the distance allowed between a trap and its vent, may be served with one (1) continuous soil or waste vent pipe, provided that each fixture discharges separately into an approved double fitting having inlet openings at the same level. (See Section 890.1480(b), and Appendix K: Illustration K.)~~

(Source: Repealed at 37 Ill. Reg. _____, effective _____)

Section 890.1470 Fixture Trap Vents

a) Distance of Trap From Vent. Each fixture trap shall have a protecting vent ~~so~~ located so that the developed length in the fixture drain from the trap weir to the vent fitting is within the requirements ~~set forth~~ in Appendix A.~~:~~ Table I. (See Appendix K.~~:~~ Illustration L.)

b) Trap Weir. The vent pipe opening from a soil or waste pipe, except for water closets or fixtures with an integral trap, shall not be below the trap weir. (See Appendix K.~~:~~ Illustration N ~~M~~.)

c) Crown Vent. No trap vent shall be installed within two pipe diameters of the trap weir. (See Appendix K.Illustration M.)

d) Hydraulic Gradient. Fixture drains shall be vented within the hydraulic gradient between the trap outlet and the junction with another drain. The hydraulic gradient as applied to a gravity drain and its corresponding vent connection is interpreted as the grade line. (See Appendix A.Table I, and Appendix K.Illustration N.)

e) Different Level. If any stack has fixtures entering at different levels, the fixtures other than the fixtures entering at the highest level shall be vented in accordance with Section 890.1420(b).

f) Fixture Trap Protection. Each fixture trap shall be protected by the appropriate method as follows: an individual dry vent, a wet vent, a common vent, a circuit or loop vent, an island vent or a combination waste and vent system.

g) Mechanical Vents. Mechanical devices shall not be installed in lieu of vent piping.

h) Trap Seal Loss. Trap seal that is subject to loss by evaporation, shall be prevented. (See Section 890.410 (f).)

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.1480 Types of Fixture Trap Vents

a) Individual Dry Vent is a single fixture trap vent only and shall not be installed as part of a wet vent. ~~Trap Vent. No trap vent shall be installed within two pipe diameters of the trap weir. (See Appendix K: Illustration N.)~~

b) Common Vent. A vertical common vent~~, installed vertically,~~ may be used for two fixture traps if ~~when~~ both traps connect with a vertical waste at the same level. (See Appendix K.~~:~~ Illustration O.) A horizontal common vent may be used for two fixture traps if both traps connect to the horizontal waste at the same point and the vent is located downstream of the fixture connection. The horizontal trap-to-vent distance shall comply with Table I. (See Appendix K.Illustration O and Appendix A.Table I)

c) Wet venting shall be installed in accordance with Section 890.1500.~~Vertical Wet Vent. A vertical wet vent may be used for two fixtures set on the same floor level, but connecting at different levels in the stack, provided the vertical drain is one (1) pipe diameter larger than the upper fixture drain and that both drains conform to Appendix A: Table I. (See Appendix K: Illustrations P and Q.)~~

d) Circuit and loop venting shall be installed in accordance with Section 890.1520 ~~Mechanical Vents. Mechanical devices shall not be installed in lieu of vent piping.~~

e) Combination waste and vent systems shall be installed in accordance with Section 890.1590.

f) Island vent systems shall be installed in accordance with Section 890.1600.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.1490 Installation of Vents for Fixture Traps (Repealed)

~~a) Hydraulic Gradient. Fixture drains shall be vented within the hydraulic gradient~~

~~between the trap outlet and the junction with another drain. The hydraulic gradient as applied to a gravity drain and its vent connection is interpreted as the grade line. (See Appendix A: Table I, and Appendix K: Illustration R.)~~

~~b)~~ ~~Different Level. If any stack has fixtures entering at different levels, the fixtures other than the fixtures entering at the highest level shall be vented, except as otherwise provided. (See Section 890.1510.)~~

~~c)~~ ~~Horizontal Branch Drains. Where a water closet discharges into a branch drain, each fixture discharging into that branch drain shall be individually vented; however, this does not include battery or circuit venting.~~

(Source: Repealed at 37 Ill. Reg. _____, effective _____)

Section 890.1500 Installation of Wet Venting

a) The following shall not be used to wet vent another fixture trap: water closets, washing machine connections, blowout urinals, or dishwashers.

b) Two lavatories with 1¼-inch traps shall be considered a single fixture for the purpose of this Section.

c) A vertical wet vent may be used for two fixtures set on the same floor level, but connecting at different levels in the stack, provided that the vertical wet vent/drain between the two traps is one pipe diameter larger than the upper fixture trap and that both drains conform to Appendix A.Table I. (See Appendix K.Illustration P.)

d) A horizontal wet vent may be used for two fixtures set on the same floor level with one fixture connecting upstream of the other fixture on the horizontal line, provided that the horizontal wet vent/drain between the two fixtures is one pipe diameter larger that the upstream fixture trap. The vent connection shall be located between the traps, and each trap-to-vent distance shall be in accordance with Appendix A.Table I. (See Appendix K.Illustration Q.)

e) A vertical/horizontal wet vent may be used for two fixtures set on the same floor level with one fixture connecting to the vertical stack and one fixture connecting to the horizontal line, provided that the wet vent /drain is one pipe diameter larger

than the upper fixture trap and the drains conform to Appendix A.Table I. (See Appendix K.Illustration R.)

fa) ~~Single Bathroom Groups.~~ A single bathroom group of fixtures consisting of a water closet, lavatory, and one of the following: a bathtub, shower or floor drain, may be installed with the drain from a lavatory ~~an individually vented lavatory or kitchen sink or a kitchen sink~~ serving as a wet vent for a bathtub, ~~or~~ shower or floor drain and for the water closet, provided that:

1) Not more than four ~~4~~ drainage fixture units drain into a 2-inch-diameter wet vent; and

2) The horizontal branch is ~~shall be~~ a minimum of 2 inches and connects ~~connect~~ to the stack at the same level as the water closet drain. The horizontal branch ~~It~~ may also connect to the water closet bend. (See Appendix K.~~:~~ Illustration S.)

g) Bathroom groups installed back to back consisting of two water closets, two lavatories, and two bathtubs or showers or floor drains may be installed without individual vents, provided that:

1) The water closets are wasted to a proper vertical drainage fitting;

2) The bathtubs, showers or floor drains connect to the stack at the same level as the water closets;

3) The lavatories connect to the stack at the same level; and

4) The vent is a minimum of 2 inches in diameter. (See Appendix K.Illustration T.)

~~b) Double Bathroom Groups. Bathroom groups back-to-back on the top floor consisting of 2 lavatories and 2 bathtubs or showers may be installed on the same horizontal branch with a common vent for the lavatories and with no individual vent for bathtubs or showers, provided the wet vent is 2 inches in diameter, and the length of the fixture drain conforms to Appendix A: Table E. (See Appendix K: Illustration T.)~~

hc) When bathroom groups are connected to the same soil stack ~~Multi-story~~

~~Bathroom Groups. On the lower floors of a multi-story building~~, the waste pipe from one or two ~~2~~ lavatories may be used as a wet vent for one or two ~~2~~ bathtubs or showers, provided that:

1) The wet vent and its corresponding extension to the vent stack are ~~is~~ 2 inches in diameter;

2) Each water closet is provided with an individual dry vent or vertical common vent; and ~~below the top floor is back-vented; and~~

3) The vent stack is sized as given in Appendix A.~~:~~ Table J. (See Appendix K.~~:~~ Illustrations U and V.)

i) On the lower floors of a multi-story building, a water closet may be wet vented with a single lavatory in lieu of Section 890.1470(h).

j) Bathroom groups consisting of a water closet, lavatory, and bathtub or shower, connected to a stack by a separate branch, may wet vent the water closet and bathtub or shower with the lavatory, provided that:

1) The water closet and bathtub/shower connect to the stack at the same level;

2) The wet vent and its corresponding extension are a minimum of 2 inches in diameter; and

3) A vent stack connects at or below the lowest fixture connection and is installed for a stack of this type. (See Appendix K.Illustration W.)

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.1510 Stack Venting (Repealed)

~~One-Bathroom Group. Except as provided in Section 890.1490(b), a group of fixtures, consisting of one (1) bathroom group and a kitchen sink or combination fixture, may be installed without individual fixture vents, in a one-story building or on the top floor of a building, provided each fixture drain connects independently to the stack and the water closet and bathtub or shower drain enters the stack at the same level and in accordance with the requirement in Appendix A: Table I. (See Appendix K: Illustrations W and X.)~~

(Source: Repealed at 37 Ill. Reg. _____, effective _____)

Section 890.1520 Circuit and Loop Venting

a) Battery Venting. A soil or waste branch to which two ~~2~~ but not more than eight ~~8~~ of the same type of floor outlets or~~,~~ fixtures, such as eight ~~8~~ water closets, eight ~~8~~ pedestal urinals, eight ~~8~~ shower stalls or eight ~~8~~ floor drains, are connected in battery~~,~~ may be vented by a circuit vent that ~~which~~ shall take off from in front of the last fixture connection. Blowout type fixtures are prohibited. ~~In addition,~~ Lower ~~lower~~ floor branches serving more than three ~~3~~ water closets shall be provided with a relief vent taken off in front of the first fixture connection. The horizontal branch for its full length to the farthest fixture opening shall be uniformly sized based on the total drainage fixture load as listed in Appendix A~~.~~ Tables G, H and L. (See Appendix K~~.~~ Illustration Y.)

b) Dual Branches. When parallel horizontal branches serve a total of eight ~~8~~ water closets (four ~~4~~ on each branch), each branch shall be provided with a relief vent at a point between the two ~~2~~ water closets most distant from the soil stack. The horizontal branch for its full length to the farthest fixture opening shall be uniformly sized based on the total drainage fixture load as listed in Appendix A~~.~~ Tables G, H and L. Intermediate ~~In addition, intermediate~~ floor branches shall be provided with a relief vent taken off in front of the first fixture connection. If ~~When~~ traps other than water closets discharge above the horizontal branch, each ~~such~~ trap shall be provided with a continuous vent. (See Appendix K~~.~~ Illustration Z.)

c) Vent Connections. When the circuit or relief vent connections are taken off the horizontal branch, the vent branch connection shall be taken off vertically from the top of the horizontal branch. (See Appendix K~~.~~ Illustration AA.)

d) Fixtures Back-to-Back in Battery. When fixtures are connected to one horizontal branch through a double wye, a sanitary cross in a vertical position, or a manufactured fixture carrier, a common vent for each two ~~2~~ fixtures back-to-back shall be provided. (See Appendix K~~.~~ Illustration BB.)

e) Fixture Connections. Branch wastes and fittings for circuit vented fixtures shall be installed so that the fixture drain enters the side of the branch drain. (See Section 890.1320 (i) and Appendix K~~.~~ Illustrations Y and CC.)

f) Circuit and Loop Vented Fixtures. For ~~When~~ circuit and loop vented fixtures ~~are~~ installed in a multi-story building, a relief vent shall be provided at the base connection into the horizontal~~. This is done~~ by connecting the vent stack, full-size, into or near the base of the soil stack, or by connecting the vent stack directly into the horizontal branch near the soil stack. The vent shall be carried full size. (See Appendix K.~~:~~ Illustration DD.)

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.1560 Main Vents to Connect at Base (Repealed)

~~Main Vents. All main vents or vent stacks shall connect full size at their base to the building drain or to the main soil or waste pipe, at or below the lowest fixture branch. All vent pipes shall extend undiminished in size through the roof to the outside atmosphere, or shall be reconnected with the main soil or waste vent. (See Appendix K: Illustration EE.)~~

(Source: Repealed at 37 Ill. Reg. _____, effective _____)

Section 890.1580 Size and Length of Vents

a) Size of Water Closet Vents. A water closet shall have at least a 2-inch vent.

b) Size of Individual Vents. The diameter of an individual vent shall be at least 1¼ inches or at least half ~~½~~ the diameter of the drain to which it connects, whichever is greater.

c) Size of Relief Vents. The diameter of a relief vent shall be at least half ~~½~~ the diameter of the soil or waste branch to which it is connected.

d) Size of Circuit Vents. The diameter of a circuit vent shall be at least half ~~½~~ the diameter of the horizontal soil or waste branch or the diameter of the vent stack, whichever is smaller. (See Appendix A.~~:~~ Table L.)

e) Size of Vent Piping. The size of vent piping shall be determined based upon its length and the total number of drainage fixture units connected to the vent pipe ~~thereto~~ as provided in Appendix A.~~:~~ Table K. No more than 20 percent of the maximum developed length as determined from Table K may be installed in the horizontal position. Vent piping serving floor drains shall be installed so ~~in such a~~

~~manner~~ as to minimize horizontal vent distances.

f) Building Sub-drain Sump Pump Vent Sizes. Building sub-drain sump pump vents shall be sized in accordance with Appendix A.Table K.

g) All vents pipes shall extend undiminished in size from the vent connection or stack cleanout through the roof to the outside atmosphere, or shall be reconnected with a branch vent, vent stack, or stack vent.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.1590 Combination Waste and Vent (Floor and Hub Drains Only)

~~Combination Waste and Vent.~~ A combination waste and vent ~~is permitted only~~ system consisting of floor and hub drains may be installed where structural conditions preclude conventional plumbing. Appurtenances delivering large quantities or surges of water shall not be discharged to a combination waste and vent.

a) The waste piping and trap in a combination waste and an end vented (both ends) system shall be a minimum of 4 inches in ~~inch~~ diameter. ~~and in accordance with Appendix A, Tables G and H. The waste piping and trap shall be at least 2 pipe increments larger than the pipe size required by Appendix A, Tables G and H, and at least 2 pipe increments larger than any fixture/appurtenance discharge tail piece.~~ The vents in the system shall be a minimum of 3 inches in diameter. Only one floor drain shall be connected to each branch of a combination waste and vent.

b) A branch more than 15 feet in length shall be separately end vented. The minimum area of any vent installed in a combination waste and vent system shall be half ~~½~~ the area of the drain pipe served.

c) Sinks, lavatories and other fixtures that are roughed in ~~roughed-in~~ above the floor shall not be permitted on a combination waste and vent system.

d) Long mains shall be provided with additional relief vents located at intervals of every 100 ~~one hundred~~ feet. (See Appendix K.~~:~~ Illustration FF.)

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.1600 Special Venting for Island Fixtures

a) Traps for island sinks and similar equipment shall be roughed in ~~roughed-in~~ above the floor and shall be vented by extending the vent as high as possible, but at least the drainboard height, and then returning it downward and connecting it to the horizontal sink drain immediately downstream ~~down stream~~ from the vertical fixture drain. Back-to-back island vented fixtures shall meet the requirements of Section 890.1480(b) ~~890.1460~~.

b) The returned vent shall be connected to the horizontal drain through a sanitary drainage ~~wye-branch~~ fitting and shall be provided with a vent taken off the vertical fixture vent by means of a sanitary drainage fitting ~~wye-branch~~ immediately below the floor and extending to the nearest partition and then through the roof to the outside atmosphere, or may be connected to other vents at a point at least 6 inches above the flood level rim of the fixture served. Drainage fittings shall be used on all parts of the vent below the floor level, and a minimum grade of ¼ inch per foot back to the drain shall be maintained. The returned bend used under the drainboard shall be a one-piece fitting or assembly of a 45 degree º, a 90 degree º, and a 45 degree º elbow in the order named. (See Section 890.1340 and Appendix K.~~:~~ Illustration GG.)

(Source: Amended at 37 Ill. Reg. _____, effective _____)

SUBPART L: PLUMBING SYSTEMS/CORRECTIONAL FACILITIES

Section 890.1720 Water Closets

a) All water closets shall either be of stainless steel (Type 304) construction, including framework, reinforcing and interior piping, or be vitreous china complying with ASME~~/ANSI~~ A112.19.2/CSA B45.1 ~~A 112.19.2M-1990~~.

b) If stainless steel water closets are used, they shall comply with the following:

1) The bowl and flushing rim shall not be less than 14 gauge.

2) The water closet shall have a minimum of a 3-inch diameter, fully enclosed stainless steel P-trap and shall pass a 2[-inch diameter ball.

3) All welds shall be ground smooth, and exterior surfaces polished.

4) Integral contoured seats that are self-draining and crevice free ~~crevice-free~~ shall be a part of the water closet.

c) All water closets shall have push button flush valves.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.1730 Urinals

a) All urinals shall be either Type 304 stainless steel or vitreous china complying with ASME~~/ANSI~~ A112.19.2/CSA B45.1 ~~A 112.19.2M-1990~~.

b) All stainless steel urinals shall comply with the following:

1) The urinal ~~They~~ shall be fabricated of Type 304 stainless steel with exposed edges polished.

2) All exposed welds are to be ground smooth.

3) All construction is to be free from visible voids, seams or crevices.

4) The trap shall provide a 2 ~~two (2)~~ inch seal and pass a $1\frac{9}{10}$ ~~one and nine-tenths (1.9)~~ inch diameter ball.

5) The urinal ~~It~~ shall be fitted with an integrally welded steel beehive dome strainer.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.1750 Service Sinks/Lavatory

a) Service sinks/lavatories shall be either stainless steel, cast iron complying with ASME~~/ANSI~~ A112.19.1/CSA B45.2 ~~M-1987~~, or vitreous china complying with ASME~~/ANSI~~ A112.19.2/CSA B45.1 ~~A 112.19.2M-1990~~. Stainless steel service sinks/lavatories shall be fabricated of Type 304 stainless steel with the exterior surfaces polished; all exposed welds are to be ground smooth, and there shall be

no visible voids, seams or crevices.

b) Security Sink/Lavatory shall include the following features; self-closing valve set with integral stops, gate or globe valves, reversible union inlets and plain-end filler spout; grid strainer drain, elbow waste with a 2- ~~two (2)~~ inch female connection. Timing of control valves shall be field adjustable from five ~~(5)~~ to 40 seconds, and shall not require shutting off the supply lines.

c) The waste assembly shall comply ~~conform~~ with Section 890.410(g)(1), and be of brass, copper or bronze construction.

d) Drains with mechanical air vents are prohibited.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

SUBPART N: SUSTAINABLE PLUMBING SYSTEMS

Section 890.2010 General Requirements

The purpose of this Section is to provide a comprehensive set of technically sound provisions that encourage sustainable practices and work towards enhancing the design and construction of plumbing systems that result in a positive long-term environmental impact.

a) IAPMO Green Plumbing and Mechanical Code Supplement

1) The language in this Subpart derives in part from the Green Plumbing and Mechanical Code Supplement, as authorized by the International Association of Plumbing and Mechanical Officials (IAPMO).

2) Inherent in this authorization is the absolute right to include IAPMO's copyrighted work solely within a full publication of the Illinois Plumbing Code. Licensed third-party publishers, current and future, shall have no rights of publication in any IAPMO copyrighted material other than to reproduce the content of the Green Plumbing and Mechanical Code Supplement within a complete reproduction of the Illinois Plumbing Code.

b) Scope

1) The use of a water-conserving plumbing fixture, appliance, treatment device, or other water-supplied equipment contained in this Subpart is optional. When a water-conserving plumbing fixture, appliance, treatment device, or other water-supplied equipment is installed in a manner intended to conserve water, it shall be installed following all provisions contained in the applicable Section.

2) The use of an alternate water source is optional. When an alternate water source is used to supply a plumbing system, the installation, operation, and maintenance of the alternate water source shall follow all provisions contained in the applicable Sections.

c) The Department or authority having jurisdiction shall be permitted to require the submission of plans, specifications, drawings, and other information as the Department or authority having jurisdiction shall deem necessary prior to the commencement of, and at any time during the progress of, any work regulated by this Subpart. The issuance of a permit upon plans and specifications shall not prevent the Department or authority having jurisdiction from requiring the correction of errors in the plans and specifications or from preventing construction operations being carried on when in violation of this Subpart or of any other pertinent ordinance or from revoking any certificate of approval when issued in error.

d) The requirements of this Subpart N are limited to the application of Subpart N in regard to sustainable plumbing systems only and are not applicable to other Subparts of this Part.

e) If, in any specific case, different Sections of Subpart N or referenced standards specify different materials, methods of construction, or other requirements, the most restrictive shall govern as determined by the Department. If there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2015 Alternate Materials, Designs, and Methods of Construction Equivalency

a) Nothing in Subpart N is intended to prevent the use of systems, methods, or

devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by Subpart N. Technical documentation shall be submitted to the Department to demonstrate equivalency. The Department shall have the authority to approve or disapprove the system, method, or device for the intended purpose.

b) Plans, engineering calculations, diagrams, technical submissions, and other data shall be submitted in one or more sets with each application for a permit or installation where required by the Department or the authority having jurisdiction. The Department or the authority having jurisdiction shall be permitted to require plans, computations, and specifications to be prepared by, and the plumbing designed by, an engineer or plumber licensed by the State.

c) Plans, specifications, and technical submissions shall be drawn to scale upon substantial paper or electronic means and shall be of sufficient clarity to indicate the location, nature, and extent of the work proposed and show in detail that it will comply with the provisions of Subpart N of this Part.

d) Supplemental information necessary to verify compliance with Subpart N, such as calculations, worksheets, compliance forms, product listings, or other data, shall be made available when required by the Department or the authority having jurisdiction.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2020 Maintenance

Information, such as manufacturer's instructions, owner's manuals, shall be provided for all products and systems that require regular maintenance to achieve the effective use of energy and water. A maintenance schedule that includes clear instructions of the maintenance action and refers to the owner's manual shall be required and made available.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2025 Abandonment

a) Every abandoned system or part of a system covered under Subpart N shall be disconnected from any remaining systems, drained, plugged, and capped in an approved manner.

b) Every underground water storage tank that has been abandoned or otherwise discontinued from use in a system covered under this Subpart shall be completely drained and filled with earth, sand, gravel, concrete, or other approved material.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2030 Water-Conserving Plumbing Fixtures and Fittings

a) The installation and water consumption for plumbing fixtures and fixture fittings shall be in accordance with Section 890.2035 through Section 890.2055.

b) Water-conserving fixtures and fixture fittings shall be installed in accordance with the manufacturer's instructions to maintain their rated performance.

c) Where static water pressure in the water supply piping is in excess of 65 psi in single pressure zone systems, pressure regulators preceded by an adequate strainer shall be installed at points in the system to reduce the static pressure to 60 psi or less.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2035 Water Closets

No water closet shall have a flush volume exceeding 1.6 gallons per flush (gpf).

a) Gravity, pressure-assisted, and electro-hydraulic tank type water closets shall have an effective flush volume of not more than 1.28 gallons of water per flush in accordance with ASME A112.19.2/CSA B45.1 or ASME A112.19.14 and shall also be labeled to the EPA WaterSense Tank-Type High Efficiency Toilet Specification. The effective flush volume for dual flush toilets is defined as the composite average flush volume of two reduced flushes and one full flush.

b) Flushometer-valve activated water closets shall have a flush volume of not more than 1.6 gallons of water per flush in accordance with ASME A112.19.2/CSA B45.1.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2040 Urinals

a) Urinals shall have a flush volume of not more than 0.5 gallon of water per flush in accordance with ASME A112.19.2/CSA B45.1 or IAPMO Z124. Flushing urinals shall be labeled to the EPA WaterSense Flushing Urinal Specification.

b) Non-water urinals shall comply with ASME A112.19.3/CSA B45.4, ASME A112.19.19 or IAPMO Z124. Non-water urinals shall be cleaned and maintained in accordance with the manufacturer's instructions after installation. Non-water urinals shall have a water distribution line roughed in to the urinal location at a height not less than 56 inches to allow for the installation of an approved backflow prevention device in the event of a retrofit. Water distribution lines shall be installed with shutoff valves located as close as possible to the distributing main to prevent the creation of dead ends. Where non-water urinals are installed, not less than one water-supplied fixture rated at not less than two drainage fixture unit (WDFU) shall be installed upstream on the same drain line to facilitate drain line flow and rinsing.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2045 Lavatory Faucets

The maximum water flow rate of faucets shall be in accordance with the following:

a) The flow rate for lavatory faucets installed in residences, apartments, and private bathrooms in lodging, hospitals, and patient care facilities (including skilled nursing and long term care facilities) shall not exceed 1.5 gallons per minute (gpm) at 60 pounds-force per square inch (psi) in accordance with ASME A112.18.1/CSA B125.1 and shall be labeled to the EPA WaterSense High-Efficiency Lavatory Faucet Specification.

b) Lavatory faucets installed in bathrooms of buildings or occupancies other than those specified in subsection (a) shall meet the following:

1) The flow rate shall not exceed 0.5 gpm at 60 psi in accordance with ASME A112.18.1/CSA B125.1.

2) Metering faucets shall deliver not more than 0.25 gallons of water per cycle.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2050 Showers

a) Showerheads shall comply with the Energy Policy Act of 1992, except that the flow rate shall not exceed 2.0 gpm at 80 psi, when labeled to ASME A112.18.1/CSA B125.1.

b) If multiple showerheads serving one shower compartment are used, the total allowable flow rate of water from multiple showerheads flowing at any given time, with or without a diverter, including rain systems, waterfalls, body sprays, and jets, shall not exceed 2.0 gpm per shower compartment, where the floor area of the shower compartment is less than 1800 square inches. For each additional increment or partial increment of 1800 square inches of floor area, additional showerheads are allowed, provided that the total flow rate of water from all flowing devices shall not exceed 2.0 gpm for each increment. Exceptions:

1) Multi-person showers in non-residential occupancies. Singular showerheads or multiple shower outlets serving one showering position in multi-person showers shall not have more than 2.0 gpm total flow.

2) If provided, accessible shower compartments shall not have more than 4.0 gpm total flow, where one outlet is the hand shower. The hand shower shall have a control with a nonpositive shutoff feature.

c) The rate of leakage out of the tub spout of bath and shower diverters while operating in the shower mode shall not exceed 0.1 gpm in accordance with ASME A112.18.1/CSA B125.1.

d) Shower valves shall meet the temperature control performance requirements of ASSE 1016/ASME A112.16/CSA B125.16, ASSE 1070 or ASME A112.18.1/CSA B125.1 when tested at 2.0 gpm.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2055 Commercial Food Service

a) Pre-Rinse Spray Valves. The flow rate for a pre-rinse spray valve installed in a commercial kitchen to remove food waste from cookware and dishes prior to cleaning shall not be more than 1.3 gpm at 60 psi. Where pre-rinse spray valves with maximum flow rates of 1.0 gpm or less are installed, the static pressure shall be not less than 30 psi. Commercial kitchen pre-rinse spray valves shall be equipped with an integral automatic shutoff.

b) Food Steamers. Food steamers shall not use more than 5.0 gallons per hour (gph) per steamer pan in full operation mode.

c) Combination Ovens. Combination ovens shall not consume more than 3.5 gph per pan in the full operational mode.

d) Grease Interceptors. Grease interceptor maintenance procedures shall not include post-pumping/cleaning refill using potable water. Refill shall be by connected appliance accumulated discharge only.

e) Dipper Well Faucets. Where dipper wells are installed, the water supply to a dipper well shall have a shutoff valve and flow control. The flow of water into a dipper well shall be limited by at least one of the following methods:

1) Maximum Continuous Flow. Water flow shall not exceed the water capacity of the dipper well in one minute at supply pressure of 60 psi (414 kPa), and the maximum flow shall not exceed 2.2 gpm (0.14 L/s) at a supply pressure of 60 psi (414 kPa). The water capacity of a dipper well shall be the maximum amount of water that the fixture can hold before water flows into the drain.

2) Metered Flow. The volume of water dispensed into a dipper well in each activation cycle of a self-closing fixture fitting shall not exceed the water

capacity of the dipper well, and the maximum flow shall not exceed 2.2 gpm (0.14 L/s) at a supply pressure of 60 psi (414 kPa).

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2060 Emergency Safety Showers and Eye Wash Stations

Emergency safety showers and emergency eye wash stations shall not be limited in their water supply flow rates.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2065 Drinking Fountains

Drinking fountains shall be equipped with a self-closing valve.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2070 Water Softeners and Treatment Devices

a) Actuation of regeneration of water softeners shall be by demand initiation. Water softeners shall be labeled to NSF/ANSI Standard 44. Water softeners shall have a rated salt efficiency exceeding 3400 grains (gr) of total hardness exchange per pound (lb) of salt, based on sodium chloride (NaCl) equivalency, and shall not generate more than 5 gallons of water per 1000 grains of hardness removed during the service cycle.

b) In residential buildings, where the supplied potable water hardness is equal to or less than 8 grains per gallon (gr/gal) measured as total calcium carbonate equivalents, water softening equipment that discharges water into the wastewater system during the service cycle shall not be allowed, except as required for medical purposes.

c) Reverse osmosis water treatment systems installed in residential occupancies shall be equipped with automatic shutoff valves to prevent discharge when there is no call for producing treated water. Reverse osmosis water treatment systems shall be labeled to meet NSF/ANSI Standard 58.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2075 Medical and Laboratory Facilities

a) Steam Sterilizers. Controls shall be installed to limit the discharge temperature of condensate or water from steam sterilizers to 140 degrees Fahrenheit or less. Venturi-type vacuum system shall not be used with vacuum sterilizers.

b) X-Ray Film Processing Units. Processors for X-ray film exceeding 6 inches in any dimension shall be equipped with water recycling units.

c) Exhaust Hood Liquid Scrubber Systems. Liquid scrubber systems for exhaust hoods and ducts shall be of the recirculation type. Liquid scrubber systems for perchloric acid exhaust hoods and ducts shall be equipped with a timer-controlled water recirculation system. The collection sump for perchloric acid exhaust systems shall be designed to automatically drain after the wash-down process is completed.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2080 Fountains and Other Water Features

Special water features such as ponds and water fountains shall be provided with reclaimed water or rainwater if the source and capacity is available on the premises and approved by the Department or authority having jurisdiction.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2085 Meters

When a plumbing system is installed with the intention of conserving water, a water meter shall be installed.

a) A water meter shall be required for buildings connected to a public water system, including municipally supplied reclaimed water. In other than single-family houses, multi-family structures of three stories or fewer above grade, and modular houses, a separate meter or submeter shall be installed in the following locations:

1) The water supply to an irrigation system for irrigated landscape with an accumulative area exceeding 15,000 square feet;

2) The water supply to a water-using process where the consumption exceeds 1000 gallons per day (gal/d), except for manufacturing processes;

3) The water supply to each building on a property with multiple buildings where the water consumption exceeds 500 gal/d; and

4) The water supply to an individual tenant space on a property where any of the following applies:

A) Water consumption exceeds 500 gal/d for that tenant;

B) Tenant space is occupied by a commercial laundry, cleaning operation, restaurant, food service, medical office, dental office, laboratory, beauty salon, or barbershop; or

C) Total building area exceeds 50,000 square feet.

5) A makeup water supply to a swimming pool.

b) A means of communicating water consumption data from submeters to the water consumer shall be provided.

c) Meters and submeters shall be accessible.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2090 Water-Powered Sump Pumps

Sump pumps powered by potable or reclaimed water pressure shall be used only as an emergency backup pump. The water-powered pump shall be equipped with a battery-powered alarm having a minimum rating of 85 dBa at 10 feet. Water-powered pumps shall have a water efficiency factor of pumping at least 1.4 gallons of water to a height of 10 feet for every gallon of water used to operate the pump, measured at a water pressure of 60 psi. Pumps shall be clearly labeled as to the gallons of water pumped per gallon of potable water consumed.

Water-powered stormwater sump pumps shall be equipped with a dual check valve with atmospheric vent.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2095 Alternate Water Sources for Non-Potable Applications

Allowable Use of Alternate Water. Alternate water sources, including, but not limited to, reclaimed water, rainwater, and graywater, shall be permitted to be used in lieu of potable water contingent on compliance with this Subpart.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2100 System Design

Alternate water source systems complying with this Section shall be designed by a person licensed to perform plumbing design work. Components, piping, and fittings used in any alternate water source system shall be compliant with applicable standards as listed in Appendix A.Table A. A person licensed to perform plumbing design work is not required to design the following:

a) Rainwater catchment systems used for irrigation with a maximum storage capacity of 360 gallons;

b) Rainwater catchment systems for single family dwellings where all outlets, piping, and system components are located on the exterior of the building; and

c) Graywater systems having a maximum discharge capacity of 250 gallons per day (gal/d) for single family and multi-family dwellings.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2105 Permits

Where permits are required by the authority having jurisdiction, it shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any alternate water source system in a building or on a premise without first obtaining a permit from the authority having jurisdiction. A plumbing permit is not required for the following:

a) Exterior rainwater catchment systems used for outdoor drip and subsurface irrigation with a maximum storage capacity of 360 gallons.

b) Rainwater catchment systems for single family dwellings where all outlets, piping, and system components are located on the exterior of the building. This does not exempt the need for permits if required for electrical connections, tank supports, or enclosures.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2110 Maintenance and Inspection

Alternate water source systems and components shall be inspected and maintained in accordance with Section 890.2110 through Section 890.2150, and Appendix A.Table R.

a) Frequency. Alternate water source systems and components shall be inspected and maintained in accordance with Appendix A.Table R unless more frequent inspection and maintenance are required by the manufacturer.

b) Maintenance Log. A maintenance log is required for alternate water systems required to have a permit in accordance with Section 890.2105 and shall be maintained by the property owner and be available for inspection. The property owner or designated appointee shall ensure that a record of testing, inspection and maintenance as required by Appendix A.Table R is maintained in the log. The log will indicate the frequency of inspection and maintenance for each system.

c) Maintenance Responsibility. The required maintenance and inspection of alternate water source systems shall be the responsibility of the property owner, unless otherwise required by the Department or authority having jurisdiction.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2115 Operation and Maintenance Manual

The system designer shall provide the building owner with an operation and maintenance manual for graywater and rainwater systems required to have a permit in accordance with Section 890.2105. The operation and maintenance manual shall include the following:

a) A detailed diagram of the entire system and the location of system components;

b) Instructions on operating and maintaining the system;

c) Details on maintaining the required water quality;

d) Details on deactivating the system for maintenance, repair, or other purposes;

e) Applicable testing, inspection, and maintenance frequencies as required by Appendix A.Table R; and

f) A method of contacting the manufacturer or manufacturers.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2120 Minimum Water Quality Requirements

The minimum water quality for alternate water source systems shall meet 35 Ill. Adm. Code 302 (Water Quality Standards).

Section 890.2125 Material Compatibility

Alternate water source systems shall be constructed of materials that are compatible with the type of pipe and fitting materials, water treatment, and water conditions in the system.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2130 System Controls

Controls for pumps, valves, and other devices that come in contact with alternate water source water supplies shall not contain mercury.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2135 Graywater Systems

This Section shall apply to the installation, construction, alteration, or, repair of graywater systems. A Plumber's License or an Apprentice Plumber's License shall not be required for the

installation, construction, alteration or repair of that portion of a graywater system located 5 or more feet outside the foundation of the building for which the graywater system is being installed. Installation, construction, alteration or repair of that portion of a graywater system that provides for subsurface irrigation shall conform to the requirements of 225 ILCS 320/2.5 and 77 IL Admin Code 892.

a) Discharge. Graywater shall be permitted to be diverted away from a sewer or private sewage disposal system, and discharged to a subsurface irrigation or subsoil irrigation system. The graywater shall be permitted to discharge to a mulch basin for single family and multi-family dwellings. Graywater shall not be used to irrigate root crops or food crops intended for human consumption that come in contact with soil.

b) Surge Capacity. Graywater systems shall be designed to have the capacity to accommodate peak flow rates and distribute the total amount of estimated graywater to be used on a daily basis to a subsurface irrigation field, subsoil irrigation field, or mulch basin without surfacing, ponding, or runoff. A surge tank is required for all systems that are unable to accommodate peak flow rates and distribute the total amount of graywater by gravity drainage. The water discharge for graywater systems shall be determined in accordance with subsection (k) or (l).

c) Diversion. The point of diversion of graywater to the sanitary drainage system shall occur downstream of fixture traps and vent connections through an approved graywater diverter valve. The graywater diverter shall be installed in an accessible location and clearly indicate the direction of flow.

d) Backwater Valves. Graywater drains subject to backflow shall be provided with a backwater valve located so as to be accessible for inspection and maintenance.

e) Connections to Potable and Reclaimed Water Systems. Graywater systems shall have no direct connection to any potable water supply or reclaimed water systems. Potable or reclaimed water is permitted to be used as makeup water for a non-pressurized storage tank provided that the connection is protected by an air gap in accordance with Section 890.1130(f)(5).

f) Location. No graywater system or part of a graywater system shall be located on any lot other than the lot that is the site of the building or structure that

discharges the graywater, nor shall any graywater system or part of a graywater system be located at any point having less than the minimum distances indicated in Appendix A.Table S.

g) Plot Plan Submission. No permit for any graywater system shall be issued until a plot plan with appropriate data satisfactory to the authority having jurisdiction has been submitted and approved.

h) Prohibited Location. A graywater system shall not be permitted where there is insufficient lot area or soil conditions are inappropriate for adequate absorption to prevent the ponding, surfacing or runoff of the graywater, as determined by the Department or authority having jurisdiction. A graywater system is not permitted on any property in a geologically sensitive area as determined by the Department or authority having jurisdiction.

i) Drawings and Specifications. The Department or authority having jurisdiction may require any of the following information to be included with or in the plot plan before a permit is issued for a graywater system, or at any time during the construction of the system:

1) Plot plan drawn to scale and completely dimensioned, showing lot lines and structures; direction and approximate slope of surface; location of all present or proposed retaining walls, drainage channels, water supply lines, wells, paved areas and structures on the plot; number of bedrooms and plumbing fixtures in each structure; location of private sewage disposal system and expansion area or building sewer connecting to the public sewer; and location of the proposed graywater system.

2) Details of construction necessary to ensure compliance with the requirements of this Subpart, together with a full description of the complete installation, including installation methods, construction, and materials as required by the Department or authority having jurisdiction.

3) Details for all holding tanks shall include all dimensions, structural calculations, bracings, and other pertinent data.

4) A log of soil formations and groundwater level as determined by test holes dug in proximity to any proposed irrigation area, together with a

statement of water absorption characteristics of the soil at the proposed site as determined by approved soil investigation.

5) Distance between the plot and any surface waters, such as lakes, ponds, rivers or streams, and the slope between the plot and the surface water, if in proximity. Exception: The Department or authority having jurisdiction shall permit the use of Appendix A.Table S in lieu of soil investigation.

j) Procedure for Estimating Graywater Discharge. Graywater systems shall be designed to distribute the total amount of estimated graywater on a daily basis. Graywater shall not be stored for more than 24 hours. The discharge for graywater systems shall be determined in accordance with subsection (k) or (l) of this Section.

k) Single Family Dwellings and Multi-Family Dwellings. The graywater discharge for single family and multi-family dwellings shall be calculated by water use records, calculations of local daily per person interior water use, or the following procedure:

1) The number of occupants of each dwelling unit shall be calculated as follows:

First Bedroom	2 occupants
Each additional bedroom	1 occupant

2) The estimated graywater flows of each occupant shall be calculated as follows:

Showers, bathtubs, and lavatories	25 gallons per day/occupant
Laundry	15 gallons per day/occupant

3) The total number of occupants shall be multiplied by the applicable estimated graywater discharge as provided in subsection (k)(2) and the type of fixtures connected to the graywater system.

l) Commercial, Industrial, and Institutional Occupancies. The graywater discharge for commercial, industrial, and institutional occupancies shall be calculated by using the procedure in subsection (k), water use records, or other documentation to estimate graywater discharge.

m) Graywater System Components. Graywater system components shall be in accordance with subsections (n)-(u).

n) Surge Tanks. Where installed, surge tanks shall comply with the following:

1) Surge tanks shall be constructed of solid, durable materials not subject to excessive corrosion or decay and shall be watertight. Surge tanks constructed of steel shall be approved by the Department, provided that tanks comply with approved applicable standards.

2) Each surge tank shall be vented as required by 890.1360(e). The vent size shall be determined based on the total graywater fixture units as outlined in the Appendix A.Table E.

3) Each surge tank shall have an access opening with lockable gasketed covers or approved equivalent to allow for inspection and cleaning.

4) Each surge tank shall have its rated capacity permanently marked on the unit. In addition, a sign stating "DANGER — GRAYWATER. NOT FOR CONSUMPTION" shall be permanently marked on the holding tank.

5) Each surge tank shall have an overflow drain. The over- flow drains shall have permanent connections to the building drain or building sewer, upstream of septic tanks, if any. The overflow drain shall not be equipped with a shutoff valve.

6) The overflow drain pipes shall not be smaller in size than the inlet pipe. Unions or equally effective fittings shall be provided for all piping connected to the surge tank.

7) Surge tanks shall be structurally designed to withstand anticipated earth or other loads. Surge tank covers shall be capable of supporting an earth load of not less than 300 pounds per square foot (lb/ft^2) when the tank is designed for underground installation.

8) If a surge tank is installed underground, the system shall be designed so that the tank overflow will gravity drain to the existing sewer line or

septic tank. The tank shall be protected against sewer line back-flow by a backwater valve installed in accordance with Section 890.1320(o).

9) Surge tanks shall be installed on dry, level, well-compacted soil if underground or on a level 3 inch thick concrete slab if aboveground.

10) Surge tanks shall be anchored to prevent against overturning when installed aboveground. Underground tanks shall be ballasted, anchored, or otherwise secured to prevent the tank from floating out of the ground when empty. The combined weight of the tank and hold-down system shall meet or exceed the buoyancy forces of the tank.

o) Graywater Pipe and Fitting Materials. Aboveground and underground building drainage and vent pipe and fittings for graywater systems shall comply with the requirements of Appendix A.Table A. These materials shall extend not less than 5 feet outside the building.

p) Subsoil Irrigation Field Materials. Subsoil irrigation field piping shall be constructed of perforated high-density polyethylene pipe, perforated ABS pipe, perforated PVC pipe, or other approved materials, provided that sufficient openings are available for distribution of the graywater into the trench area. Material, construction, and perforation of the pipe shall be in compliance with the Private Sewage Disposal Code Section 905.60(b), (c), and (f), and Section 905.APPENDIX A Illustration C.

q) Subsurface Irrigation Field and Mulch Basin Supply Line Materials. Materials for graywater piping outside the building shall be polyethylene or PVC. Drip feeder lines shall be PVC or polyethylene tubing.

r) Valves. Valves shall be accessible.

s) Trap. Graywater piping discharging into the surge tank or having a direct connection to the sanitary drain or sewer piping shall be downstream of an approved water seal type of trap or traps. If no trap or traps exist, an approved vented running trap shall be installed upstream of the connection to protect the building from any possible waste or sewer gases.

t) Backwater Valve. A backwater valve shall be installed on all graywater drain connections to the sanitary drain or sewer.

u) Subsurface Irrigation System Zones. Irrigation or disposal fields shall be permitted to have one or more valved zones. Each zone must be of adequate size to receive the graywater anticipated in that zone.

1) Required Area. The minimum effective irrigation area of subsurface irrigation fields, subsoil irrigation fields, and mulch basins shall be determined by Appendix A.Table T for the type of soil found in the excavation, based upon a calculation of estimated graywater discharge pursuant to subsection (j). For a subsoil irrigation field, the area shall be equal to the aggregate length of the perforated pipe sections within the valved zone multiplied by the width of the proposed subsoil irrigation field.

2) Absorption Capacity. The irrigation field and mulch basin size shall be based on the maximum absorption capacity of the soil and determined using Appendix A.Table T. For soils not listed in Appendix A.Table T the maximum absorption capacity for the proposed site shall be determined by soil investigation or other method acceptable to the Department or authority having jurisdiction. A graywater system is prohibited where the soil investigation shows that the absorption capacity of the soil is unable to accommodate the maximum discharge of the proposed graywater irrigation system. The soil investigation shall be conducted in the manner prescribed in Section 905.55 of the Private Sewage Disposal Code.

3) Groundwater Level. No excavation for an irrigation field, disposal field, or mulch basin shall extend within 3 feet vertical of the highest known seasonal groundwater level, nor to a depth where graywater contaminates the groundwater or surface water. The registered plumbing contractor shall supply evidence of groundwater depth to the satisfaction of the Department or authority having jurisdiction.

v) Subsurface and Subsoil Irrigation Field, and Mulch Basin Design and Construction. Where a graywater irrigation system design is predicated on soil tests, the subsurface or subsoil irrigation field or mulch basin shall be designed,

constructed and installed at the same location and depth as the tested area and in accordance with the following:

1) Minimum Depth. Supply piping, including drip feeders, shall be not less than 2 inches below finished grade and covered with mulch or soil.

2) Filter. Not less than 140 mesh (115 micron) filter with a capacity of 25 gallons per minute (gpm) or equivalent shall be installed. Where a filter backwash is installed, the backwash and flush discharge shall discharge into the building sewer or private sewage disposal system. Filter backwash and flush water shall not be used for any purpose.

3) Emitter Size. Emitters shall be installed in accordance with the manufacturer's installation instructions. Emitters shall have a flow path of not less than 1200 microns (μ) (1200 μm) and shall not have a coefficient of manufacturing variation (Cv) exceeding 7 percent. Irrigation systems shall be designed so that emitter flow variation shall not exceed 10 percent.

4) Number of Emitters. The minimum number of emitters and the maximum discharge of each emitter in an irrigation field shall be in accordance with Appendix A.Table U.

5) Controls. The system design shall provide user controls, such as valves, switches, timers, and other controllers, to rotate the distribution of graywater between irrigation zones.

6) Maximum Pressure. Where pressure at the discharge side of the pump exceeds 20 pounds-force per square inch (psi), a pressure-reducing valve able to maintain downstream pressure not exceeding 20 psi shall be installed downstream from the pump and before any emission device.

w) Mulch Basin. A mulch basin shall be in accordance with the following:

1) Single Family and Multi-Family Dwellings. The graywater discharge to a mulch basin is limited to single family and multi-family dwellings.

2) Size. Mulch basins shall be of sufficient size to accommodate peak flow rates and distribute the total amount of estimated graywater on a daily

basis without surfacing, ponding, or runoff. Mulch basins shall have a depth of not less than 10 inches below finished grade. The mulch basin size shall be based on the maximum absorption capacity of the soil and determined using Appendix A.Table T.

3) Minimum Depth. Graywater supply piping, including drip feeders, shall be a minimum 2 inches below finished grade and covered with mulch.

4) Maintenance. The mulch basin shall be maintained periodically to retain the required depth and area and to replenish the required mulch cover.

x) Subsoil Irrigation Field. Subsoil irrigation fields shall be in accordance with the following:

1) Minimum Pipe Size. Subsoil irrigation field distribution piping shall be not less than 3 inches diameter.

2) Filter Material and Backfill. Filter material, clean stone, gravel, slag, or similar material acceptable to the Department or authority having jurisdiction, varying in size from 3/4 inch to 2 1/2 inches shall be placed in the trench to the depth and grade in accordance with Appendix A.Table V The perforated section of subsoil irrigation field distribution piping shall be laid on the filter material in an approved manner. The perforated section shall then be covered with filter material to the minimum depth in accordance with Appendix A.Table V. The filter material shall then be covered with porous material to prevent closure of voids with earth backfill. No earth backfill shall be placed over the filter material cover until after inspection and acceptance.

3) Subsoil Irrigation Field Construction. Subsoil irrigation fields shall be constructed in accordance with Appendix A.Table V. Where necessary on sloping ground to prevent excessive line slopes, irrigation lines shall be stepped. The lines between each horizontal leaching section shall be made with approved watertight joints and installed on natural or unfilled ground.

y) Graywater System Color and Marking Information. Pressurized graywater distribution systems shall be purple in color. Graywater systems shall be marked with the words; "CAUTION NON-POTABLE GRAYWATER. NOT FOR CONSUMPTION." Field marking of pipe meeting these requirements shall be permitted as per ANSI/NEMA Z535.1 and ASME A13.1.

z) Special Provisions. Other Collection and Distribution Systems. Other collection and distribution systems shall be approved by the authority having jurisdiction, as allowed by Section 890.2015 and Section 890.800(d).

aa) Testing. Building drains and vents for graywater systems shall be tested in accordance with this Part. Surge tanks shall be filled with water to the overflow line prior to and during inspection. Seams and joints shall be left exposed, and the tank shall remain watertight. A flow test shall be performed through the system to the point of graywater discharge. Lines and components shall be watertight up to the point of the irrigation perforated and drip lines.

bb) Maintenance. Graywater systems and components shall be maintained in accordance with Appendix A.Table R.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2140 Reclaimed Water Systems

This Section shall apply to the installation, construction, alteration, or repair of a reclaimed water system intended to supply uses such as, water closets, urinals, trap primers for floor drains and floor sinks, and aboveground and subsurface irrigation. A Plumber's License or an Apprentice Plumber's License shall not be required for the installation, construction, alteration or repair of that part of a reclaimed water system located 5 or more feet outside the foundation of the building for which the reclaimed water system is being installed. Installation, construction, alteration or repair of that portion of a reclaimed water system that provides for aboveground or subsurface irrigation shall conform to the requirements of 225 ILCS 320/2.5 and 77 IL Admin Code 892.

a) Permit. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any reclaimed water system within a building or on a premise without first obtaining a permit for the work from the authority having jurisdiction. No permit for any reclaimed water system shall be

issued until complete plans, with appropriate data as listed in Section 890.2015 have been submitted and approved by the Department or authority having jurisdiction.

b) System Changes. No changes or connections shall be made to either the reclaimed water system or the potable water system within any site containing a reclaimed water system without approval by the Department or authority having jurisdiction.

c) Connections to Potable or Reclaimed Water Systems. Reclaimed water systems shall have no connection to any potable water supply or alternate water source system. Potable water is permitted to be used as makeup water for a reclaimed water storage tank provided that the water supply inlet is protected by an airgap.

d) Initial Cross-Connection Test. A cross-connection test is required in accordance with subsection (j)(2)(A). Before the building is occupied or the system is activated, the installer shall perform the initial cross-connection test.

e) Reclaimed Water System Materials. Reclaimed water supply and distribution system materials shall comply with the requirements of this Part for potable water supply and distribution systems, unless otherwise provided for in this Subpart.

f) Reclaimed Water System Color and Marking Information. Reclaimed water systems shall have a purple-colored background. Reclaimed water systems shall be marked with the words: "CAUTION: NON-POTABLE RECLAIMED (RECYCLED) WATER, NOT FOR CONSUMPTION." Field marking of pipe meeting these requirements shall be permitted as per ANSI/NEMA Z535.1and ASME A13.1.

g) Valves. Valves, except fixture supply control valves, shall be equipped with a locking feature.

h) Installation

1) Required Appurtenances. The reclaimed water system and the potable water system within the building shall be provided with the required

appurtenances (valves, air/vacuum relief valves, etc.) to allow for deactivation or drainage as required for cross-connection test in subsection (j)(2).

2) Hose Bibbs. Hose bibbs shall not be allowed on reclaimed water piping systems located in areas accessible to the public. Access to reclaimed water at points in the system accessible to the public shall be through a quick-disconnect device that differs from those installed on the potable water system. Hose bibbs supplying reclaimed water shall be marked with the words: "CAUTION: NON-POTABLE RECLAIMED WATER. NOT FOR CONSUMPTION" and the symbol in Appendix L.Illustration A.

3) Same Trench as Potable Water Pipes. Reclaimed water pipes shall be permitted to be run or laid in the same trench as potable water pipes with an 18-inch minimum vertical and horizontal separation when both pipe materials are approved according to Appendix A.Table A. When piping materials do not meet this requirement, the minimum horizontal separation shall be increased to 10 feet. The potable water piping shall be installed at an elevation above the reclaimed water piping. Reclaimed water pipes laid in the same trench or crossing building sewer or drainage piping shall be installed in accordance with Appendix A.Table A.

i) Signs. Rooms and water closet tanks in buildings using reclaimed water shall be in accordance with the following:

1) Commercial, Industrial, and Institutional Restroom Signs. A sign shall be installed in restrooms in commercial, industrial, and institutional occupancies using reclaimed water for water closets, urinals, or both. Each sign shall contain 1⁄2-inch letters of a highly visible color on a contrasting background. The sign or signs shall be located to be visible to all users. The location of the sign or signs shall be approved by the Department or authority having jurisdiction and shall contain the following text: TO CONSERVE WATER, THIS BUILDING USES RECLAIMED (RECYCLED) WATER TO FLUSH TOILETS AND URINALS.

2) Equipment Room Signs. Each room containing reclaimed water equipment shall have a sign posted with the following wording in 1- inch letters: CAUTION: NON-POTABLE RECLAIMED (RECYCLED) WATER, NOT FOR CONSUMPTION. DO NOT CONNECT TO DRINKING WATER SYSTEM. NOTICE: CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM.

j) Inspection and Testing. Reclaimed water systems shall be inspected and tested in accordance with the following:

1) Supply System Inspection and Test. Reclaimed water systems shall be inspected and tested in accordance with Section 890.1930(d) for testing of potable water piping.

2) Annual Cross-Connection Inspection and Testing. An initial and subsequent annual inspection and test shall be performed on both the potable and reclaimed water systems. The potable and reclaimed water system shall be isolated from each other and independently inspected and tested to ensure that there is no cross-connection, in accordance with subsection (j)(2)(A)-(D).

A) Visual System Inspection. Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by the Department or authority having jurisdiction as follows:

i) Meter locations of the reclaimed water and potable water lines shall be checked to verify that no modifications were made, and that no cross-connections are visible.

ii) Pumps and equipment, equipment room signs, and exposed piping in equipment room shall be checked.

iii) Valves shall be checked to ensure that valve lock seals are still in place and intact. Valve control door signs shall be checked to verify that no signs have been removed.

B) Cross-Connection Test. The procedure for determining cross-connection shall be followed by the registered plumbing contractor to determine whether a cross-connection has occurred as follows:

i) The potable water system shall be activated and pressurized. The reclaimed water system shall be shut down, depressurized, and drained.

ii) The potable water system shall remain pressurized for a minimum period of time specified by the Department or authority having jurisdiction while the reclaimed water system is empty. The minimum period the reclaimed water system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and reclaimed water distribution systems, but in no case shall that period be less than one hour.

iii) The drain on the reclaimed water system shall be checked for flow during the test, and all fixtures, potable and reclaimed, shall be tested and inspected for flow. Flow from any reclaimed water system outlet indicates a cross-connection. No flow from a potable water outlet shall indicate that it is connected to the reclaimed water system.

iv) The potable water system shall then be depressurized and drained.

v) The reclaimed water system shall then be activated and pressurized.

vi) The reclaimed water system shall remain pressurized for a minimum period of time specified by the Department or authority having jurisdiction while the potable water system is empty. The minimum time period that the potable water system is to remain depressurized shall be

determined on a case-by-case basis, but in no case shall that period be less than one hour.

vii) All fixtures, potable and reclaimed, shall be tested and inspected for flow. Flow from any potable water system outlet indicates a cross-connection. No flow from a reclaimed water outlet will indicate that it is connected to the potable water system.

viii) The drain on the potable water system shall be checked for flow during the test and at the end of the test.

ix) If there is no flow detected in any of the fixtures, which would indicate a cross-connection, the potable water system shall be repressurized.

C) Discovery of Cross-Connection. If a cross-connection is discovered, the following procedure shall be activated immediately in the presence of the Department or authority having jurisdiction:

i) Reclaimed water piping to the building shall be shut down at the meter, and the reclaimed water riser shall be drained.

ii) Potable water piping to the building shall be shut down at the meter.

iii) The cross-connection shall be uncovered and disconnected.

iv) The building shall be retested following procedures listed in subsection (j)(2)(A)-(B) of this Section.

v) The potable water system shall be chlorinated with 50 parts-per-million (ppm) chlorine for 24 hours.

vi) The potable water system shall be flushed after 24 hours, and a standard bacteriological test shall be performed. If test

results are acceptable, the potable water system shall be permitted to be recharged.

D) Annual Inspection. The reclaimed water system shall be inspected annually, following the procedures listed in subsection (j)(2)(A) of this Section. The Department or authority having jurisdiction shall require annual cross-connection testing, following the procedures listed in subsection (j)(2)(B) of this Section, when any portion of the rainwater catchment system is installed within a building. The test shall not occur less frequently than once in four years.

E) Sizing. Reclaimed water piping shall be sized in accordance with Section 890.1200 and 890.1210 for sizing potable water piping.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2145 Non-Potable Rainwater Catchment Systems.

This Section shall apply to the installation, construction, alteration, or repair of a rainwater catchment system intended to supply uses such as, water closets, urinals, trap primers for floor drains and floor sinks, and irrigation. Additional design criteria can be found in the ARCSA/ASPE Rainwater Catchment Design and Installation Standard. A Plumber's License or an Apprentice Plumber's License shall not be required for the installation, construction, alteration or repair of a non-potable rainwater catchment system as prescribed by this Section, except for that part of the non-potable rainwater catchment system that is located within the perimeter of the building housing the system and where non-potable rainwater exits that portion of the non-potable rainwater catchment system located within the perimeter of the building for purposes of distribution to or use in a plumbing system or fixture.

a) Plan Submission. No permit for any rainwater catchment system requiring a permit shall be issued until complete plans, with appropriate data as listed in Section 890.2015 have been submitted and approved by the Department or authority having jurisdiction. No changes or connections shall be made to either the rainwater catchment or the potable water system within any site containing a rainwater catchment water system without approval by the Department or authority having jurisdiction.

b) System Changes. No changes or connections shall be made to either the rainwater catchment system or the potable water system within any site containing a rainwater catchment system requiring a permit without approval by the Department or authority having jurisdiction.

c) Connections to Potable or Reclaimed Water Systems. Rainwater catchment systems shall have no direct connection to any potable water supply or alternate water source system. Potable or reclaimed water is permitted to be used as makeup water for a rainwater catchment system provided the potable or reclaimed water supply connection is protected by an airgap in accordance with Section 890.1130(f)(5).

d) Initial Cross-Connection Test. Where any portion of a rainwater catchment system is installed within a building, a cross-connection test is required in accordance with subsection (r)(2). Before the building is occupied or the system is activated, the installer shall perform the initial cross-connection test in the presence of staff of the Department or authority having jurisdiction. The test shall be ruled successful by the Department or authority having jurisdiction before final approval is granted.

e) Sizing. Rainwater catchment system distribution piping for indoor applications shall be sized as outlined in this Section for sizing potable water piping. The design and size of rainwater drains, gutters, conductors, and leaders shall be in accordance with accepted engineering practices.

f) Rainwater Catchment System Materials. Rainwater catchment system materials shall be in accordance with the following:

1) Water Supply and Distribution Materials. Rainwater catchment water supply and distribution materials shall comply with Appendix A.Table A for potable water supply and distribution systems, unless otherwise provided for in this Section.

2) Rainwater Catchment System Drainage Materials. Materials used in interior rainwater catchment drainage systems shall comply with the requirements of Appendix A.Table A for approved building drainage and vent pipe.

3) Storage Tanks. Rainwater storage tanks shall be in accordance with subsection (i).

4) Collections Surfaces. The collection surface shall be constructed of a hard, impervious material.

g) Rainwater Catchment Water System Color and Marking Information. Rainwater catchment systems shall have a purple background and shall be marked in lettering with the words: "CAUTION: NON-POTABLE RAINWATER WATER, NOT FOR CONSUMPTION."

h) Design and Installation

1) Hose Bibbs. Hose bibbs shall not be allowed on rainwater piping systems.

2) Deactivation and Drainage for Cross-Connection Control Test. The rainwater catchment system and the potable water system within the building shall be provided with the required appurtenances (e.g., valves, air or vacuum relief valves) to allow for deactivation or drainage as required for cross-connection test in subsection (r).

3) Collection Surfaces. Rainwater shall be collected from roof surfaces. Rainwater catchment system shall not collect rainwater from:

A) Vehicular parking surfaces;

B) Surface water runoff; or

C) Bodies of standing water.

4) Prohibited Discharges. Overflows and bleed-off pipes from roof-mounted equipment and appliances shall not discharge onto roof surfaces that are intended to collect rainwater.

5) Minimum Water Quality. The minimum water quality for harvested rainwater shall meet the applicable water quality requirements for the intended applications as determined by Appendix A.Table Y. No treatment

is required for rainwater used for subsurface or non-sprinkled surface irrigation where the maximum storage volume is less than 360 gallons.

i) Rainwater Storage Tanks. Rainwater storage tanks shall be constructed and installed in accordance with the following:

1) Construction. Rainwater storage shall be constructed of solid, durable materials not subject to excessive corrosion or decay and shall be watertight. Storage tanks shall be approved by the Department or authority having jurisdiction, provided that the tanks comply with the Drinking Water Systems Code Section 900.40(j).

2) Location. Rainwater storage tanks shall be permitted to be installed above or below grade.

3) Above Grade. Above-grade storage tanks shall be of an opaque material, approved for aboveground use in direct sunlight or shall be shielded from direct sunlight. Tanks shall be installed in an accessible location to allow for inspection and cleaning. The tank shall be installed on a foundation or platform that is constructed to accommodate all loads in accordance with the building code.

4) Below Grade. Rainwater storage tanks installed below grade shall be structurally designed to withstand all anticipated earth or other loads. Holding tank covers shall be capable of supporting an earth load of not less than 300 pounds per square foot (lb/ft2) when the tank is designed for underground installation. Below-grade rainwater tanks installed underground shall be provided with manholes. The manhole opening shall a minimum of 20 inches in diameter and located a minimum of 4 inches above the surrounding grade. The surrounding grade shall be sloped away from the manhole. Underground tanks shall be ballasted, anchored, or otherwise secured, to prevent the tank from floating out of the ground when empty. The combined weight of the tank and hold-down system should meet or exceed the buoyancy force of the tank.

5) Drainage and Overflow. Rainwater storage tanks shall be provided with a means of draining and cleaning. The overflow drain shall not be equipped with a shutoff valve. Where the overflow drain discharges to the storm

drainage system, the overflow drain shall be protected from backflow of the storm drainage system by a backwater valve or other approved method.

A) Overflow Outlet Size. The overflow outlet shall be sized to accommodate the flow of the rainwater entering the tank and not less than the aggregate cross-sectional area of all inflow pipes.

B) Opening and Access Protection

i) Animals and Insects. Rainwater tank openings shall be protected to prevent the entrance of insects, birds, or rodents into the tank.

ii) Human Access. Rainwater tank access openings exceeding 12 inches in diameter shall be secured by a lockable device to prevent tampering and unintended entry.

6) Marking. Rainwater tanks shall be permanently marked with the capacity and the following language: "NON-POTABLE RAINWATER." Where openings are provided to allow a person to enter the tank, the opening shall be marked with the following language: "DANGER - CONFINED SPACE."

j) Pumps. Pumps serving rainwater catchment systems shall be labeled. Pumps supplying water to water closets, urinals, and trap primers shall be capable of delivering not less than 15 psi residual pressure at the highest and most remote outlet served. Where the water pressure in the rainwater supply system within the building exceeds 65 psi, a pressure reducing valve reducing the pressure to 60 psi or less to all water outlets in the building shall be installed in accordance with Section 890.1210(g).

k) Roof Drains. Primary and secondary roof drains, conductors, leaders, and gutters shall be designed and installed in accordance with accepted engineering practices.

l) Water Quality Devices and Equipment. Devices and equipment used to treat rainwater to maintain the minimum water quality requirements determined by the

Department or authority having jurisdiction shall be labeled and approved for the intended application.

m) Freeze Protection. Tanks and piping installed in locations subject to freezing shall be provided with an adequate means of freeze protection.

n) Debris Removal. The rainwater catchment conveyance system shall be equipped with a debris excluder or other approved means to prevent the accumulation of leaves, needles, other debris and sediment from entering the storage tank. Devices or methods used to remove debris or sediment shall be accessible and sized and installed in accordance with manufacturer's installation instructions.

o) Required Filters. A filter permitting the passage of particulates no larger than 100 microns (100 µm) shall be provided for rainwater supplied to water closets, urinals, trap primers, and drip irrigation system.

p) Roof Gutters. Gutters shall maintain a minimum slope.

q) Signs. Signs in buildings using rainwater water shall be in accordance with the following:

1) Commercial, Industrial, and Institutional Restroom Signs. A sign shall be installed in all restrooms in commercial, industrial, and institutional occupancies using non-potable rainwater for water closets, urinals or both. Each sign shall contain 1/2-inch letters of a highly visible color on a contrasting background. The sign or signs shall be located to be visible to all users. The number and location of the signs shall be approved by the Department or authority having jurisdiction and shall contain the following text: TO CONSERVE WATER, THIS BUILDING USES RAINWATER TO FLUSH TOILETS AND URINALS.

2) Equipment Room Signs. Each equipment room containing non-potable rainwater equipment shall have a sign posted with the following wording in 1-inch letters: CAUTION NON-POTABLE RAINWATER, NOT FOR CONSUMPTION. DO NOT CONNECT TO DRINKING WATER SYSTEM. NOTICE: CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM.

This sign shall be posted in a location that is visible to anyone working on or near rainwater water equipment.

r) Inspection and Testing. Rainwater catchment systems shall be inspected and tested in accordance with the following:

1) Supply System Inspection and Test. Rainwater catchment systems shall be inspected and tested in accordance with the applicable provisions of Section 890.1180(b)(3) for testing of potable water.

2) Annual Cross-Connection Inspection and Testing. An initial and subsequent annual inspection and test required by subsection (d) shall be performed on both the potable and rainwater catchment water systems. The potable and rainwater catchment water system shall be isolated from each other and independently inspected and tested to ensure that there is no cross-connection, in accordance with the following:

A) Visual System Inspection. Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by the Department or authority having jurisdiction, checking the following:

i) Pumps;

ii) Equipment;

iii) Equipment room signs; and

iv) Exposed piping in equipment rooms.

B) Cross-Connection Test. The procedure for determining cross-connection shall be followed by the registered plumbing contractor in the presence of staff of the Department or authorities having jurisdiction to determine whether a cross-connection has occurred as follows:

i) The potable water system shall be activated and pressurized. The rainwater catchment water system shall be shut down and completely drained.

ii) The potable water system shall remain pressurized for a minimum period of time specified by the Department or authority having jurisdiction while the rainwater catchment water system is empty. The minimum time period that the rainwater catchment water system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and rainwater catchment water distribution systems, but in no case shall that time period be less than one hour.

iii) Potable and rainwater fixtures shall be tested and inspected for flow. Flow from any rainwater catchment water system outlet shall indicate a cross-connection. No flow from a potable water outlet shall indicate that it is connected to the rainwater water system.

iv) The drain on the rainwater catchment water system shall be checked for flow during the test and at the end of the test period.

v) The potable water system shall then be completely drained.

vi) The rainwater catchment water system shall then be activated and pressurized.

vii) The rainwater catchment water system shall remain pressurized for a minimum period of time specified by the Department or authority having jurisdiction while the potable water system is empty. The minimum period that the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than one hour.

viii) Potable and rainwater catchment fixtures, shall be tested and inspected for flow. Flow from any potable water system outlet shall indicate a cross-connection. No flow from a rainwater catchment water outlet shall indicate that it is connected to the potable water system.

ix) The drain on the potable water system shall be checked for flow during the test and at the end of the period.

x) If there is no flow detected in any of the fixtures that would indicate a cross-connection, the potable water system shall be repressurized.

C) Discovery of Cross-Connection. In the event that a cross-connection is discovered, the following procedure, in the presence of the Department or authority having jurisdiction, shall be activated immediately:

i) Rainwater catchment water piping to the building shall be shut down at the meter, and the rainwater water riser shall be drained.

ii) Potable water piping to the building shall be shut down at the meter.

iii) The cross-connection shall be uncovered and disconnected.

iv) The building shall be retested following procedures listed in subsections (r)(2)(A) and (B).

v) The potable water system shall be chlorinated with 50 ppm chlorine for 24 hours.

vi) The potable water system shall be flushed after 24 hours, and a standard bacteriological test shall be performed. If test results are acceptable, the potable water system shall be permitted to be recharged.

D) Annual Inspection. The rainwater catchment water system shall be inspected annually, following the procedures listed in subsection(r)(2)(A). The Department or authority having jurisdiction will require annual cross-connection testing, following the procedures in subsection (r)(2)(B), when any portion of the rainwater catchment system is installed within a building. In no event shall the test occur less than once in four years.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.2150 Water Heating Design, Equipment and Installation

This Section establishes the means of conserving potable and non-potable water and energy associated with the generation and use of hot water in a building. This includes provisions for the hot water distribution system, which is the portion of the potable water distribution system between a water heating device and the plumbing fixtures, including all dedicated return piping and appurtenances to the water heating device in a recirculation system.

a) Service hot water – low rise residential buildings. The service water heating system for single-family houses, multi-family structures of three or fewer stories above grade, and modular houses shall be in accordance with subsections (b)-(e). The service water heating system of all other buildings shall be in accordance with subsection (k).

b) Heaters and storage tanks. Residential-type water heaters, pool heaters, and unfired water heater storage tanks shall meet the minimum performance requirements specified by federal law. Unfired storage water heating equipment shall have a heat loss through the tank surface area of less than 6.5 British thermal units per hour per square foot ($Btu/h \cdot ft^2$). [ASHRAE 90.2:7.1]

c) Recirculation Systems

1) Pump Operation. Circulating hot water systems shall be arranged so that the circulating pump or pumps can be turned off (automatically or manually) when the hot water system is not in operation [ASHRAE 90.2:7.2].

2) Demand Controlled. The circulation pump shall not operate continuously, be controlled by a timer, or have the pump operation initiated by water temperature. The circulation pump shall operate only when a signal is received shortly before hot water is desired at the fixture.

3) System Balancing. Systems with multiple recirculation zones shall be balanced to uniformly distribute hot water, or they shall be operated with a pump for each zone.

4) Flow Balancing Valves. Flow balancing valves shall be a factory preset automatic flow control valve, a flow regulating valve, or a balancing valve with memory stop.

5) Air Elimination. Air shall be eliminated from the return system.

6) Gravity or thermosyphon systems are prohibited.

d) Central Water Heating Equipment. Service water heating equipment (central systems) that does not fall under the requirements for residential-type service water heating equipment addressed in Section 890.2150(a) shall meet the applicable requirements for service water-heating equipment found in Section 890.2150(k). [ASHRAE 90.2:7.3]

e) Insulation. Hot water supply and return piping shall be thermally insulated. The wall thickness of the insulation shall be equal to the nominal diameter of the pipe up to 2 inches. The wall thickness shall be not less than 2 inches for nominal pipe diameters exceeding 2 inches. The conductivity of the insulation [k-factor (Btu•in/(h•ft^2•^{o}F))], measured radially, shall be less than or equal to 0.28 [Btu•in/(h•ft^2•^{o}F)]. Hot water piping shall be installed so that insulation is continuous. Pipe insulation shall be installed to within 1/4 inch of all appliances, appurtenances, fixtures, structural members, or a wall where the pipe passes through to connect to a fixture within 24 inches. Building cavities shall be large enough to accommodate the combined diameter of the pipe plus the insulation, plus any other objects in the cavity that the piping must cross. Pipe supports shall be installed on the outside of the pipe insulation. Exceptions:

1) Where the hot water pipe is installed in a wall that is not of sufficient width to accommodate the pipe and insulation, the insulation thickness

shall be permitted to have the maximum thickness that the wall can accommodate and not less than 1/2 inch thick.

2) Hot water supply piping exposed under sinks, lavatories, and similar fixtures for public use shall comply with Illinois Accessibility Act.

f) Hard Water. Where water has hardness equal to or exceeding 9 grains per gallon (gr/gal) measured as total calcium carbonate equivalents, the water supply line to water heating equipment in new one- and two-family dwellings shall be roughed in to allow for the installation of water treatment equipment.

g) Maximum Volume of Hot Water. The maximum volume of water contained in hot water distribution lines between the water heater and the fixture stop or connection to showers, kitchen faucets, and lavatories shall be determined in accordance with subsection (h), (i), or (j). The water volume shall be calculated using Appendix A.Table W.

h) Hot Water Distribution Line. The central core and remote manifold plumbing system hot water distribution line volume to each qualified fixture shall not exceed volume of 32 ounces (oz).

i) Central Manifold. The central manifold plumbing hot water system (also referred to as parallel piping or home run), including the supply line from the hot water source to the manifold, the internal volume of the manifold, and the lines to each qualified fixture shall not exceed a volume of 32 ounces.

j) Recirculation Loop. Run out lines from the hot water recirculation loop shall not exceed a volume of 16 ounces. Residential hot water recirculation systems are limited to those that use on-demand activation of the circulating pump.

k) Other Than Low-Rise Residential Buildings. The service hot water, other than single family houses, multi-family structures of three or fewer stories above grade, and modular houses, shall comply with this Section.

1) New Buildings. Service water heating systems and equipment shall comply with the subsection (l) [ASHRAE 90.1:7.11.1].

2) Additions to Existing Buildings. Service water heating systems and equipment shall comply with the requirements of this Section. Exception: When the service water heating to an addition is provided by existing service water heating systems and equipment, the systems and equipment shall not be required to comply with this Subpart. However, any new systems or equipment installed shall comply with specific requirements applicable to those systems and equipment [ASHRAE 90.1:7.1.1.2].

3) Alterations to Existing Buildings. Building service water heating equipment installed as a direct replacement for existing building service water heating equipment shall comply with the requirements of subsection (k) that are applicable to the equipment being replaced. New and replacement piping shall comply with Section 890.2150(o). Exception: Compliance shall not be required where there is insufficient space or access to meet these requirements [ASHRAE 90.1:7.1.1.3].

l) Compliance. Compliance shall be achieved by meeting the requirements of subsection (a), subsection (n), and subsection (s) [ASHRAE 90.1:7.2.1].

m) Energy Cost Budget Method. Projects using the Energy Cost Budget Method [Section 11 of ASHRAE 90.1, Energy Cost Budget Method] for demonstrating compliance with the standard shall meet the requirements of subsection (n), in conjunction with Section 11 of ASHRAE 90.1 [ASHRAE 90.1:7.2.2].

n) Mandatory Provisions

1) Load Calculations. Service water heating system design loads for the purpose of sizing systems and equipment shall be determined in accordance with manufacturers' published sizing guidelines or generally accepted engineering standards and handbooks acceptable to the authority having jurisdiction e.g., ASHRAE Handbook – HVAC Applications) [ASHRAE 90.1:7.4.1].

2) Equipment Efficiency. Water heating equipment, hot-water supply boilers used solely for heating potable water, pool heaters, and hot water storage tanks shall meet the criteria listed in Appendix A.Table X. Where multiple criteria are listed, all criteria shall be met. Omission of minimum performance requirements for certain classes of equipment

does not preclude use of the equipment where appropriate. Equipment not listed in Appendix A.Table X has no minimum performance requirements. Exceptions: Water heaters and hot water supply boilers having more than 140 gallons of storage capacity are not required to meet the standby loss (SL) requirements of Appendix A.Table X when the following conditions exist:

A) The tank surface is thermally insulated to R-12.5;

B) A standing pilot light is not installed; and

C) Gas- or oil-fired storage water heaters have a flue damper or fan-assisted combustion [ASHRAE 90.1:7.4.2].

o) Hot Water System Design

1) Recirculation System Balancing. Systems with multiple recirculation zones shall be balanced to uniformly distribute hot water, or they shall be operated with a pump for each zone. Exception: Systems with multiple recirculation zones that are designed to distribute hot water with differing temperatures.

2) Flow Balancing Valves. Flow balancing valves shall be factory preset automatic flow control valves, flow regulating valves, or balancing valves with memory stop.

3) Air Elimination. Air shall be eliminated from the return line of a recirculation system.

4) Maximum Volume of Hot Water. The maximum volume of water contained in hot water distribution lines between the water heater and the fixture stop or connection to showers, kitchen faucets, and lavatories shall be determined in accordance with subsection (g).

p) Service Water Heating System Controls

1) Temperature Controls. Temperature controls shall be provided that allow for storage temperature adjustment from120 degrees Fahrenheit

or lower to a maximum temperature compatible with the intended use. Exception: When the manufacturers' installation instructions specify a higher minimum thermostat setting to minimize condensation and resulting corrosion [ASHRAE 90.1:7.4.4.1].

2) Temperature Maintenance Controls. Systems designed to maintain usage temperatures in hot-water pipes, such as recirculating hot-water systems or heat trace, shall be equipped with automatic time switches or other controls that can be set to switch off the usage temperature maintenance system during extended periods when hot water is not required [ASHRAE 90.1:7.4.4.2].

3) Outlet Temperature Controls. Temperature controlling means shall be provided to limit the maximum temperature of water delivered from lavatory faucets in public facility restrooms to 110 degrees Fahrenheit[ASHRAE 90.1:7.4.4.3].

4) Circulating Pump Controls. When used to maintain storage tank water temperature, recirculating pumps shall be equipped with controls limiting operation to a period from the start of the heating cycle to a maximum of five minutes after the end of the heating cycle [ASHRAE 90.1:7.4.4.4].

q) Heat Traps. Vertical pipe risers serving storage water heaters and storage tanks not having integral heat traps and serving a non-recirculating system shall have heat traps on both the inlet and outlet piping as close as practical to the storage tank. A heat trap is a means to counteract the natural convection of heated water in a vertical pipe run. The means is either a device specifically designed for the purpose or an arrangement of tubing that forms a loop of 360 degrees or piping that from the point of connection to the water heater (inlet or outlet) includes a length of piping directed downward before connection to the vertical piping of the supply water or hot-water distribution system, as applicable [ASHRAE 90.1:7.4.6].

r) Prescriptive Path. Space Heating and Water Heating. The use of a gas-fired or oil-fired space-heating boiler system otherwise complying with subsection (k) to provide the total space heating and water heating for a building is allowed when one of the following conditions is met and the other requirements of this Part are met:

1) The single space-heating boiler, or the component of a modular or multiple boiler system that is heating the service water, has a standby loss in Btu/h (kW) not exceeding (13.3 × pmd + 400)/n, where (pmd) is the probable maximum demand in gallons per hour, determined in accordance with the procedures described in generally accepted engineering standards, and handbooks, and (n) is the fraction of the year when the outdoor daily mean temperature is greater than 64.9 degrees Fahrenheit.

2) The standby loss is to be determined for a test period of 24 hours duration while maintaining a boiler water temperature of at least 90 degrees Fahrenheit above ambient, with an ambient temperature between 60 degrees Fahrenheit and 90 degrees Fahrenheit. For a boiler with a modulating burner, this test shall be conducted at the lowest input.

3) Single heat source system will consume less energy than separate units.

4) The energy input of the combined boiler and water heater system is less than 150,000 British thermal units per hour (Btu/h) [ASHRAE 90.1:7.5.1].

s) Service Water Heating Equipment. Service water heating equipment used to provide the additional function of space heating as part of a combination (integrated) system shall satisfy all stated requirements for the service water heating equipment [ASHRAE 90.1:7.5.2].

t) Heat Recovery for Service Water Heating

1) Condenser heat recovery systems shall be installed for heating or preheating of service hot water provided that all of the following are true:

A) The facility operates 24 hours a day;

B) The total installed heat rejection capacity of the water-cooled systems exceeds 6,000,000 Btu/h of heat rejection; and

C) The design service water heating load exceeds 1,000,000 Btu/h [ASHRAE 90.1:6.5.6.2.1].

2) The required heat recovery system shall have the capacity to provide the smaller of:

A) 60 percent of the peak heat rejection load at design conditions; or

B) Preheat of the peak service hot water draw to 85 degrees Fahrenheit [ASHRAE 90.1:6.5.6.2.2]. Exceptions:

i) Facilities that employ condenser heat recovery for space heating with a heat recovery design exceeding 30 percent of the peak water-cooled condenser load at design conditions; and

ii) Facilities that provide 60 percent of their service water heating from site-solar or site-recovered energy or from other sources.

u) Solar Water Heating Systems. The erection, installation, alteration, addition to, or use or maintenance of solar water heating systems shall be in accordance with this Section and the Uniform Solar Energy Code. Solar energy systems that use a heat transfer fluid shall be inspected annually, unless inspections are required on a more frequent basis by the solar energy system manufacturer.

v) Where water has hardness equal to or exceeding 10 gr/gal measured as total calcium carbonate equivalents, the water supply line to water heating equipment and the circuit of boilers shall be softened or treated to prevent accumulation of lime scale and consequent reduction in energy efficiency.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.APPENDIX A Plumbing Materials, Equipment, Use Restrictions and Applicable Standards

Abbreviations used in Appendix A, Table A, refer to the following agencies or organizations:

1) ANSI – American National Standards Institute;
1819 L Street, N.W., 11th Floor, Washington, DC 20036.

2) ARI – Air-Conditioning, Heating, and Refrigeration Institute (AHRI); 2111 ~~1501~~ Wilson Boulevard, Suite 500, Arlington, Virginia 22201~~9~~.
3) ASHRAE – American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.; 1791 Tullie Circle, NE, Atlanta, Georgia 30329-~~2305~~.
4) ASME – American Society of Mechanical Engineers; Three Park Avenue, New York, New York 10016-5990.
5) ASSE – American Society of Sanitary Engineering; 901 Canterbury Road, Suite A, Westlake, Ohio 44145~~-9201~~.
6) ASTM – American Society for Testing and Materials; 100 Barr Harbor Drive, West Conshohocken, ~~1916 Race Street, Philadelphia,~~ Pennsylvania 19428 ~~19103-1187~~.
7) AWWA – American Water Works Association; 6666 West Quincy Avenue, Denver, Colorado 80235.
8) CISPI – Cast Iron Soil Pipe Institute; 1064 Delaware Avenue SE, Atlanta, Georgia 30316 ~~Suite 419, 5959 Shallowford Road, Chattanooga, Tennessee 37421.~~
9) FM – Factory Mutual Approvals ~~Standard~~; 1151 Boston-Providence Turnpike, PO Box 9102, Norwood, Massachusetts 02062.
10) NSF (National Sanitation Foundation) International; 789 N Dixboro Road, Ann Arbor, Michigan 48105.
11) PDI – Plumbing and Drainage Institute; 800 Turnpike Street, Suite 300 North Andover, Massachusetts 01845. ~~45 Bristol Drive, Suite 101, South Easton, Massachusetts 02375~~
12) UL – Underwriters Laboratories, Inc.; 333 Pfingsten Road, Northbrook, Illinois 60062-2096.

Approved Certification Agencies

1) ASSE – American Society of Sanitary Engineering; 901 Canterbury Road, Suite A, Westlake, Ohio 44145~~-9201~~.
2) CSA (Canadian Standards Association) International; 8501 E. Pleasant Valley Road, Cleveland, Ohio 44131-5575.
3) IAPMO – International Association of Plumbing and Mechanical Officials; 4755 E Philadelphia Street, Ontario, California 91761 ~~20001 South Walnut Drive, Walnut, California 91789-2825~~.

4) ICC − International Code Council; 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001. ~~5203 Leesburg Pike, Suite 600, Falls Church, Virginia 22041.~~

~~5)~~ ~~Intertek Testing Services NA, Inc.; 3933 U.S. Route 11, P.O. Box 2040, Cortland, New York 13045-0950.~~

5~~6~~) NSF (National Sanitation Foundation) International; 789 N Dixboro Road, Ann Arbor, Michigan 48105.

6~~7~~) PDI − Plumbing and Drainage Institute; 800 Turnpike Street, Suite 300 North Andover, Massachusetts 01845 ~~45 Bristol Drive, Suite 101, South Easton, Massachusetts 02375.~~

7~~8~~) Truesdail Laboratories, Inc.; 14201 Franklin Avenue, Tustin, California 92780-7008 ~~92680~~.

8~~9~~) UL – Underwriter Laboratories, Inc.; 333 Pfingsten Road, Northbrook, Illinois 60062-2096.

9) U.S. EPA– United States Environmental Protection Agency; 1200 Pennsylvania Avenue, N.W., Washington, DC 20460

10) WQA – Water Quality Association; 4151, Naperville Road, Lisle, Illinois 60532-3696

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.APPENDIX A Plumbing Materials, Equipment, Use Restrictions and Applicable Standards

Section 890.TABLE A Approved Materials and Standards

All materials shall ~~must~~ meet at least one of the approved standards listed.

Approved Building Drainage/Vent Pipe

1)	Acrylonitrite Butadiene Styrene (ABS) Pipe	ASTM D 2661-2011 ~~1997A~~ ASTM F 628-2012 ~~1997~~ CSA B181.1-2011 in B1800~~1999~~
	Joints	ASTM D 2235-2011 ~~1996a~~ CSA B602-2010 ~~1999~~
	Solvent Cement[1]	ASTM D 2235-2011 ~~1996a~~ ASTM D3138-2011

		CSA B181.1-2011 in B1800 ~~1999~~
2)	Brass Pipe	ASTM B 43-2009 ~~1998~~
3)	Cast Iron Pipe	ASTM A 74-2009 ~~1998~~ ASTM A 888-2011 ~~1998e1~~ ASTM C 564-2012 ~~1997~~ CISPI 301-2009 ~~1999~~ CSA B70-2012 ~~1997~~ FM 1680-1989
4)	Chlorinated Polyvinyl Chloride (CPVC) (Pipe and Fittings for Chemical Waste Drainage Systems)	ASTM F2618-2009
5~~4~~)	Copper/Copper Alloy Pipe	ASTM B 42-2010 ~~1996~~ ASTM B 302-2012 ~~1998~~
6~~5~~)	Copper/Copper Alloy Tubing (K-L-M or DWV)[2]	ASTM B 75/B75M-2011 ~~1997~~ ASTM B 88-2009 ~~1996~~ ASTM B 251-2010 ~~1997~~ ASTM B 306-2009 ~~1996~~
7~~6~~)	Galvanized Steel Pipe[2,5]	ASTM A 53/A53M-2012 ~~1998~~ ~~ASTM A 120-1984~~
8~~7~~)	Glass Fiber Borosilicate Pipe[3]	ASTM C 1053-2010 ~~1995~~
9~~8~~)	High Silicon Content Cast Iron Pipe[3]	ASTM A 377-2008e1 ~~1984~~ CSA B70-2012 ~~1997~~
10~~9~~)	Polypropylene Pipe[3]	~~ASTM F 492-1995~~ CSA B137.1-2009 ~~1999~~ in B137
11~~10~~)	Polyvinyl Chloride (PVC) Pipe and Fittings	ASTM D 2665-2012 ~~1996~~ ASTM D 2949-2010 ~~1987~~

		CSA B137.2-2009 ~~1999~~ in B137 CSA B181.2-2011 in B1800 ~~1999 in B137~~
12~~11~~)	Polyvinyl Chloride (PVC) Pipe with Cellular Core[4]	ASTM F 891-2010 ~~1996~~ ASTM F1760-2011
	Joints	ASTM D 2855-2010 ~~1996~~
	Primer	ASTM F 656-2010 ~~1996~~
	Solvent Cement[1]	ASTM D 2564-2012 ~~1996~~ ASTM D3138-2011
13~~12~~)	Polyvinylidene Fluoride[3]	ASTM D 3222-2010 ~~1988~~
14~~13~~)	Solder	ASTM B 32-2008 ~~1993~~
15~~14~~)	Stainless Steel – types 304 and 316L	ASME~~/ANSI~~ A112.3.1-2007 (R2012) ~~199~~
16~~15~~)	Stainless Steel Buttweld Fittings	~~ASTM A774.A403~~ ASTM A403/A403M-2012 ASTM A774/A774M-2009
17~~16~~)	Stainless Steel Flanges	ASTM A 240/A240M-2012a
~~17)~~	~~Steel~~	~~ASME B 16.9 1993~~ ~~ASME B 16.11 1997~~ ~~ASME B 16.28 1994~~
18)	Identification of Piping Systems	ASME A13.1-2007

Agency Notes:

[1]Solvent cement must be handled in accordance with ASTM F 402-1993.
[2]Type M copper tubing, DWV copper tubing, and galvanized steel pipe are approved for above-ground uses only.
[3]Approved for corrosive waste or corrosive soil conditions.
[4]PVC pipe with cellular core is approved only for gravity drainage and venting.

DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

[5]ASME B.1.20.1-1983

Approved Materials for Building Sewer

1)	Acrylonitrite Butadiene Styrene (ABS) Pipe	ASTM D 2661-2011 ~~1997A~~ ASTM D 2751-2005 ~~1996a~~ ASTM F 628-2012 ~~1997~~ CSA B181.1-2011 ~~1999~~ in B1800
	Joints	ASTM D 2235-2011 ~~1996a~~ CSA B602-2010 ~~1999~~
	Solvent Cement[1]	ASTM D 2235-2011 ~~1996a~~ ASTM D3138-2011 CSA B181.1-2011 ~~1999~~ in B1800
2)	Asbestos Cement Pipe	ASTM C 428/C428M-2011e1 ~~1997~~ CSA B127.1-1999 (R2009) ~~CSA B127.2-M1977 (R1997)~~
3)	Cast Iron Soil Pipe/Fittings	ASTM A 74-2009 ~~1998~~ CSA B70-2012 ~~1997~~
	Hubless Soil Pipe	CISPI 301-2009 ~~1999~~ CISPI 310-2011 ~~1997~~ CSA B70-2012 ~~1997~~ FM 1680-1989
	Rubber Gaskets	ASTM C 564-2012 ~~1997~~ ASTM D4161-2010 CSA B70-2012 ~~1997~~ CSA B602-2010 ~~1999~~
4)	Copper/Copper Alloy Tubing	ASTM B 88-2009 ~~1996~~
5)	Concrete Pipe	ASTM C 14-2011 ~~1995~~ ASTM C 76-2013 ~~1995~~ ASTM C443-2012 CSA B602-2010 ~~1999~~

6)	High-Density Polyethylene (HDPE) Pipe	ASTM D3350-2012
7~~6~~)	Polyvinyl Chloride (PVC) Pipe	ASTM F 1866-2007 ~~1998~~ ASTM D 2665-2012 ~~1998~~ ASTM D 2949-2010 ~~1998~~ ASTM D 3034-2008 ~~1998~~ CSA B182.1-2011 ~~1999~~ in B1800 CSA B182.2-2011 ~~1999~~ in B1800 CSA B182.4-2011 ~~1999~~ in B1800 CSA B181.2-2011 ~~1999~~ in B1800
	Joints	ASTM D 2855-2010 ~~1996~~ ASTM D3212-2013 CSA B602-2010 ~~1999~~
	Primer	ASTM F 656-2010 ~~1996a~~
	Solvent Cement[1]	ASTM D 2564-2012~~1996a~~ ASTM D3138-2011 CSA B181.2-2011 ~~1999~~ in B1800
8~~7~~)	Polyvinyl Chloride (PVC) Pipe with Cellular Core[2]	ASTM F 891-2010 ~~1996~~
	Joints	ASTM D 2855-2010 ~~1996~~ ASTM D412-2006ae2
	Primer	ASTM F 656-2010 ~~1996~~
	Solvent Cement[1]	ASTM D 2564-2012 ~~1996~~ ASTM D3138-2011
9)	Solder	ASTM B 32-2008 ~~1996~~
10~~8~~)	Vitrified Clay Pipe[2]	ASTM C 4-2009 ~~1998~~ ASTM C 700-2013 ~~1997~~ ASTM C425-2009
11)	Polypropylene Pipe[2]	ASTM F2389-2010

		AWWA C901-2008 AWWA C906-2012 (Material Code PE3408)[3] (Material Codes PE2406 and PE3406)[4]
12)	Identification of Piping Systems	ASME A13.1-2007

Agency Note:

[1]Solvent cement must be handled in accordance with ASTM F 402-1988.
[2]PVC pipe with cellular core and vitrified clay pipe ~~pope~~ are approved only for gravity drainage.
[3]Dimension Ratio (DR) 17 or less.
[4]Dimension Ratio (DR) 13.5 or less.

Approved Materials for Water Service Pipe

1)	Acrylonitrite Butadiene Styrene (ABS) Pipe[2]	ASTM D 1527-2005 ~~1996a~~ ~~ASTM D 2282-1996a~~
	Joints	ASTM D 2235-2011 ~~1996a~~
	Solvent Cement[1]	ASTM D 2235-2011 ~~1996a~~
2)	Brass Pipe[2]	ASTM B 43-2009 ~~1998~~
3)	Cast Iron (ductile iron)[2]	ASTM A 377-2008e1 ~~1984~~
	Water Pipe	CSA B70-2012 ~~1997~~ AWWA C151-2009
4)	Chlorinated Polyvinyl Chloride (CPVC) Pipe[2]	ASTM D 2846/D2846M-2009be1 ~~1997M~~ ASTM F 441/F441M-2012 ~~1997~~ ASTM F 442/F442M-2012 ~~1997~~ CSA B137.6-2009 ~~1999~~ in B137
	Joints	ASTM D 2846/D2846M-2009be1 ~~1997M~~ CSA B137.6-2009 ~~1999~~ in B137
	Solvent Cement ~~(Orange)~~[1]	ASTM F 493-2010 ~~1997~~ CSA B137.6-2009 ~~1999~~ in B137

5)	Copper/Copper Alloy Pipe[2, 3]	ASTM B 42-2010 ~~1996~~ ASTM B 302-2012 ~~1998~~
6)	Copper/Copper Alloy Tubing[2,3]	ASTM B 88-2009 ~~1996~~
7)	Galvanized Steel Pipe[2,6]	ASTM A 53/A53M-2012 ~~1998~~ ~~ASTM A 120-1984~~
8)	Poly Butylene (PB) Pipe/Tubing[2]	~~ASTM D 2662-1996a~~ ~~ASTM D 2666-1996a~~ ~~ASTM D 3309-1997a~~ ~~CSA B137.7-1999 in B137~~ CSA B137.8-2009 ~~1999~~ in B137
9)	Polyethylene (PE) Pipe[2]	ASTM D 2239-2012a ~~1996a~~ AWWA C901-2008 AWWA C906-2012 (Material Code PE3408)[4] (Material Codes PE2406 and PE3406)[5]
10)	Polyethylene (PE) Tubing[2]	ASTM D 2737-2012a ~~1996a~~ CSA B137.1-2009 ~~1999~~ in B137
11)	Polypropylene Pipe[2]	ASTM F2389-2010
12~~11~~)	Polyvinyl Chloride (PVC) Pipe[2]	ASTM D 1785-2012 ~~1996b~~ ASTM D 2241-2009 ~~1996b~~ ASTM D 2672-2009 ~~1996a~~ ASTM F477-2010 AWWA C900-2007 CSA B137.3-2009 ~~1999~~ in B137
	Joints	ASTM D 2855-2010 ~~1996~~ ASTM D3139-2011 CSA B137.2-2009 ~~1999~~ in B137 CSA B137.3-2009 ~~1999~~ in B137
	Primer	ASTM F 656-2010 ~~1996a~~

	Solvent Cement[1]	ASTM D 2564-2012 ~~1996a~~ CSA B137.3-2009 ~~1999~~ in B137
13)	Stainless Steel Pipe[2]	ASTM A312/A312M-2012a ASTM A403/A403M-2012 ASTM A511/A511M-2012
14~~12~~)	Welded Copper Water Tube[2]	ASME B31.1-2012 ASTM B 447-2012a WK, ~~WL,~~ and WLM ~~1997~~
15~~13~~)	Solder	ASTM B 32-2008 ~~1996~~

Agency Note:
[1]Solvent cement must be handled in accordance with ASTM F 402-2012.
[2]Water service pipe must meet the appropriate NSF standard for potable water.
[3]Type K or L copper may be installed underground.
[4]Dimension Ratio (DR) 17 or less.
[5]Dimension Ratio (DR) 13.5 or less.
[6]ASME B.1.20.1-1983

Approved Materials for Water Distribution Pipe

1)	Brass Pipe[2]	ASTM B 43-2009 ~~1998~~
2)	Chlorinated Polyvinyl Chloride[2] (CPVC) Pipe/Tubing	ASTM D 2846/D 2846M-2009be1 ~~1997M~~ ASTM F 441/F441M-2012 ~~1997~~[3] ASTM F 442/F442M-2012 ~~1997~~[3] CSA B137.6-2009 ~~1999~~ in B137
	Joints	ASTM D 2846/D2846M-2009be1 ~~1997M~~ CSA B137.6-2009 ~~1999~~ in B137
	Solvent Cement ~~(Orange)~~[1]	ASTM F 493-2010 ~~1997~~ CSA B137.6-2009 ~~1999~~ in B137
3)	Copper/Copper Alloy Pipe[2]	ASTM B 42-2010 ~~1996~~

		ASTM B 302-2012 ~~1998~~ AWWA C606-2011
4)	Copper/Copper Alloy Tubing[2]	ASTM B 88-2009 ~~1996~~
5)	Cross Linked Polyethylene[2] Distribution Systems	ASTM F 876-2010e1 ~~2000~~ ASTM F 877-2011a ~~2000~~ ASTM F1807-2012 ASTM F1960-2012 ASTM F2080-2012 ASTM F2098-2008 ASTM F2159-2011 ASSE 1061-2011 CSA B137.5-2009 ~~1999~~ in B137
6)	Galvanized Steel Pipe[2,4]	ASTM A 53/A 53M-2012 ~~1998~~ ~~ASTM A 120-1984~~ AWWA C606-2011
7)	Poly Butylene (PB) Pipe/Tubing[2]	~~ASTM D 3309-1997a~~ ~~CSA B137.7-1999 in B137~~ CSA B137.8-2009~~1999~~ in B137
8)	Polypropylene Pipe[2]	ASTM F 2389-2010
9~~8~~)	Polyvinyl Chloride (PVC) Pipe[2, 3,5]	ANSI/NEMA Z535.1-2006 (R2011) ASTM D 1785-2012 ~~1996b~~ ASTM D 2241-2009 ~~1996b~~ ASTM D 2672-2009 ~~1996a~~ CSA B137.3-2009 ~~1999~~ in B137
	Joints	ASTM D 2855-2010 ~~1996~~ ASTM F441/F441M-2012 CSA B137.2-2009 ~~1999~~ in B137 CSA B137.3-2009 ~~1999~~ in B137
	Primer Solvent Cement[1]	ASTM F 656-2010 ~~1996a~~ ASTM D 2564-2012 ~~1996a~~ CSA B137.3-2009 ~~1999~~ in B137

10)	Stainless Steel Pipe[2]	ASTM A312/A312M-2012 ASTM A403/A403M-2012 ASTM A511/A511M-2012
11~~9~~)	Welded Copper Water Tube[2]	ASTM B 447-2012a WK, WL, and WM~~-1997~~
12~~10~~)	Solder	ASTM B 32-2008 ~~1996~~

Agency Notes:

[1] Solvent cement must be handled in accordance with ASTM F 402-2012.
[2] Water distribution pipe must meet the appropriate NSF standard for potable water. Plastic shall be rated at 160 PSI at 73.4 degrees Fahrenheit.
[3] Use for cold or tempered water only.
[4] ASME B.1.20.1-1983
[5] Safety Color

Approved Materials and Standards for Plumbing Fixtures and Fixture Fittings

1)	Bathtub Liners (plexiglass/ABS or acrylic/plastic)	IAPMO/ANSI Z124.8-2013~~1990~~
2)	Bathtubs, Plastic	~~ANSI Z124.1-1995 and ANSI Z124.1a & b-1995~~ CSA B45.5-2011/IAPMO Z124-2011~~1999 in B45~~
3)	Bidets	ASME~~/ANSI~~ A112.19.2-2008/CSA B45.1-2008 ~~A 112.19.2M-1998 CSA B45-1999~~
4)	Enameled Cast Iron and Enameled Steel Plumbing Fixtures	ASME~~/ANSI~~ A112.19.1-2008/CSA B45.2-2008 ~~1M-1994 CSA B45.2-1999 in B45~~
5)	Fittings:	

	Plumbing Fixture Fittings (metering valves, faucets, etc.)	ASME~~/ANSI~~ A112.18.1-2012/CSA B125.1-2012 ~~M-2000~~ ~~CSA B125-2001~~
	Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, Hot Tubs and Whirlpool Bathtub Appliances	~~ASME/ANSI A112.19.7M-1995~~ ANSI/APSP 16-2011 CSA C22.2 No. 218.1-M1989 (R2011) CSA C22.2 No. 218.2-1993 (R2008)
6)	Floor Drains and Trench Drains	ASME A112.6.3-2001 (R2007) ~~A112.21.1M-98~~ CSA B79-2008 ~~1994 (R2000)~~
7)	Flushometer Bowls	ASME~~/ANSI~~ A112.19.2-2008/CSA B45.1-2008 ~~M-1998~~ CSA B125.3-2011 ~~2001~~
	Flushometers	~~ANSI/~~ASSE 1037-1990 CSA B125.3-2011 ~~-2001~~
8)	Grease Interceptors	~~PDI-~~/ASME~~/ANSI~~ A112.14.3-2000 (R2004)
9)	Low Consumption (1.6 gpf) Water Closets[1]	~~ASME/ANSI A112.19.2M-1998~~ ASME A112.19.2-2008/CSA B45.1-2008 ASME A112.19.14-2006 (R2011) ~~CSA B45.1-1999 in B45~~ ~~CSA B45.4-1999 in B45~~
10)	Plastic Lavatory	~~ANSI Z124.3a-1995~~ CSA B45.5-2011/IAPMO Z124-2011 ~~-1999~~
11)	Plastic Shower Receptors/Shower Stalls	~~ANSI Z124.2a-1995~~ CSA B45.5-2011/IAPMO Z124-2011 ~~1999~~
12)	Plastic Water Closets Bowls/Tanks	~~ANSI Z124.4-1996 and~~ ~~ANSI Z124.4a-1996~~

		CSA B45.5-2011/IAPMO Z124-2011 ~~1999 in B45~~
13)	Plastic Urinals Fixtures	CSA B45.5-2011/IAPMO Z124-2011
14~~13~~)	Porcelain Enameled Formed Steel Plumbing Fixtures, including Bathtub Liners	ASME A112.19.1-2008/CSA 45.2-2008/~~ANSI A112.19.4M-1994~~ ~~CSA B45.3-1999 in B45~~
15~~14~~)	Stainless Steel Plumbing Fixtures (Residential)	ASME A112.19.3-2008/CSA B45.4-2008 ~~ASME/ANSI A112.19.3M-1996~~ ~~CSA B45.4-1999 in B45~~
16~~15~~)	Vitreous China Plumbing Fixtures	ASME~~/ANSI~~ A112.19.2-2008/CSA B45.1-2008~~M-1998~~ ~~CSA B45.1-1999 in B45~~
17)	Vitreous China Nonwater Urinals	ASME A112.19.19-2006 (R2011)
18~~16~~)	Whirlpool Bathtub Appliances	ASME~~/ANSI~~ A112.19.7-2012/CSA B45.10-2012 ~~M-1995~~ ~~CSA C22.2 No. 0-M1991~~ ~~CSA C22.2 No. 14-1995~~ ~~CSA C22.2 No. 100-1995~~ CSA C22.2 No. 218.2-1993 (R2008) ~~CSA B45-1999~~ ~~CSA B45.10-2001~~ ~~CSA B125-2001~~ ~~CSA B137-1999~~

Agency Notes:

[1]The water pressure at each fixture installation shall meet the manufacturer's minimum recommended level for the fixture.

Approved Standards for Plumbing
Appliances/Appurtenances/Devices

DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

1)	Anti-Backflow Freezeless Wall Hydrants	~~ANSI/~~ASSE 1019-2011 ~~1997~~ ASME A112.18.1-2012/CSA B125.1-2012 ~~-2001~~
2)	Anti-Scald Control Valve	~~ANSI/~~ASSE 1016-2011/ASME A112.1016-2011/CSA B125.16-2011 ~~1996~~ ~~CSA B125-2001~~
3)	Anti-siphon Self Drain-Frost ~~Drawing Frost~~ Proof Sillcock	~~ANSI/~~ASSE 1019-2011 ~~1997~~ CSA B125.3-2012 ~~-2001~~
4)	Automatic Ice Making Equipment	NSF/ANSI 12-2009~~NSF #12-1993~~ CSA C22.2 No. 120-M1991 (R2008)
5)	Automatic Storage Type Water Heater Less Than 75,000 BTU/HR	ANSI Z21.10.1-2009/CSA 4.1-2009 ASHRAE 90.1-2010 ASHRAE 90.2-2007 ~~A-1980/~~ ANSI Z21.10.1a-2009/ ~~-1994~~ CSA 4.1a-2009 ~~M1998~~ ANSI Z21.10.1b-2011/CSA 4.1b-2011~~a-2000~~
6)	Back Water Valves	ASME~~/ANSI~~ A112.14.1-2003 (R2012)~~1998~~ CSA B181.1-2011 ~~1999~~ in B1800 CSA B181.2-2011 ~~1999~~ in B1800 CSA B182.1-2011 ~~1999~~ in B1800 CSA B70-2012~~1997~~
7)	Circulating Tank, Instantaneous	ANSI Z21.10.1-2009/CSA 4.1-2009 ~~a-1994/UL 49~~ ANSI Z21.10.1a-2009/CSA 4.1a-2009 ~~M1998~~

		ANSI Z21.10.1b-2011/CSA 4.1b-2011 ANSI Z21.10.3-2011/CSA 4.3-2011 ~~M1998~~ ANSI Z21.13-2010/CSA 4.9-2010 ~~2000~~ ANSI Z21.13a-2010/CSA 4.9a-2010 ANSI Z21.13b-2012/CSA 4.9b-2012 CSA B140.12-2003 (R2008) ~~1976~~ CSA C22.2 No. 110-1994 (R2009) UL 499-2005
8)	Circulating Tank, Instantaneous, Automatic	ANSI Z21.10.3-2011~~a 1990~~/CSA 4.3-2011 ANSI Z21.13-2010/CSA 4.9-2010 ANSI Z21.13a-2010/CSA 4.9a-2010 ANSI Z21.13b-2012/CSA 4.9b-2012 UL 174-2004 ~~1977~~ CSA 4.1-2011 ~~M1998~~ ~~CSA 4.3 M1998~~ ~~CSA 4.9 2000~~ CSA B140.12-2003 (R2008) ~~1976~~ CSA C22.2 No. 110-1994 (R2009)
9)	Detergent/Chemical Feeders for Commercial Use	~~ANSI/~~ASSE 1055-2009~~1997~~ CSA C22.2 No. 0-2010~~M1991~~ CSA C22.2 No. 0.4-2004 (R2009) ~~M1982~~ CSA C22.2 No. 68-1992 (R2008) CSA C22.2 No. 142-M1987 (R2009) ~~1997~~
10)	Dishwashing Machine (Commercial)	~~ANSI/~~ASSE 1004-2008 ~~1990~~ ANSI Z83.21-2005/CSA C22.2 No.

		168-2005 ANSI Z83.21a-2012/CSA C22.2 No. 168a-2012 CSA C22.2 No. 0-2010~~M1991~~ CSA C22.2 No. 0.4-2004 (R2009) ~~M1982~~ ~~CSA C22.2 No. 168-M1981~~
11)	Dishwashing Machine (Residential)	~~ANSI/~~ASSE 1006-1986 (R1989) CSA C22.2 No. 167-2008 ~~1997~~
12)	Diverters for Residential – Anti-Siphon	~~ASSE 1025-1978~~ ASME A112.18.1-2012/CSA B125.1-2012 ~~2001~~
13)	Double Check Detector Assembly	~~ANSI/~~ASSE 1048-2011 ~~1995~~ CSA B64-2011 ~~2001~~
14)	Double Check With Atmospheric Vent	ASSE 1012-2009 ~~1995~~ CSA B64-2011 ~~2001~~
15)	Double Check Valve Assembly	ASSE 1015-2011 ~~1999~~ CSA B64-2011 ~~2001~~
16)	Drinking Fountains	ARI 1010-2002 ~~1985~~ or ~~ASME A112.19.2M-1998~~ CSA B45-2008 ~~1999~~
17)	Drinking Water Treatment Units – Health Effects	NSF/ANSI 53-2011a~~#53-1999a~~
18)	Drinking Water Treatment Units – Aesthetic Effects	NSF/ANSI 42-2011 ~~#42-1999~~
19)	Drinking Water Treatment Chemicals	NSF/ANSI 60-2012 ~~#60-1999~~
20)	Dual Check Valve	~~ANSI/~~ASSE 1024-2004 ~~1998~~ CSA B64-2011 ~~2001~~

21)	Duel Check Valve (Carbonated Beverage) (Relief Port Required)	ASSE 1022-2003 ~~1996~~ CSA B64-2011 ~~2001~~
22)	Food Waste Disposal (Commercial)	~~ANSI/~~ASSE 1009-1990 CSA C22.2 No. 0-2010~~Nos. 0-M1991~~ CSA C22.2 No. 68-1992
23)	Food Waste Disposal (Residential)	ASSE 1008-2006 ~~1989~~ CSA C22.2 No. 0-2010~~Nos. 0-M1991~~ CSA C22.2 No. 68-2008 ~~1992~~
24)	Gas Water Heater Above 75,000 BTU	ANSI Z21.10.3-2011/CSA 4.3-2011~~a-1990/AGA CSA 4.3 M1998~~
25)	Gas Water Heater 75,000 BTU or Less	ANSI Z21.10.1-2009/CSA 4.1-2009 ANSI Z21.10.1a-2009/CSA 4.1a-2009 ~~1991 AGA~~ ANSI Z21.10.1b-2011/CSA 4.1b-2011~~-M1998~~
26)	Gas Water Heater (Continuous Use)	ANSI Z21.10.1-2009/CSA 4.1-2009 ANSI Z21.10.1a-2009/CSA 4.1a-2009 ~~1991~~ ANSI Z21.10.1b-2011/CSA 4.1b-2011~~-M1998~~
27)	Gas Water Heater – Space Heating	ANSI Z21.10.1-2009/CSA 4.1-2009 ANSI Z21.10.1a-2009/CSA 4.1a-2009 ~~1991~~ ANSI Z21.10.1b-2011/CSA 4.1b-2011~~-M1998~~

28)	Grease Interceptors	PDI-G 101-2010 ~~1985~~ ASME A112.14.3-2000 (R2004)
29)	Handheld Showers	ASSE 1014-2005 ~~1990~~ ASSE 1016-2011/ASME A112.1016-2011/CSA B125.16-2011 ~~2001~~
30)	Home Laundry Equipment	ASSE 1007-1986 (R1992) CSA C22.2 No. 0-2010~~M1991~~ CSA C22.2 No. 0.4 2004 (R2009) ~~M-1982~~ ~~CSA C22.2 No. 53-1968~~ CSA C22.2 No. 169-1997(R2012)
31)	Hot Water Dispensers-Electrical	~~ANSI/~~ASSE 1023-1979 CSA C22.2 No. 64-2010~~M1991~~
32)	Hot Water Generating/Heat Recovery Equipment	NSF/ANSI 5-2012 ~~#5-1992~~
33)	Ice Makers	UL 563-2009 ~~1975~~ CSA B45-2008 ~~1999~~ CSA C22.2 No. 0-2010~~M1991~~ CSA C22.2 No. 0.4-2004 (R2009) ~~M-1982~~ CSA C22.2 No. 63-1993 (R2008) CSA C22.2 No. 120-M1991 (R2008)
34)	Individual Pressure Balancing In-line valves for individuals fixture fittings	ASSE 1066-1997 ~~CSA B125-2001~~
35)	Mixing Valves Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations. ~~Individual Thermostatic Pressure Balancing and Combination Control Valves~~	ASSE 1016-2011/ASME A112.1016-2011/CSA B125.16-2011 ~~ANSI/ASSE 1016-1996~~ ~~CSA B125-2001~~

	Temperature Actuated Mixing Valves for Hot Water Distribution~~, Domestic Use~~	~~ANSI/~~ASSE 1017-2009 ~~1999~~ ~~CSA B125-2001~~
	Automatic Temperature Control Mixing Valves	ASSE 1069-2005
	Water Temperature Limiting Devices	ASSE 1070-2004
	Mixing Valves for Plumbed Emergency Equipment	ASSE 1071-2012
36)	Oil Fired Water Heaters	UL 732-2010 ~~1975/ASME1975~~ CSA B140.0-2003 (R2008) ~~M1987~~ CSA B140.12-2003 (R2008) ~~1976~~ CSA C22.2 No. 0-2010~~M1991~~ CSA C22.2 No. 3-M1988 (R2009)
37)	Pressure Relief Valve	ANSI Z21.22-1999 (R2008)/CSA 4.4-M1999 (R2008)~~1986~~ ~~CSA 4.4-M1999~~ ANSI Z21.22a-2000 (R2008)/CSA 4.4a-2000 (R2008) ANSI Z21.22b-2001 (R2008)/CSA 4.4b-2001 (R2008)
38)	Pressurized Flushing Device	~~ANSI/~~ASSE 1037-1990 ~~CSA B125-2001~~
39)	Reduced Pressure Detector Assembly	~~ANSI/~~ASSE 1047-2011 ~~1999~~ CSA B64-2011 ~~2001~~
40)	Reduced Pressure Principle Backflow Preventer	ASSE 1013-2011 ~~1999~~ CSA B64-2011 ~~2001~~
41)	Refuse Compactors/Compactor System	NSF/ANSI 13-2012 ~~#13-1992~~ CSA C22.2 No. 0-2010~~M1991~~ CSA C22.2 No. 68-2008 ~~1992~~
42)	Relief Valves For Hot Water System	ANSI Z21.22-1999 (R2008)/CSA

		4.1-M1999 (R2008) ~~1986~~ ~~CSA 4.4 M1999~~ ANSI Z21.22a-2000 (R2008)/CSA 4.4a-2000 (R2008) ANSI Z21.22b-2001 (R2008)/CSA 4.4b-2001 (R2008)
43)	Reverse Osmosis Drinking Water Treatment System	NSF/ANSI 58-2012 ~~#58-1999~~
44)	Spray Type Dishwashing Machine for Commercial Use	NSF/ANSI 3-2012 ~~#3-1996~~ CSA C22.2 No. 0-2010~~M1991~~ CSA C22.2 No. 0.4-2004 (R2009) ~~M1982~~ ~~CSA C22.2 No. 53-1968~~ ANSI Z83.21-2005/CSA C22.2 No. 168-2005 ~~M-1981~~ ANSI Z83.21a-2012/CSA C22.2 No. 168a-2012
45)	Trap Seal Primer Valve	ASSE 1018-2001 ~~1986~~ CSA B125.3-2012 ~~-2001~~
46)	Vacuum Breakers, Anti-siphon	~~ANSI/~~ASSE 1001-2008 ~~1990~~ CSA B64-2011 ~~2001~~
47)	Vacuum Breakers Hose Connection	~~ANSI/~~ASSE 1011-2004 ~~1995~~ CSA B64-2011 ~~2001~~
48)	Vacuum Breaker (Laboratory Faucet)	~~ANSI/~~ASSE 1035-2008 ~~1995~~ CSA B64-2011 ~~2001~~
49)	Vacuum Breakers Pressure Type	ASSE 1020-2004 ~~1997~~ CSA B64-2011 ~~2001~~
50)	Vacuum Relief Valve	ANSI Z21.22b-2001 (R2008) ~~1986~~ CSA B64-2011 ~~2001~~

51)	Vending Machine for Food/Beverage	NSF/ANSI 25-2012 ~~#25-1997~~ CSA C22.2 No. 0-2010~~M1991~~ CSA C22.2 No. 120-M1991 (R2008) CSA C22.2 No. 128-1995 (R2009) ASSE 1002-2008~~1999~~
52)	Water Closet Personal Hygiene Devices	ASME A112.4.2-2009
53~~52~~)	Water Closet Tank Ballcock ~~Ball Cock~~	ASSE 1002-2008 ~~1999~~ CSA B64-2011 CSA B125.3-2012
54~~53~~)	Water Hammer Arresters	ASSE 1010-2004 ~~1998~~ ~~CSA B125-2001~~
55~~54~~)	Water Heater Drain Valve	~~ASSE 1005-1986~~ ASME A121.18.1-2011/CSA B125.1-2011 ~~2001~~
56~~55~~)	Water Pressure Reducing Valves (Domestic)	~~ANSI/~~ASSE 1003-2009 ~~1995~~ CSA B356-2010 ~~2000~~
57)	Water Softener and Treatment Devices	NSF/ANSI 44-2012

Approved Standards for Fittings

1)	Cast Iron Threaded Drainage Fittings	ASME~~/ANSI~~ B16.12-2009 ~~1991~~
2)	Cast Copper Alloy Solder Pressure Fittings	ASME ~~ANSI~~ B16.18-2012~~1994~~
3)	Cast Copper Alloy Solder Drainage Fitting (DWV)	ASME ~~ANSI~~ B16.23-2011~~1992~~
4)	Copper Fittings	ASME B16.15-2011~~1994~~ ASME ~~ANSI~~ B16.18-2012~~1994~~

		ASME/~~ANSI~~ B16.22-2012~~1995~~ ASME ~~ANSI~~ B16.23-2011~~1992~~ ASME/~~ANSI~~ B16.26-2011~~1988~~ ASME/~~ANSI~~ B16.29-2012~~1994~~ ~~ASME/ANSI B16.32-1984~~ NSF/ANSI 61-2012
5)	Forged Steel Fittings, Socket, Welded, Threaded	ASME/~~ANSI~~ B16.11-2011~~1997~~
6)	Gray Iron/Ductile Iron	AWWA C 110-2012 ~~1998~~ AWWA C 151-2009 ~~1996~~
7)	Malleable Iron	ASME/~~ANSI~~ B 16.3-2011 ~~1992~~
8)	Plastic	ASTM D 2466-2006 ~~1997~~ ASTM D 2467-2006 ~~1996a~~ ~~ASTM D 2468-1996a~~ ASTM D 2564-2012 ~~1996a~~ ASTM ~~D~~ F409-2012 ~~1998~~ ASTM ~~D~~ F438-2009 ~~1997~~ ASTM ~~D~~ F439-2012 ~~1997~~ CSA B137.3-2009 ~~1999~~ in B137 CSA B181.2-2011 ~~1999~~ in B1800 CSA B182.1-2011 ~~1999~~ in B1800 ~~CSA B182.2-1999 in B1800~~ ~~CSA B125-2001~~ CSA B137.6-2009~~1999~~ in B137
9)	Plumbing Fixture Fittings (Metering valves, faucets, etc.)	ASME A112.18.1-2012/CSA B125.1-2012~~1996~~ ~~CSA B125-2001~~
10)	Steel	ASME/~~ANSI~~ B 16.9-2012 ~~1993~~ ASME/~~ANSI~~ B 16.11-2011~~1997~~ ~~ASME/ANSI B 16.28-1994~~

11)	Wrought Copper/Bronze Solder Pressure Fitting	ASME~~/ANSI~~ B 16.22-2012 ~~1995~~
12)	Wrought Copper and Wrought Copper Alloy Solder (Drainage Fittings)	ASME~~/ANSI~~ B16.29-2012 ~~1994~~ ASME~~/ANSI~~ B16.22-2012 ~~1995~~
13)	Wrought Steel Buttwelding Fittings	ASME~~/ANSI~~ B16.9-2012 ~~1993~~
14)	Wrought Steel Buttwelding Short Radius Ells	ASME B16.9-2012 ~~ASME/ANSI B16.28-1994~~

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.APPENDIX A Plumbing Materials, Equipment, Use Restrictions and Applicable Standards

Section 890.TABLE B Minimum Number of Plumbing Fixtures

Type of Building	All Facilities for Employee Use		Single Dwelling or Unit of Multiple Dwelling; Condo. or Apartment; or Hotel/Motel Unit
	Male	Female	
Water closets (Fixtures per person)	For 1-5 Total Employees See Section 890.810(b)(1)		1 per dwelling or unit
	1: 1-15 2: 16-35 3: 36-55 4: 56-80 5: 81-110 Over 110, add 1 fixture per restroom for each additional 40 males/females. (See Footnote #1)	1: 1-15 2: 16-35 3: 36-55 4: 56-80 5: 81-110	
Urinals	See footnote #2	See footnote #2	None

Lavatories[3] (Fixtures per person)	1: 1-15 2: 16-35 3: 36-60 Over 60, add 1 fixture per restroom for each additional 45 males/females.	1: 1-15 2: 16-35 3: 36-60	1 per dwelling or unit
Bathtubs/Showers	1 per 10[7] (If Required)	1 per 10[7]	1 per dwelling or unit
Drinking fountains[4] (Fixtures per person)	1 per 100 ~~75~~		None
Other Fixtures[5]	None		1 Double Kitchen Sink; or 1 Single Bowl – 24 inches ~~"~~ x 21 inches ~~"~~ x 6½ inches ~~"~~ minimum 1 Laundry Tray or 1 Clothes Washer ~~Automatic Laundry Washing Machine~~ connection for each 10 ~~4~~ units[5]

Type of Building	Dormitories		Assembly Places: Sports Arenas, Stadiums, Convention Halls, Etc.	
	Male	Female	Male	Female
Water Closet (Fixtures per person)	1 per 10 Add 1 fixture for each additional 25 males over 10; and 1 for each additional 20 females over 8.	1 per 8	1: 1-100 2: 101-200 3: 201-400 4: 400-800	2: 1-100 3: 101-150 4: 151-200 5: 201-300 6: 301-400 7: 401-500 8: 501-650 9: 651-800

			Over 800, add 1 fixture for each additional 700 males and 1 for each 150 ~~200~~ females. See Footnote #1	
Urinals (Fixtures per person)	1 per 25 Over 150, add 1 fixture for each 50 males added; over 400, add 1 for each 200 males added.[2]	See Footnote #2	1: 1-100 2: 101-200 3: 201-400 4: 401-600 Over 600, add 1 fixture for each additional 250 persons.	See Footnote #2
Lavatories[3] (Fixtures per person)	1 per 12 Over 12, add 1 fixture for each additional 20 males and 1 for each 15 females.	1 per 12	1: 1-200 2: 201-400 3: 401-750 Over 750, add 1 fixture per restroom for each added 400 males/females.	1: 1-200 2: 201-400 3: 401-750
Bathtubs, Showers (Fixtures per person)	1 per 8 See Footnote #13 ~~For females, add 1 bathtub per 30; over 150, add 1 per 50~~.		None	

Type of Building	Dormitories		Assembly Places: Sports Arenas, Stadiums, Convention Halls, Etc.	
	Male	Female	Male	Female
Drinking Fountains[4] (Fixtures per person)	1 per 75		1 per each set of male and female public restrooms (High-Low)	
Other Fixtures (Fixtures per person)	1 Service Sink per floor		1 Service Sink per floor	

Type of Building	Assembly Places: Theaters, Auditoriums, Other Facilities for Spectator Events		Mercantile Units, Malls, Stores, Etc.	
	Male	Female	Male	Female
Water Closet (Fixtures per person)	1: 1-100 2: 101-200 3: 201-400 4: 401-800 Over 800, add 1 fixture for each additional 400 males and 1 for each 150 ~~170~~ females. See Footnote #1	2: 1-100 3: 101-150 4: 151-200 5: 201-300 6: 301-400 7: 401-500 8: 501-650 9: 651-800 Over 800, add 1 fixture for each additional 400 males and 1 for each 150 ~~170~~ females. See Footnote #1	1: 1-100 2: 101-200 3: 201-400 4: 401-800 Over 800, add 1 fixture for each additional 500 males and 1 for each 150 ~~175~~ females. See Footnote #1	1: 1-50 2: 51-100 3: 101-150 4: 151-250 5: 251-350 6: 351-500 7: 501-650 8: 651-800 Over 800, add 1 fixture for each additional 500 males and 1 for each 150 ~~175~~ females. See Footnote #1
Urinals (Fixtures per person)	1: 1-100 2: 101-200 3: 201-400 4: 401-600 Over 600, add 1 fixture for each additional 300 males.	See Footnote #2	1: 51-200 2: 201-400 3: 401-600 4: 601-800 Over 800, and 1 fixture for each additional 300.	See Footnote #2
Lavatories[3] (Fixtures per person)	1: 1-200 2: 201-400 3: 401-750 Over 750, add 1 fixture per restroom for each added 400 males/females.	1:1-200 2:201-400 3:401-750	1: 1-200 2: 201-400 3: 401-750 Over 750, add 1 fixture per restroom for each added 350 males/females.	1: 1-200 2: 201-400 3: 401-750
Drinking Fountains[4]	1: 1-100		1: 1-100	

(Fixtures per person)	1 High-Low for each set of Male and Female restrooms. ~~Over 100, add 1 for each added500; over 1000, add 1 for each added 500; over 5000, add 1 for each added 1000.~~	1 High-Low for each set of Male and Female restrooms.~~Over 100, add 1 for each added 500; over 1000, add 1 for each added 500; over 5000, add 1 for each added 1000.~~
Other Fixtures (Fixtures per person)	1 Service Sink per Floor	1 Service Sink per Floor

Type of Building	Worship Places and Funeral Homes		Businesses Selling Motor Fuel to the Public[10]	
	Male (See Footnote #1)	Female (See Footnote #1)	Male	Female
Water Closets (Fixtures per person)	1 per 250	1 per 125	1 per station	1 per station
Urinals (Fixtures per person)	1 per 250	See Footnote #2	None	
Lavatories[3] (Fixtures per person)	1 per 125	1 per 125	1 per station	1 per station
Other Fixtures (Fixtures per person)	1 Service Sink		1 service sink where public restrooms are required. ~~None~~	

Type of Building	Office Buildings/Public Buildings				Food Service Establishments, Pubs, Lounges, Nightclubs, and Places Serving Food or Liquid to be Consumed on the Premises[8]			
	Male		Female		Male		Female	
Water Closet	1:	1-15	1:	1-15	1:	1-100	1:	1-50

(Fixtures per person)	2:	16-35	2:	16-35	2:	101-300	2:	51-100
	3:	36-55	3:	36-55			3:	101-150
	4:	56-80	4:	56-80			4:	151-300
	5:	81-110	5:	81-110				
	Over 110, add 1 fixture per restroom for each additional 50 ~~40~~ males/females. See Footnote #1				Over 300, add 1 fixture for each additional 200 males and 1 fixture per each 100 females. See Footnotes #1.			
Urinals (Fixtures per person)	See Footnote #2				1:	1-150	See Footnote #2	
					Over 150, add 1 fixture for each added 150 males.			
Lavatories[3] (Fixtures per person)	1:	1-15	1:	1-15	1:	1-100	1:	1-100
	2:	16-35	2:	16-35	2:	101-200	2:	101-200
	3:	36-60	3:	36-60	3:	201-400	3:	201-400
	4:	61-90	4:	61-90				
	5:	91-125	5:	91-125				
	Over 125, add 1 fixture per restroom for each additional 50 ~~45~~ males/females. See Footnote #1				Over 400, add 1 fixture per restroom for each additional 200 males/females. See Footnotes #1 and #6			
Drinking Fountains[4] (Fixtures per person)	1 per 75				See Footnote #12			
Other Fixtures (Fixtures per person)	1 Service Sink per floor on which restrooms are located				1 Service Sink and 1 3-Compartment Sink as required by 77 Ill. Adm. Code 750 See Footnote #6			

Type of Building	Schools-Student Use: Elementary	Schools-Student Use: Secondary, Colleges, Universities, Adult Centers, Etc.

	Male	Female	Male	Female
Water Closets (Fixtures per person)	1: 1-20 2: 21-50 Over 50, add 1 fixture per restroom for each additional 50 persons. See Footnote #1	1: 1-20 2: 21-50 Over 50, add 1 fixture per restroom for each additional 50 persons. See Footnote #1	1 per 40 See Footnote #1	1 per 20 See Footnote #1
Urinals (Fixtures per person)	See Footnote #2	See Footnote #2	1 per 40 See Footnote #2	See Footnote #2
Lavatories[3] (Fixtures per person)	1: 1-25 2: 26-50 Over 50, add 1 fixture per restroom for each additional 50 persons. See Footnote #1	1: 1-25 2: 26-50 Over 50, add 1 fixture per restroom for each additional 50 persons. See Footnote #1	1 per 40 1 per exercise room	1 per 40 1 per exercise room
Drinking Fountains[4] (Fixtures per person)	1 per 75		1 per 75	
Other Fixtures (Fixtures per person)	1 Service Sink per floor and kitchen area.		1 Service Sink per floor and kitchen area.	

Type of Building	Day Care, Nursery and Preschool Centers Toddlers 16-36 Months Excludes Infants (0-15 Months)	
	Male	Female
Water Closets (Fixtures per person)	1: 1-10 2: 11-25 3: 26-50 4: 51-75 5: 76-100 6: 101-125 7: 126-150	1: 1-10 2: 11-25 3: 26-50 4: 51-75 5: 76-100 6: 101-125 7: 126-150

	8: 151-175 Over 175: Add a fixture per restroom for each additional 50 males/females. See Footnotes #1 and #11	8: 151-175
Urinals (Fixtures per person)	See Footnote #2	See Footnote #2
Lavatories[3] (Fixtures per person)	1: 1-10 2: 11-25 3: 26-50 4: 51-75 5: 76-100 6: 101-125 7: 126-150 8: 151-175 Over 175: Add a fixture per restroom for each additional 50 males/females. See Footnotes #1 and #11	1: 1-10 2: 11-25 3: 26-50 4: 51-75 5: 76-100 6: 101-125 7: 126-150 8: 151-175
Drinking Fountains[4] (Fixtures per person)	1 per 75	
Other Fixtures	1 Service Sink Per Facility and kitchen area	

Type of Building	Hospital Individual Room	Hospitals Ward Room
Water Closets (Fixtures per person)	1 per room	1 per 8 patients
Urinals (Fixtures per person)	None	None
Lavatories[3] (Fixtures per person)	1 per room	1 per 8 patients
Bathtubs, Showers	1 per room	1 per 8 patients

(Fixtures per person)		
Drinking Fountains[4] (Fixtures per person)	None	1 per 75
Other Fixtures (Fixtures per person)	1 Service Sink per floor	1 Service Sink per floor

Type of Building	Institutional – Other than Hospitals or Penal Institutions (on each floor)		Penal Institutions For Prisoner Use Cell or Dormitories
	Male	Female	
Water Closets (Fixtures per person)	1 per 25	1 per 20	1 per cell 1 per 8 in a dormitory
Urinals (Fixtures per person)	1 per 50 (#2)	See Footnote #2	None
Lavatories[3] (Fixtures per person)	1 per 10	1 per 10	1 per cell 1 per 8 prisoners in a dormitory
Bathtubs, Showers (Fixtures per person)	1 per 8	1 per 8	1 per 8 prisoners
Drinking Fountains[4] (Fixtures per person)	1 per 75		1 per 75 prisoners
Other Fixtures (Fixtures per person)	1 Service Sink per floor		1 Service Sink per floor

Instructions/Footnotes For Table B

The numbers of fixtures required for employees are included in the numbers shown in Table B for all building types/uses except Hospital Rooms, Penal Institutions, and Other Institutions. The

entry in Table B entitled "All Facilities for Employee Use" shall be used to determine the minimum number of fixtures required for employees in hospitals, penal/other institutions, and all other buildings/facilities that do not appear in Table B.

Questions concerning the minimum numbers of fixtures required for building types not listed in Appendix A., ~~,~~ Table B, shall be referred to the Department in writing prior to construction for a decision concerning the minimum numbers (and types) of plumbing fixtures required.

Footnotes:

1. The figures shown are the minimum number of fixtures required for the number of persons indicated or any fraction of that number ~~thereof~~. Based on the total occupant load determined, the number of fixtures shall be calculated assuming 50 percent of the occupants are male and 50 percent are female. The total male/female occupants shall be calculated first; then the number of fixtures for each (males/females) shall be determined from the appropriate table.

2. Urinals may be substituted for water closets for males, not to exceed half ~~½~~ of the required total number of water closets. Comparable fixtures for females may be substituted for water closets for females, not to exceed half ~~½~~ of the required total number of water closets.

3. 18 lineal inches of wash sink or 18 inches of a circular basin, when provided with water outlets for ~~such~~ space of this kind, shall be considered equivalent to one lavatory.

4. Whenever a drinking fountain is required by this Part ~~code~~, bottled drinking water or a water dispensing faucet (water station) may be substituted for a drinking fountain, provided drinking water is accessible to the public. When bottled drinking water is provided in lieu of a drinking fountain, the bottled water used must be commercially sealed in accordance with the Illinois Bottled Water Act [815 ILCS 310] and with the Illinois Safe Bottled Water Act. ~~or must comply with the Department's Public Area Sanitary Practice Code (77 Ill. Adm. Code 895).~~

5. The kitchen sink and laundry tray or connection for the washer are not required for the hotel/motel unit.

6. In addition to providing separate hand-washing ~~handwashing~~ facilities in the kitchen for employees, all food service establishments shall provide a minimum of one service/utility

sink and one three-compartment sink to sanitize dishes and eating utensils; however, a mechanical dishwasher may be substituted for a three ~~3~~-compartment sink to sanitize dishes and utensils. (See 77 Ill. Adm. Code 750.)

7. Bathtubs~~When bathtubs~~/showers that are required for employees by OSHA requirements, collective bargaining agreements, etc.~~, they~~ shall be provided at the rate of one per 10 employees.

8. Food Service Establishments with no more than 10 combined employees and seats (for patrons) at any one time need not provide public restrooms, provided that the employee restrooms are accessible and made available to the public.

9. Bed and Breakfast facilities with more than five ~~5~~ sleeping rooms shall meet the minimum requirements of this Part for Hotel/Motel units. Bed and Breakfast facilities with five ~~5~~ or fewer sleeping rooms, in compliance ~~conformance~~ with the Bed and Breakfast Act ~~[50 ILCS 820]~~, need not provide individual restrooms for each sleeping room.

10. Businesses that ~~which~~ sell motor fuel but do not have any employees working as attendants are not required to provide public restrooms.

11. In Day Care Centers providing restroom training facilities for occupants ages three ~~3~~ and younger where continuous adult supervision is provided, restrooms are not required to be separated into facilities for males and females, and are allowed to contain multiple lavatories and water closets as required by this Part. Public restrooms shall be required for everyone over the age of three ~~3~~ separate from the restroom training facilities as required by this Part.

12. Drinking water shall be provided in accordance with Section 890.720(f).

13. The total number of bathing facilities shall include one bathtub for males and one bathtub for females or one individual user restroom with a bathtub.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.APPENDIX A Plumbing Materials, Equipment, Use Restrictions and Applicable Standards

Section 890.TABLE D Minimum Water Distribution Pipe Size

Type of Fixture or Device (See Footnotes 1 & 2)	Pipe Size (inches)
Bathtubs	½
Combination sink and tray	½
Drinking fountain	\
Dishwasher (domestic)	½
Dishwasher (commercial)	¾
Kitchen sink (residential)	½
Kitchen sink (commercial) 1 Faucet	½
Kitchen sink (commercial) 2 Faucets	¾
Lavatory	\
Laundry tray (1, 2 or 3 compartment)	½
Shower (single head)	½
Sinks (service/slop)	½
Sinks (flushing rim)	¾
Urinal (flush tank)	½
Urinal (direct flush valve)	¾
Urinal (siphon jet)	1
Washing machine (automatic)	½
Water closet (tank type)	\
Water closet (flush valve type)	1
Hose bibbs	½
Wall hydrant	½

[1] For fixtures not listed, the minimum supply branch shall be installed in the diameters required for similar type fixtures.

[2] The fixture supply pipe shall be extended to within 12 inches of the point of connection

to fixture and be within the same area and physical space as the point of connection to the fixture.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.APPENDIX A Plumbing Materials, Equipment, Use Restrictions and Applicable Standards

Section 890.TABLE M Load Values Assigned to Fixtures

Fixture	Occupancy	Type of Supply Control	Load Values in Water (Supply Fixture Units)		
			Cold	Hot	Total
Water Closet	Public/Private	Flush Value	10	–	10
Water Closet	Public/Private	Flush Tank	3 ~~5~~	–	3 ~~5~~
Urinal	Public	1" Flush Valve	10	–	10
Urinal	Public	¾" Flush Valve	5	–	5
Urinal	Public	Flush Tank	3	–	3
Lavatory	Public	Faucet	1 ~~1.5~~	1 ~~1.5~~	2
Bathtub	Public	Faucet	3	3	4
Shower Head	Public	Mixing Valve	2 ~~3~~	2 ~~3~~	3 ~~4~~
Service Sink	Offices, etc.	Faucet	2 ~~2.25~~	2 ~~2.25~~	3
Kitchen Sink	Hotel/Restaur.	Faucet	3	3	4
Drinking Fountain	Office, etc.	3/8" Valve	0.25	–	0.25
~~Water Closet~~	~~Private~~	~~Flush Valve~~	~~6~~	~~–~~	~~6~~
~~Water Closet~~	~~Private~~	~~Flush Tank~~	~~3~~	~~–~~	~~3~~
Lavatory	Private	Faucet	0.75	0.75	1
Bathtub	Private	Faucet	1.5	1.5	2
Shower Stall	Private	Mixing Valve	1 ~~1.5~~	1 ~~1.5~~	2
Kitchen Sink	Private	Faucet	1.5	1.5	2
Laundry Trays (1 to 3)	Private	Faucet	2 ~~2.25~~	2 ~~2.25~~	3
~~Combination Fixture~~	~~Private~~	~~Faucet~~	~~2.25~~	~~2.25~~	~~3~~
Dishwashing Machine	Private	Automatic		-1	1
Laundry Machine (8 lb)	Private	Automatic	1.5	1.5	2
~~Laundry Machine (8 lb)~~	~~Public/ General~~	~~Automatic~~	~~2.25~~	~~2.25~~	~~3~~
Laundry Machine (16 lb)	Public/ General	Automatic	3	3	4

Note: For fixtures not listed, loads shall be assumed by comparing the fixtures to one listed using water in similar quantities and at similar rates. The assigned loads for fixtures with both cold and hot water supplies are given for separate cold and hot water loads and for total load.

Where a unit of local government or the community public water supply does not require separate water service lines for irrigation or similar systems that are likely to impose continuous demands (e.g., lawn sprinkler or air conditioning systems), the following rule applies: estimate the continuous demand (in gallons per minute) for ~~such~~ outlets/systems separately from the intermittent demand from the ~~above~~ fixtures listed in this table, and add this amount to the demand of the fixtures (in gallons per minute).

Fire sprinkler systems are exempt from this table.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.APPENDIX A Plumbing Materials, Equipment, Use Restrictions and Applicable Standards

Section 890.TABLE N Water Supply Fixture Units (WSFU) ~~(W.S.F.U.)~~ for a Supply System with Flush Tank ~~Tanks~~ Water Closets

~~Water Supply Fixture Units (W.S.F.U.) for a Supply System with Flush Tanks~~

W.S.F.U.	Demand (GPM)	Pipe Size (Inches)	Pressure Loss (PSI/100' of Pipe)	Velocity (Ft./Sec.)	Meter Size (Inches)
2	2	½"	4.2	2.7	] "
4	3	½"	8.7	4.2	] "
6	5	½"	22.5	7.0	] "
8	6.5	¾"	6.3	4.3	] "
10	8	¾"	9.0	5.4	¾"
12	9.2	¾"	11.5	6.1	¾"
14	10.4	¾"	15.0	6.9	¾"

16	11.6	¾"	18.0	7.7	¾"
20	14	1"	7.2	5.6	¾"
25	17	1"	10.0	6.6	¾"
30	20	1"	13.6	8.0	1"
35	22.5	1¼"	5.8	5.7	1"
40	25	1¼"	7.0	6.3	1"
45	27	1¼"	8.2	6.9	1"
50	29	1¼"	9.5	7.4	1"
60	32	1½"	5.0	5.8	1½"
70	35	1½"	6.2	6.4	1½"
80	38	1½"	7.0	7.2	1½"
90	41	1½"	8.0	7.5	1½"
100	43.5	1½"	8.7	7.8	2"
120	48	2"	2.7	5.0	2"
140	52.5	2"	3.1	5.4	2"
160	57	2"	3.6	5.8	2"
180	61	2"	3.9	6.1	2"
200	65	2"	4.5	6.6	2"
225	70	2"	5.2	7.1	2"
250	75	2"	6.0	7.7	3"
275	80	2½"	2.6	5.5	3"
300	85	2½"	2.9	5.8	3"
350	95	2½"	3.5	6.5	3"
400	105	2½"	4.2	7.1	3"
450	115	2½"	5.0	8.0	3"
500	125	3"	2.3	5.9	3"
600	145	3"	3.1	6.8	4"
750	170	3"	4.0	8.0	4"
1000	208	4"	1.5	5.7	4"
1250	240	4"	1.9	6.4	4"
1500	267	4"	2.3	7.0	4"
1750	294	4"	2.8	7.8	4"
2000	320	6"	0.36	3.7	6"

Agency Notes:

Where a unit of local government or the community public water supply does not require separate water service lines for irrigation or similar systems that are likely to impose continuous

demands (e.g., lawn sprinkler or air conditioning systems), the following rule applies: estimate the continuous demand (in gallons per minute) for ~~each~~ outlets/systems separately from the intermittent demand from the above fixtures, and add this amount to the demand of the fixtures (in gallons per minute).

Meter and meter yoke sizes shown in this table shall apply only to those jurisdictions or governmental units where local ordinances or community public water supply requirements do not prescribe specific sizes of meters or ~~and/or~~ meter yokes. Where local ordinances or community public water supply requirements cover ~~such~~ sizing, those requirements shall be followed.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.APPENDIX A Plumbing Materials, Equipment, Use Restrictions and Applicable Standards

Section 890.TABLE O Water Supply Fixture Units (WSFU) ~~(W.S.F.U.)~~ for a Supply System with Flushometer Water Closets

~~Water Supply Fixture Units (W.S.F.U.) for a Supply System with Flushometer~~

WSFU~~W.S.F.U.~~	Demand (GPM)	Pipe Size (Inches)	Pressure Loss (PSI/100' of Pipe)	Velocity (Ft./Sec.)	Meter Size (Inches)
10	27	1¼"	8.3	6.8	¾"
12	28.6	1¼"	9.2	7.2	¾"
14	30.2	1¼"	10	7.9	¾"
16	31.8	1¼"	11	8.0	¾"
20	35	1½"	6.0	6.4	¾"
25	38	1½"	7.0	6.9	1"
30	41	1½"	8.0	7.4	1"
35	43.8	1½"	8.8	8.0	1"
40	46.5	2"	2.5	4.7	1"
45	49	2"	2.7	5.1	1"

50	51.5	2"	2.9	5.4	1½"
60	55	2"	3.4	5.8	1½"
70	58.5	2"	3.7	6.0	1½"
80	62	2"	4.0	6.2	1½"
90	64.8	2"	4.6	6.5	1½"
100	67.5	2"	5.0	6.8	1½"
120	72.5	2"	5.6	7.2	2"
140	77.5	2"	6.3	8.0	2"
160	82.5	2½"	2.7	5.7	2"
180	87	2½"	3.0	6.1	2"
200	91.5	2½"	3.4	6.4	2"
225	97	2½"	3.7	6.8	2"
250	101	2½"	4.0	7.1	3"
275	106	2½"	4.2	7.3	3"
300	110	2½"	4.6	7.6	3"
350	119	3"	2.1	5.5	3"
400	126	3"	2.3	5.9	3"
450	138	3"	2.7	6.3	3"
500	145	3"	3.0	6.8	3"
600	160	3"	3.6	7.4	4"
750	178	4"	1.1	4.7	4"
1000	208	4"	1.5	5.6	4"
1250	240	4"	1.9	6.4	4"
1500	267	4"	2.3	7.0	4"
1750	294	4"	2.8	7.8	4"
2000	321	6"	0.4	3.7	6"

Agency Notes:

Where a unit of local government or the community public water supply does not require separate water service lines for irrigation or similar systems that are likely to impose continuous demands (e.g., lawn sprinkler or air conditioning systems), the following rule applies: estimate the continuous demand (in gallons per minute) for ~~such~~ outlets/systems separately from the intermittent demand from the above fixtures, and add this amount to the demand of the fixtures (in gallons per minute).

Meter and meter yoke sizes shown in this table shall apply only to those jurisdictions or governmental units where local ordinances or community public water supply requirements do

not prescribe specific sizes of meters or ~~and/or~~ meter yokes. Where local ordinances or community public water supply requirements cover ~~such~~ sizing, those requirements shall be followed.

(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.APPENDIX A Plumbing Materials, Equipment, Use Restrictions and Applicable Standards

Section 890.TABLE R Minimum Alternate Water Source Testing, Inspection, and Maintenance Frequency

Alternate water source systems and components shall be inspected and maintained as listed unless more frequent inspection and maintenance is required by the manufacturer.

Description	Minimum Frequency
Inspect and clean filters and screens, and replace (if necessary)	Every 3 months
Inspect and verify that disinfection, filters and water quality treatment devices and systems are operational and maintaining minimum water quality requirements as determined by the Department	In accordance with manufacturer's instructions, and the Department or authority having jurisdiction
Inspect and clear debris from rainwater gutters, downspouts, and roof washers	Every 6 months
Inspect and clear debris from roof or other aboveground rainwater collection surfaces	Every 6 months
Remove tree branches and vegetation overhanging roof or other aboveground rainwater collection surfaces	As needed
Inspect pumps and verify operation	After initial installation and every 12 months
Inspect valves and verify operation	After initial installation and every 12 months

Inspect pressure tanks and verify operation	After initial installation and every 12 months
Clear debris from and inspect storage tanks, locking devices, and verify operation	After initial installation and every 12 months
Inspect caution labels and marking	After initial installation and every 12 months
Inspect and maintain mulch basins for graywater irrigation systems	As needed to maintain mulch depth and prevent ponding and runoff
Cross-connection inspection and test*	After initial installation and every 12 months

* The cross-connection test shall be performed in accordance with the requirements of Section 890.2140(j)(2)(A)-(B)

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.APPENDIX A Plumbing Materials, Equipment, Use Restrictions and Applicable Standards

Section 890.TABLE S Location of Graywater System

A graywater system or any part of a graywater system shall not be located at any point having less than the minimum distances indicated.

Minimum Horizontal Distance Required from:	Surge Tank (feet)	Subsurface and Subsoil Irrigation Field and Mulch Bed (feet)
Building structures[1]	5[2]	2[3, 8]
Property line adjoining private property	5	5[8]
Water supply/geothermal wells[4]	50	100
Streams and lakes[4]	50	50
Sewage pits or cesspools	5	5
Sewage disposal field	5	4[6]

Septic tank	0	5
On-site domestic water service line	10[7]	10[7]
Pressurized public water main	10	10

For SI units: 1 foot = 304.8 mm
Note: Where irrigation or disposal fields are installed in sloping ground, the minimum horizontal distance between any part of the distribution system and the ground surface shall be 15 feet.

[1] Including porches and steps, whether covered or uncovered, breezeways, roofed carports, roofed patios, carports, covered walks, covered drive- ways, and similar structures or appurtenances.
[2] The distance shall be permitted to be reduced to 0 feet for aboveground tanks when first approved by the authority having jurisdiction.
[3] Reference to a 45 degree (0.79 rad) angle from foundation.
[4] Where special hazards are involved, the distance required shall be increased as directed by the authority having jurisdiction.
[5] Reserved.
[6] Add 2 feet for each additional foot of depth in excess of 1 foot below the bottom of the drain line.
[7] Parallel construction or crossings shall meet Section 890.1145 of this Part.
[8] The distance shall be permitted to be reduced to 1½ feet for drip and mulch basin irrigation systems.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.APPENDIX A Plumbing Materials, Equipment, Use Restrictions and Applicable Standards

Section 890.TABLE T Design of Six Typical Soils

Type of Soil	Minimum Square Feet of Irrigation Area per 100 Gallons of Estimated Graywater Discharge per Day	Maximum Absorption Capacity in Gallons per Square Foot of Irrigation/Leaching Area for a 24-Hour Period

Coarse sand or gravel	20	5.0
Fine sand	25	4.0
Sandy loam	40	2.5
Sandy clay	60	1.7
Clay with considerable sand or gravel	90	1.1
Clay with small amounts of sand or gravel	120	0.8

For SI units: 1 square foot = 0.0929 m^2, 1 gallon per day = 0.000043 L/s

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.APPENDIX A Plumbing Materials, Equipment, Use Restrictions and Applicable Standards

Section 890.TABLE U Subsurface Irrigation Design Criteria for Six Typical Soils

Type of Soil	Maximum Emitter Discharge	Minimum Number of Emitters per Gallon of Estimated Graywater Discharge per Day*
	gallon/day	gallon/day
Sand	1.8	0.6
Sandy loam	1.4	0.7
Loam	1.2	0.9
Clay loam	0.9	1.1
Silty clay	0.6	1.6

Clay	0.5	2.0

For SI units: 1 gallon per day = 0.000043 L/s

* The estimated graywater discharge per day shall be determined in accordance with Section 890.2135k)-(l).

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.APPENDIX A Plumbing Materials, Equipment, Use Restrictions and Applicable Standards

Section 890.TABLE V Subsoil Irrigation Field Construction

DESCRIPTION	MINIMUM	MAXIMUM
Number of drain lines per valved zone	1	-
Length of each perforated line	-	100 feet
Bottom width of trench	12 inches	18 inches
Spacing of lines, center to center	4 feet	-
Depth of earth cover of lines	10 inches	-
Depth of filter material cover of lines	2 inches	-
Depth of filter material beneath lines	3 inches	-
Grade of perforated lines level	level	3 inches per 100 feet

For SI units: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 inch per foot = 83.3 mm/m

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.APPENDIX A Plumbing Materials, Equipment, Use Restrictions and Applicable Standards

Section 890.TABLE W Water Volume for Distribution Piping Materials

OUNCES OF WATER PER FOOT LENGTH OF PIPING

NOMINAL SIZE (inch)	COPPER M	COPPER L	COPPER K	CPVC CTS SDR 11
3/8	1.06	0.97	0.84	NA
1/2	1.69	1.55	1.45	1.25
3/4	3.43	3.22	2.90	2.67
1	5.81	5.49	5.17	4.43
1 1/4	8.70	8.36	8.09	6.61
1 1/2	12.18	11.83	11.45	9.22
2	21.08	20.58	20.04	15.79
NOMINAL SIZE (inch)	CPVC SCHEDULE 40	PEX-AL-PEX	PE-AL-PE	PEX CTS SDR 9
3/8	1.17	0.63	0.63	0.64
1/2	1.89	1.31	1.31	1.18
3/4	3.38	3.39	3.39	2.35
1	5.53	5.56	5.56	3.91
1 1/4	9.66	8.49	8.49	5.81
1 1/2	13.20	13.88	13.88	8.09
2	21.88	21.48	21.48	13.86

For SI units: 1 foot = 304.8 mm, 1 ounce = 29.573 mL

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.APPENDIX A Plumbing Materials, Equipment, Use Restrictions and Applicable Standards

Section 890.TABLE X Performance Requirements for Water Heating Equipment [ASHRAE 90.1: TABLE 7.8]

EQUIP-MENT TYPE	SIZE CATEGORY (INPUT)	SUBCATEGORY OR RATING CONDITION	PERFORMANCE REQUIRED[1]	TEST PROCEDURE[2,3]
Electric Table Top Water Heaters	d12 kW	Resistance e20 gal	0.93–0.00132V EF	DOE 10 CFR Part 430
Electric water heaters	d12 kW	Resistance e20 gal	0.97–0.00132V EF	DOE 10 CFR Part 430
	>12 kW	Resistance e20 gal	20 + 35• V SL, Btu/h	Section G.2 of ANSI Z21.10.3
	d24 Amps and d250 Volts	Heat Pump	0.93–0.00132V EF	DOE 10 CFR Part 430
Gas storage water heaters	d75 000 Btu/h	e20 gal	0.62–0.0019V EF	DOE 10 CFR Part 430
	d75 000 Btu/h	<4000 (Btu/h)/gal	80% E_t (Q/800 + 110• V)SL, Btu/h	Sections G.1 and G.2 of ANSI Z21.10.3
Gas instantaneous water heaters	>50 000 Btu/h and <200 000 Btu/h	e4000 (Btu/h)/gal and <2 gal	0.62–0.0019V EF	DOE 10 CFR Part 430
	e200 000 Btu/h[4]	e4000 (Btu/h)/gal and <10 gal	80% E_t	Section G.1 and G.2 of ANSI Z21.10.3
	e200 000 Btu/h	e4000 (Btu/h)/gal and e10 gal	80% E_t (Q/800 + 110• V) SL, Btu/h	
Oil instantaneous water heaters	d210 000 Btu/h	e4000 (Btu/h)/gal and <2 gal	0.59–0.0019V EF	DOE 10 CFR Part 430
	d210 000 Btu/h	e4000 (Btu/h)/gal and <10 gal	80% E_t	Sections G.1 and G.2 of

	d210 000 Btu/h	e4000 (Btu/h)/gal and e10 gal	78% E_t (Q/800 + 110• V) SL, Btu/h	ANSI Z21.10.3
Hot-water supply boilers, gas and oil	e300 000 Btu/h and <12 500 000 Btu/h	e4000 (Btu/h)/gal and <2 gal	80% E_t	Sections G.1 and G.2 of ANSI Z21.10.3
Hot-water supply boilers, gas	———	e4000 (Btu/h)/gal and <10 gal	80% E_t (Q/800 + 110• V) SL, Btu/h	
Hot-water supply boilers, oil	———	e4000 (Btu/h)/gal and e10 gal	78% E_t (Q/800 + 110• V) SL, Btu/h	
Tanks	All		R-12.5	(none)

For SI units: 1 gallon = 3.785 L, 1000 British thermal units per hour = 0.293 kW, 1 degree Fahrenheit = t/ºC = (t/ºF-32)/1.8

1 Energy factor (EF) and thermal efficiency (E_t) are minimum requirements, while standby loss (SL) is maximum Btu/h (W) based on a 70 degrees Fahrenheit (21 degrees Celsius temperature difference between stored water and ambient requirements. In the EF equation, V is the rated volume in gallons. In the SL equation, V is the rated volume in gallons and Q is the nameplate input rate in Btu/h.

2 Section 12 of ASHRAE 90.1 contains a complete specification, including the year version, of the referenced test procedure.

3 Section G1 is titled “Test Method for Measuring Thermal Efficiency” and Section G2 is titled “Test Method for Measuring Standby Loss.”

4 Instantaneous water heaters with input rates below 200 000 Btu/h (58.6 kW) must comply with these requirements if the water heater is designed to heat water to temperatures of 180 degrees Fahrenheit (82 degrees Celsius) or higher.

(Source: Added at 37 Ill. Reg. _____, effective _____)

Section 890.APPENDIX A Plumbing Materials, Equipment, Use Restrictions and Applicable Standards

Section 890.TABLE Y Minimum Water Quality

APPLICATION	MINIMUM TREATMENT	MINIMUM WATER QUALITY
Car washing	Debris excluder or other approved means in compliance with Section 890.2145(n) and 100 Micron (100 µm) in compliance with Section 890.2145(o) for drip irrigation.	N/A
Subsurface and drip irrigation	Debris excluder or other approved means in compliance with Section 890,2245(n) and 100 Micron (100 µm) in compliance with Section 890.2145(o) for drip irrigation.	N/A
Spray irrigation where the maximum storage volume is less than 360 gallons (1363 L)	Debris excluder or other approved means in compliance with Section 890.22145(n) and Disinfection in accordance with Section 890.2145(l).	N/A
Spray irrigation where the maximum storage volume is equal to or greater than 360 gallons (1363 L)	Debris excluder or other approved means in compliance with Section 890.2145(n).	Escherichia coli: < 100 CFU/100 mL, and Turbidity: < 10 NTU
Urinal and water closet flushing, clothes washing, and trap priming.	Debris excluder or other approved means in compliance with Section 890.2145(n) and 100 Micron (100 µm) in compliance with Section 890.2145(o).	Escherichia coli: < 100 CFU/100 mL, and Turbidity: < 10 NTU
Ornamental fountains and other water features	Debris excluder or other approved means in compliance with Section 890.2145(n).	Escherichia coli: < 100 CFU/100 mL, and Turbidity: < 10 NTU

Cooling tower make up water	Debris excluder or other approved means in compliance with Section 890.2145(n) and 100 Micron (100 µm) in compliance with Section 890.2145(o).	Escherichia coli: < 100 CFU/100 mL, and Turbidity: < 10 NTU

(Source: Added at 37 Ill. Reg. _____, effective _____)

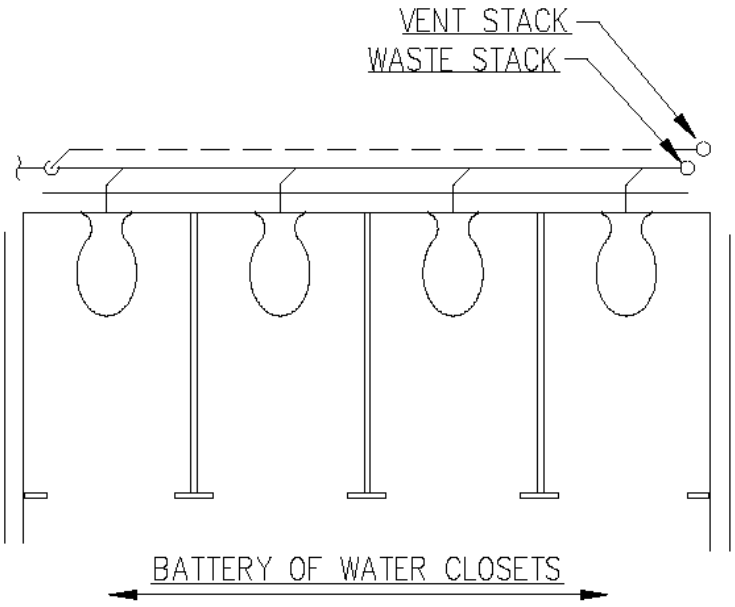
DEPARTMENT OF PUBLIC HEALTH

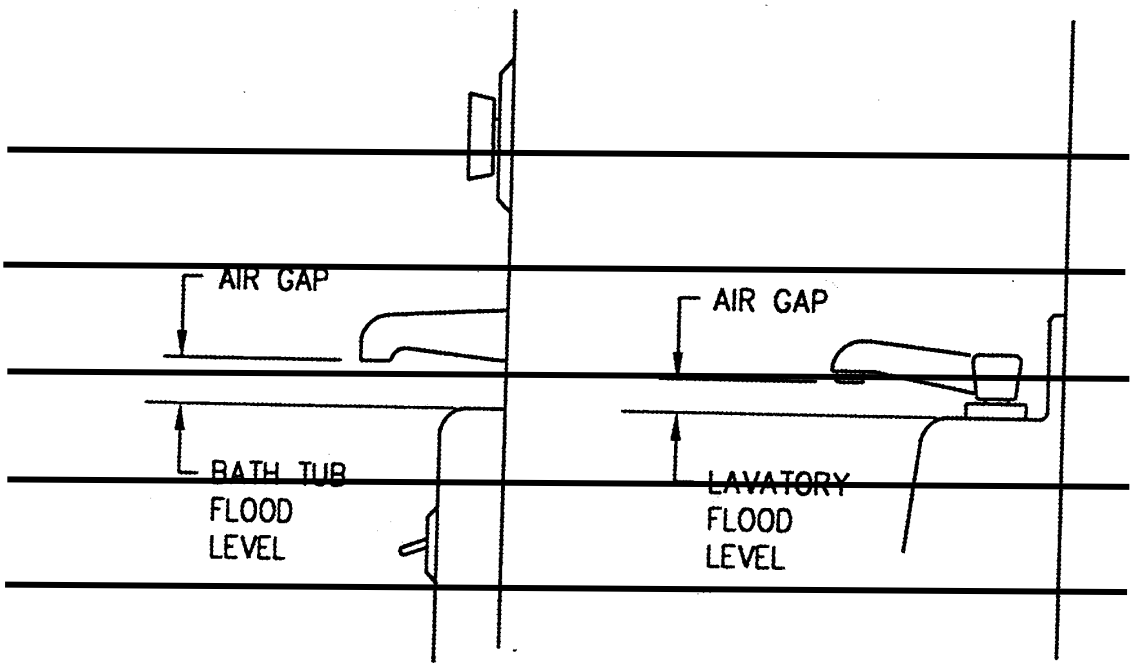
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX B Illustrations for Subpart A

Section 890.ILLUSTRATION C Battery of Fixtures

(Referenced in Section 890.120, Definition of "Battery of Fixtures.")





(Source: Amended at 37 Ill. Reg. _____, effective _____)

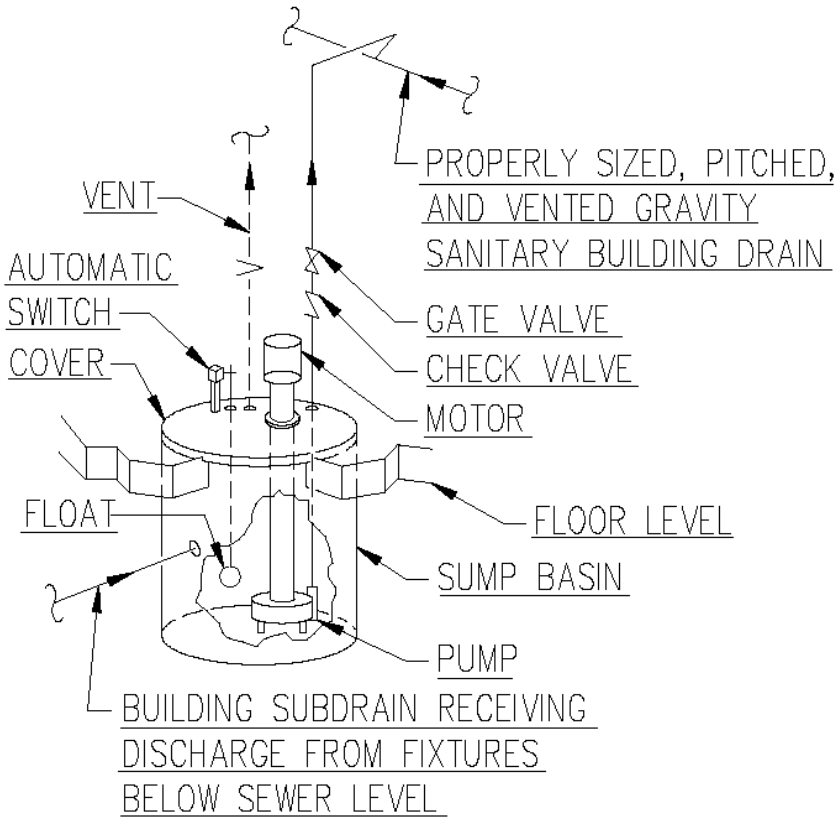
DEPARTMENT OF PUBLIC HEALTH

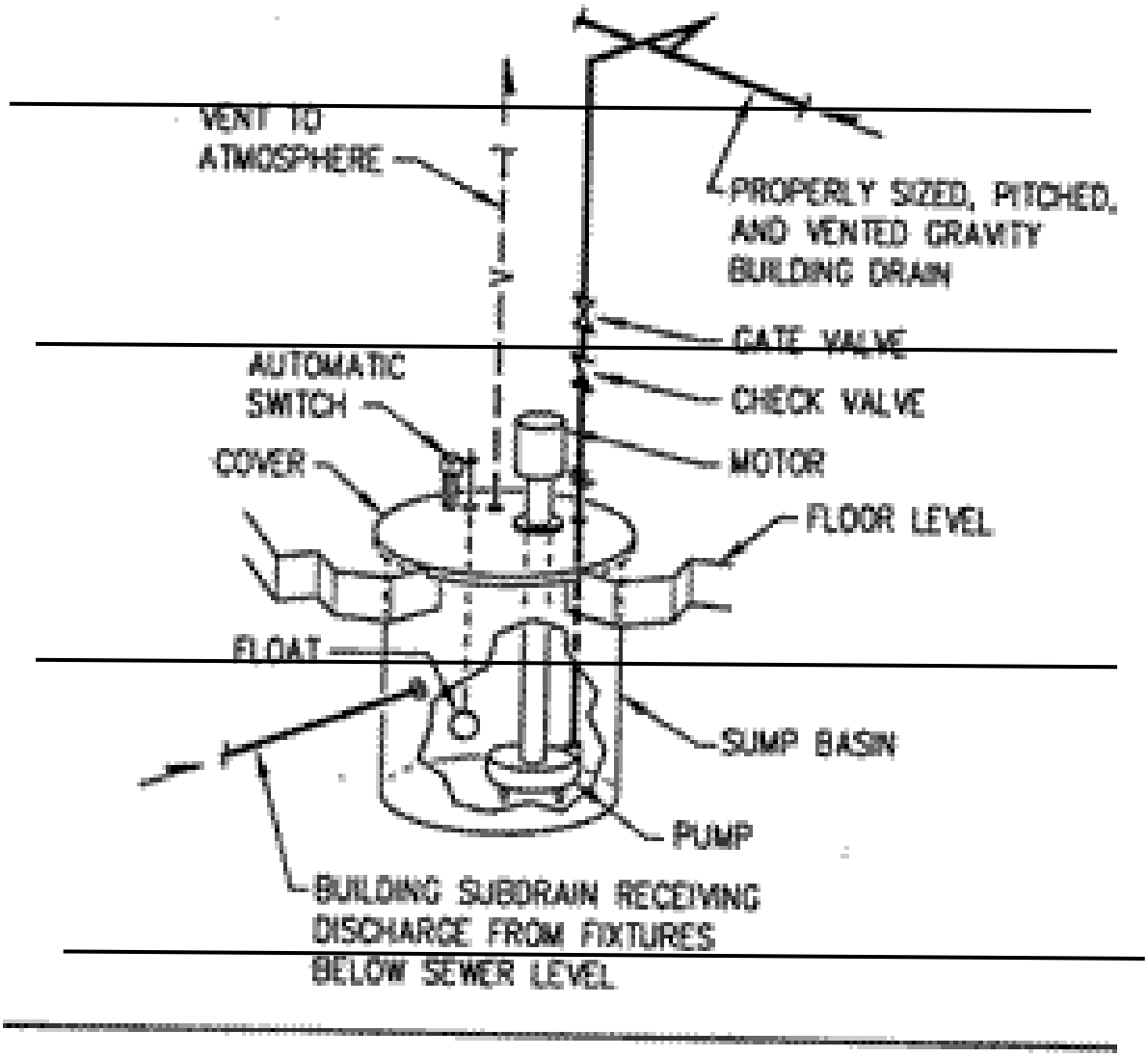
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX B Illustrations for Subpart A

Section 890.ILLUSTRATION G Building Sub-Drain

(Referenced in Section 890.120, Definition of "Building Sub-Drain.")





(Source: Amended at 37 Ill. Reg. _____, effective _____)

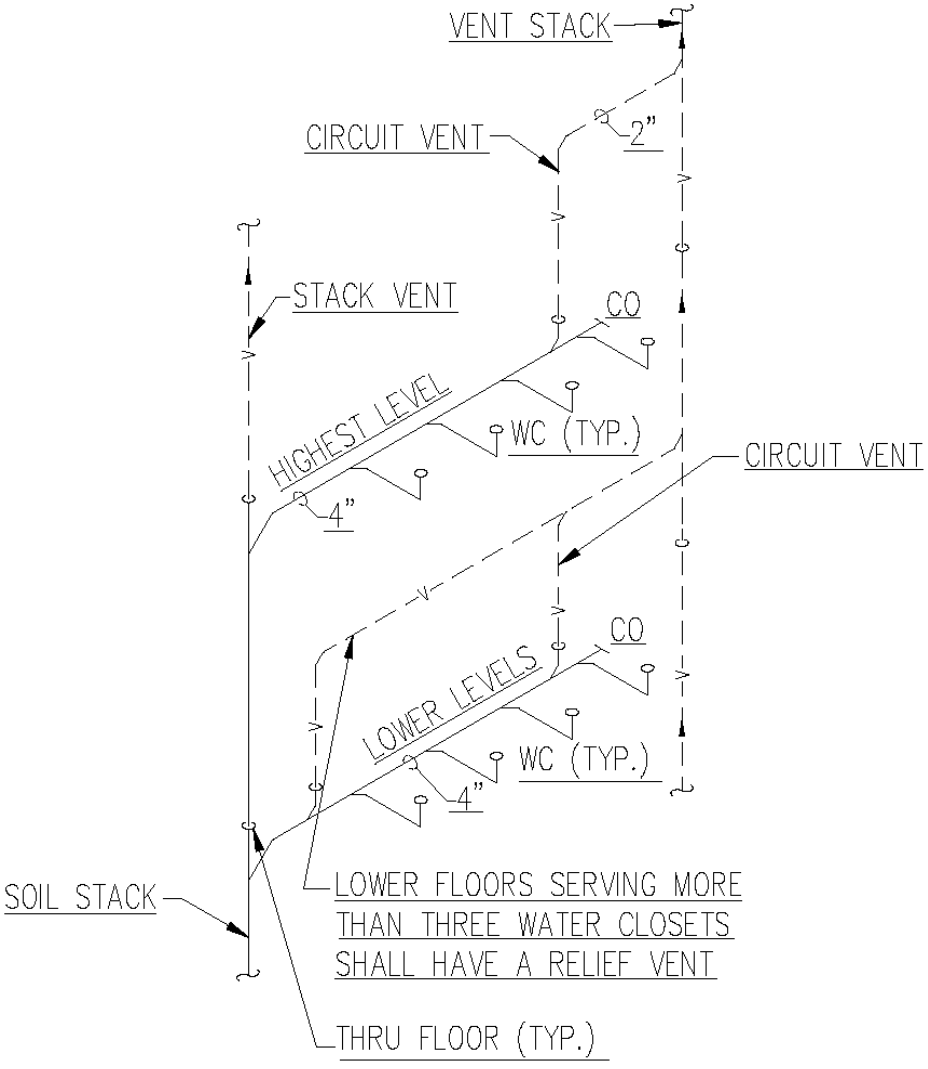
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX B Illustrations for Subpart A

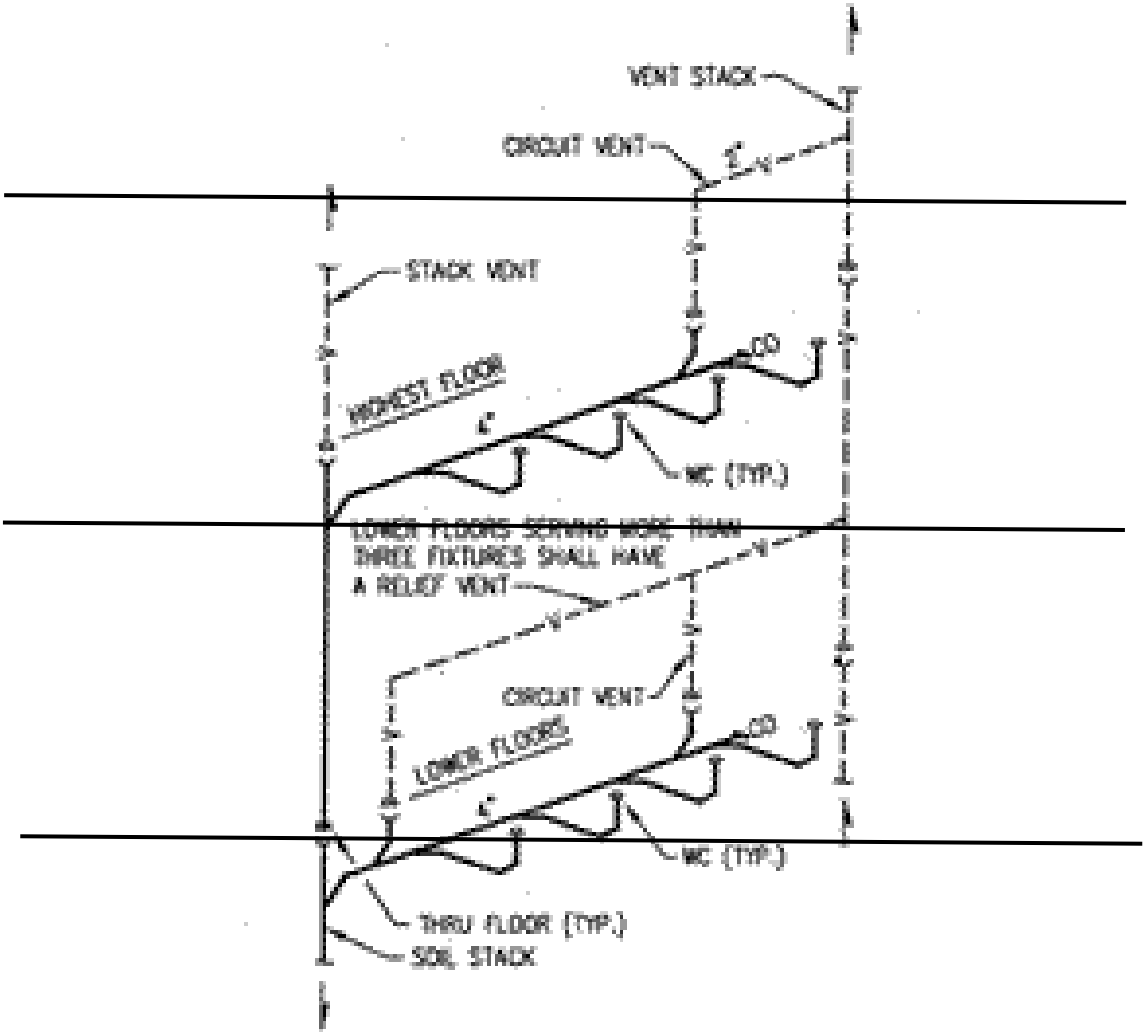
Section 890.ILLUSTRATION H Circuit Vent

(Referenced in Section 890.120, Definition of "Circuit Vent.")



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

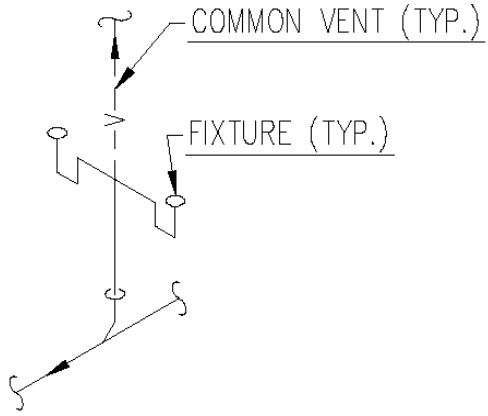
DEPARTMENT OF PUBLIC HEALTH

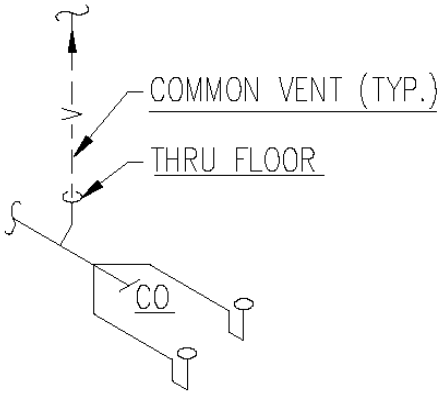
NOTICE OF PROPOSED AMENDMENTS

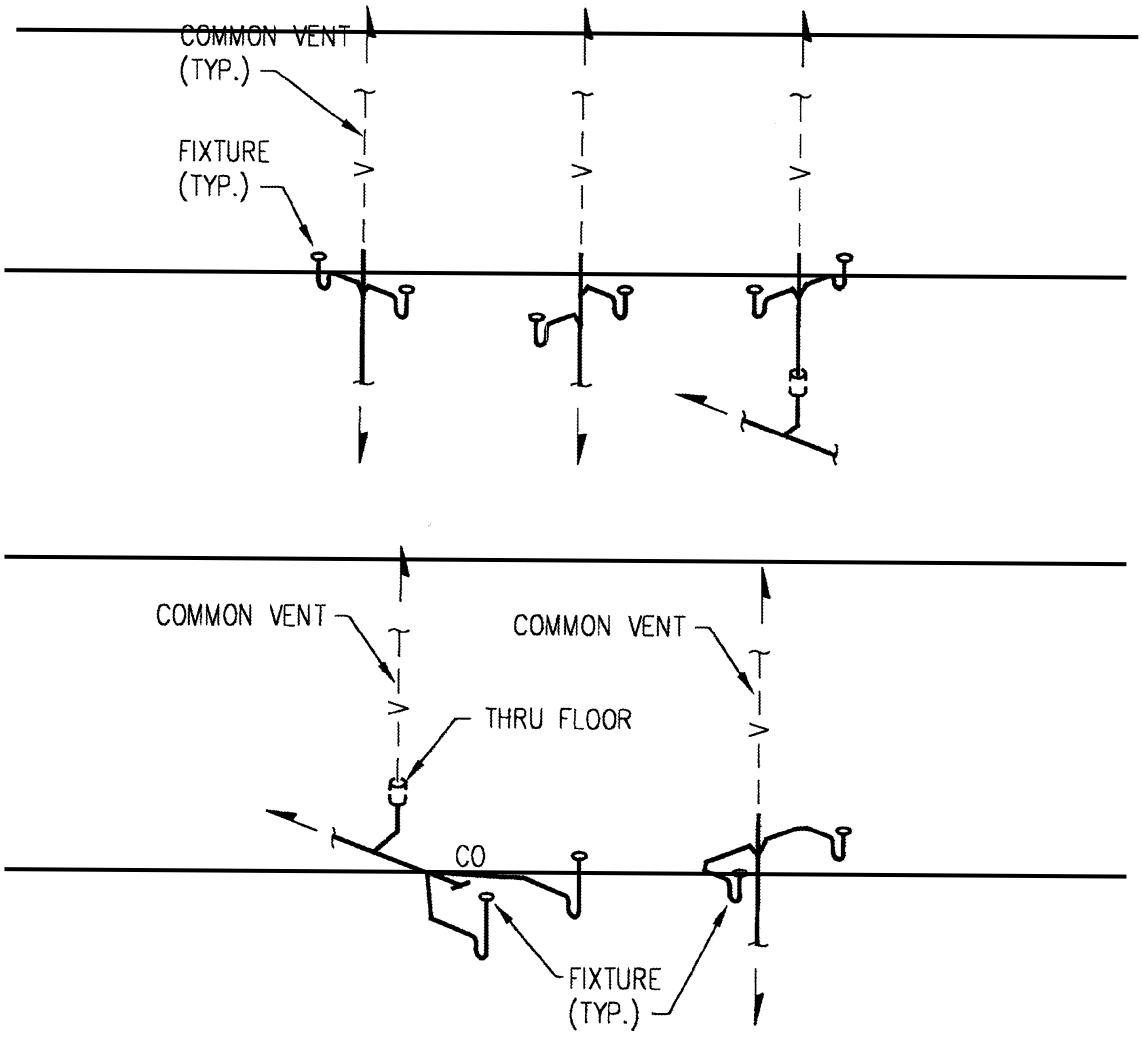
Section 890.APPENDIX B Illustrations for Subpart A

Section 890.ILLUSTRATION I Common Vent

(Referenced in Section 890.120, Definition of "Common Vent.")







(Source: Amended at 37 Ill. Reg. _____, effective _____)

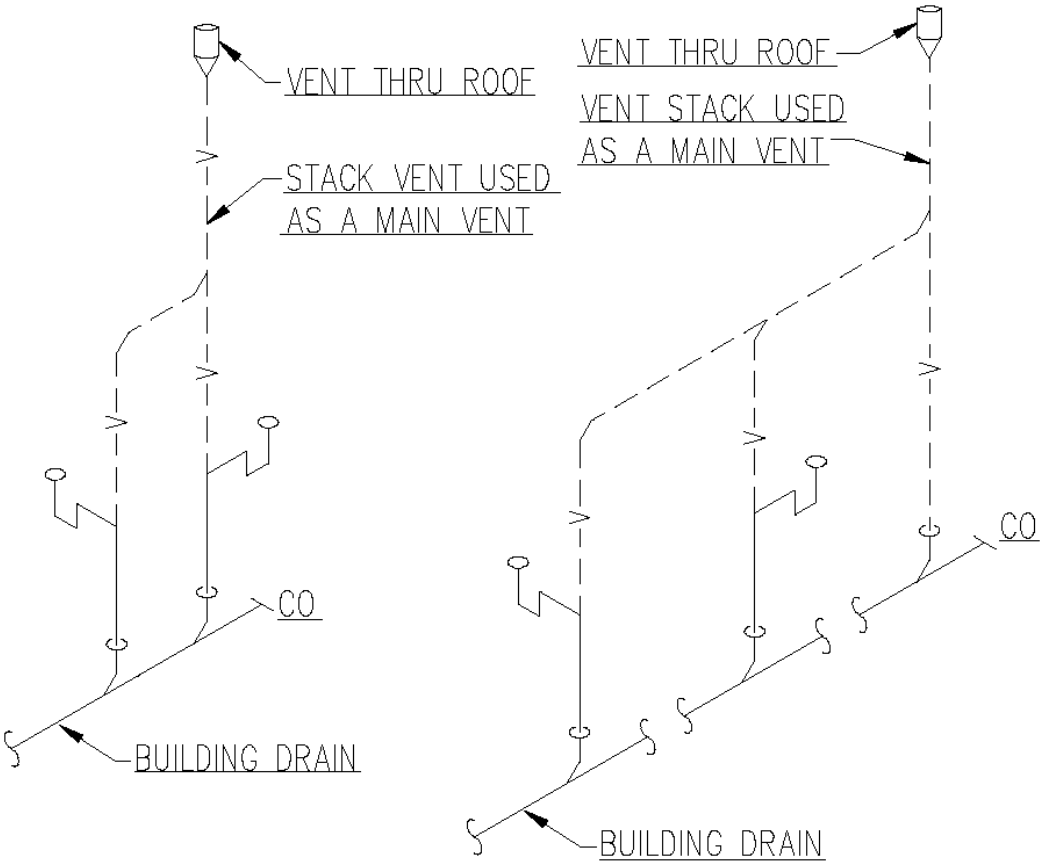
DEPARTMENT OF PUBLIC HEALTH

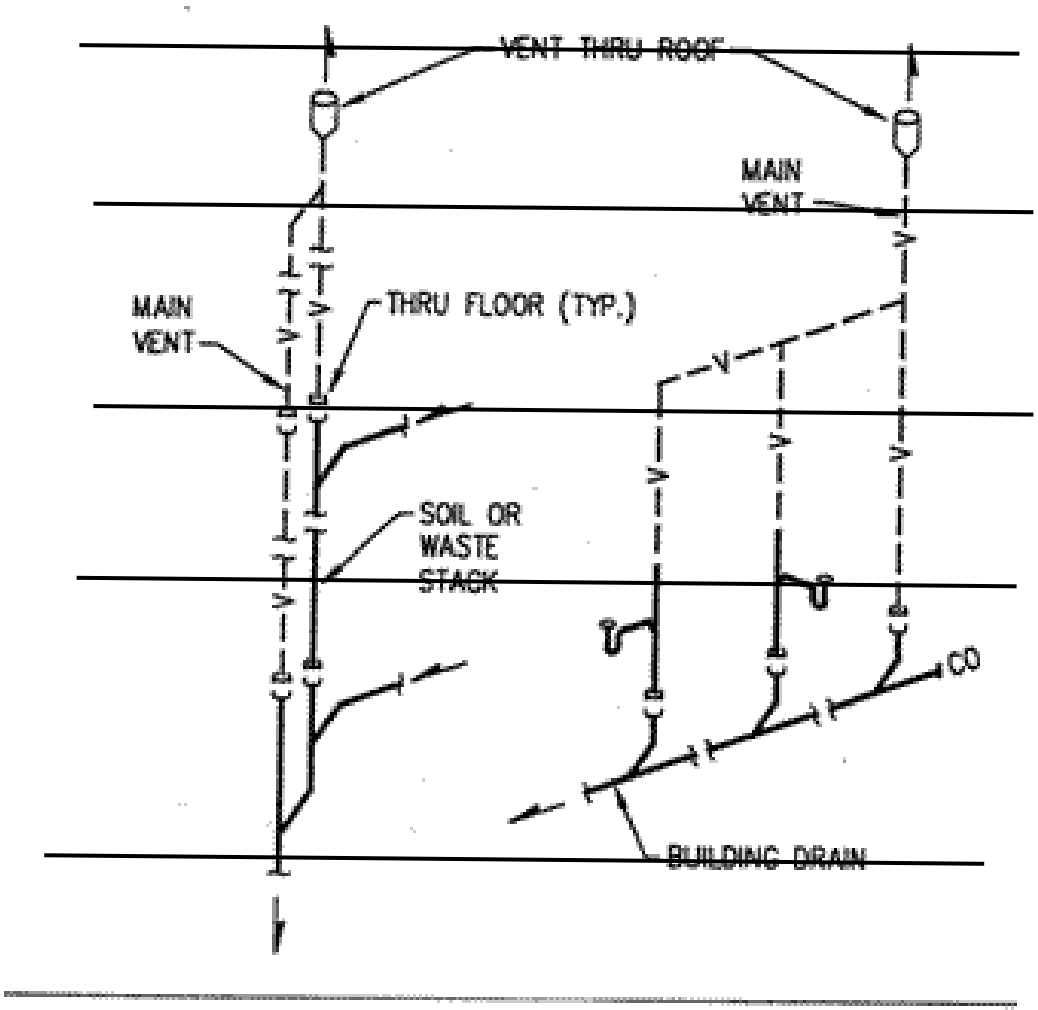
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX B Illustrations for Subpart A

Section 890.ILLUSTRATION Q Main Vent

(Referenced in Section 890.120, Definition of "Main Vent.")





(Source: Amended at 37 Ill. Reg. _____, effective _____)

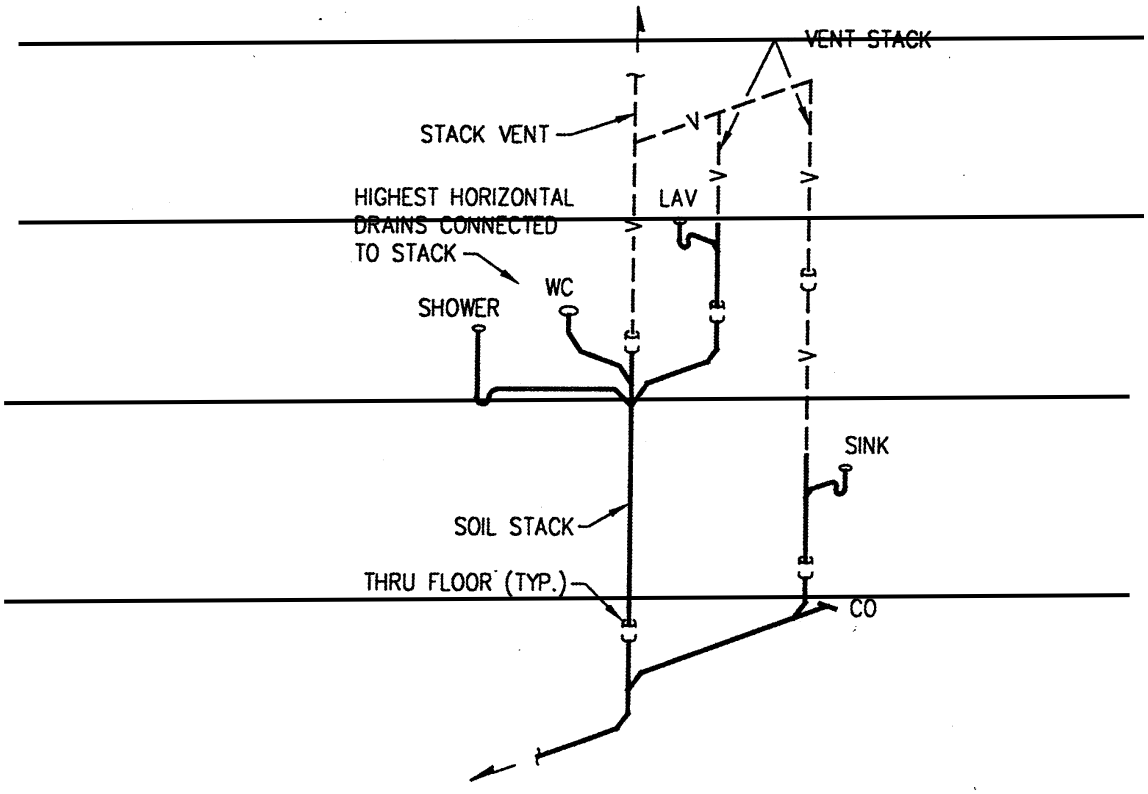
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX B Illustrations for Subpart A

Section 890.ILLUSTRATION X Vent Stack <u>(Repealed)</u>

~~(Referenced in Section 890.120, Definition of "Vent Stack.")~~



(Source: Repealed at 37 Ill. Reg._____, effective _____)

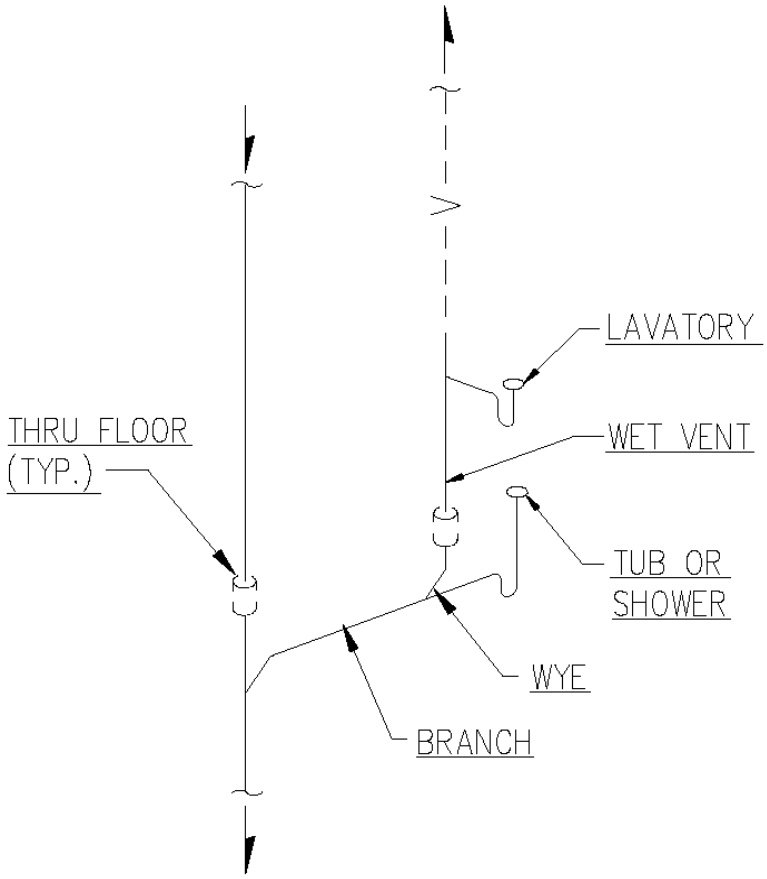
DEPARTMENT OF PUBLIC HEALTH

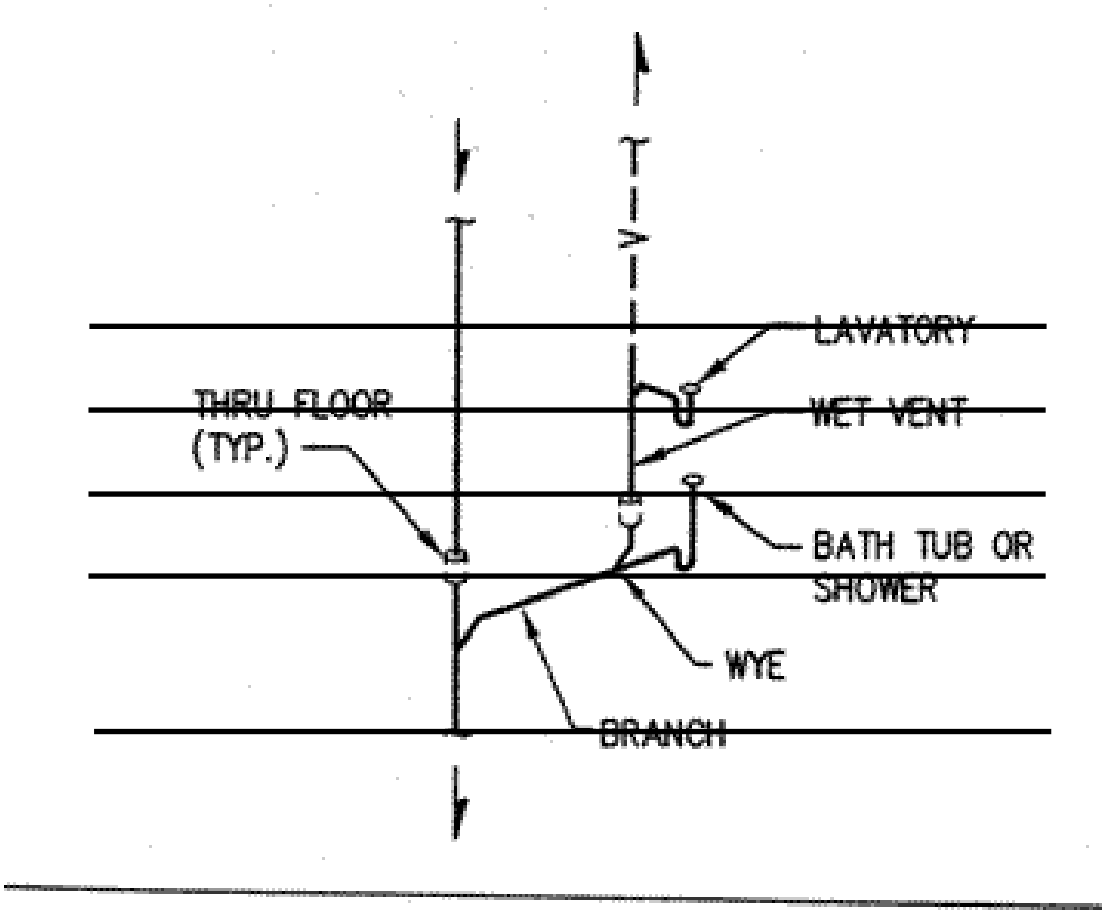
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX B Illustrations for Subpart A

Section 890.ILLUSTRATION Y Wet Vent

(Referenced in Section 890.120, Definition of "Wet Vent.")





(Source: Amended at 37 Ill. Reg._____, effective_____)

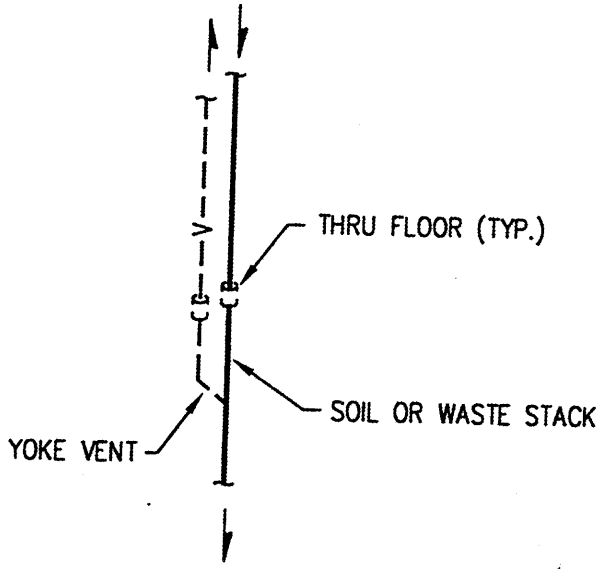
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX B Illustrations for Subpart A

Section 890.ILLUSTRATION Z Yoke Vent~~Section 890.ILLUSTRATION AA Sleeves~~

(Referenced in Section 890.120, Definition of "Yoke Vent.")



(Source: Amended at 37 Ill. Reg._____, effective _____)

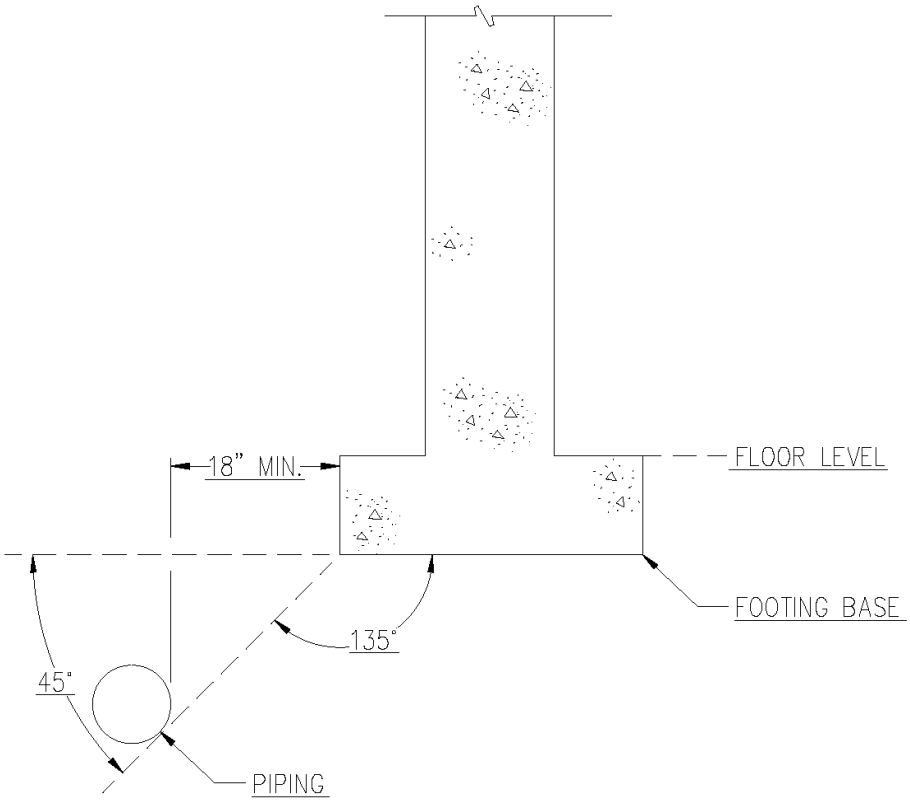
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX B Illustrations for Subpart A

Section 890.ILLUSTRATION BB Buried Piping Parallel to Footing

(Referenced in Section 890.180(e) and (f))



(Source: Added at 37 Ill. Reg._____, effective_____)

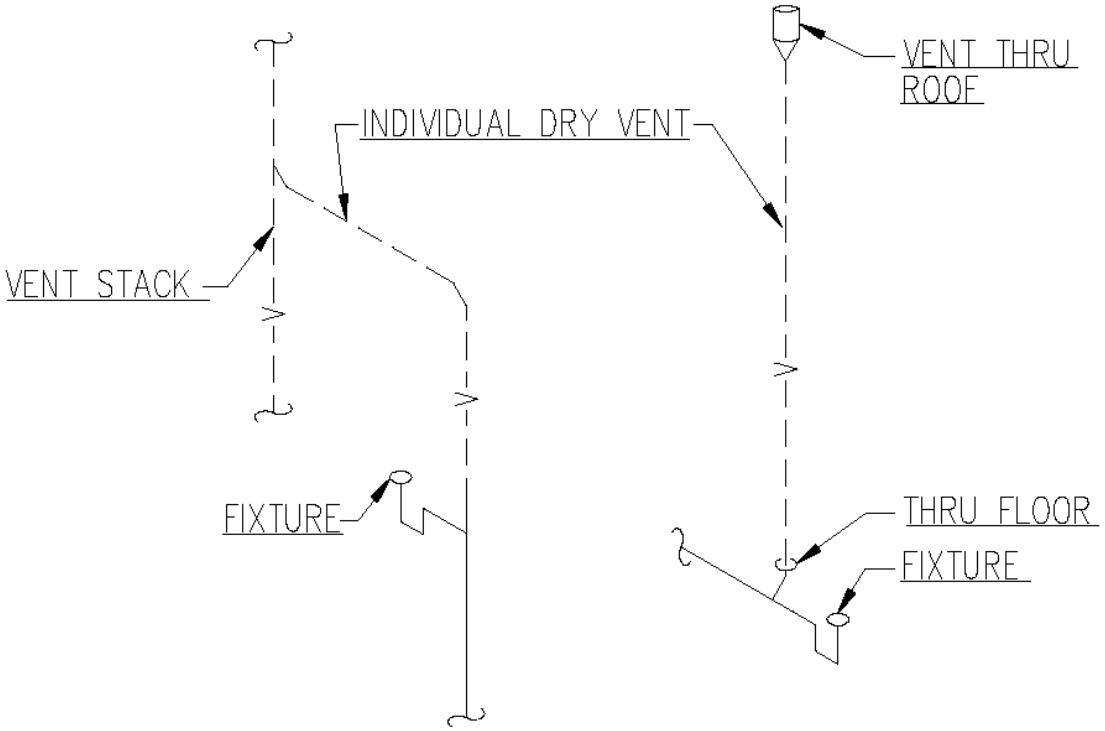
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX B Illustrations for Subpart A

Section 890.ILLUSTRATION CC Individual Dry Vent

(Referenced in Section 890.120, Definition of "Individual Dry Vent.")



(Source: Added at 37 Ill. Reg._____, effective_____)

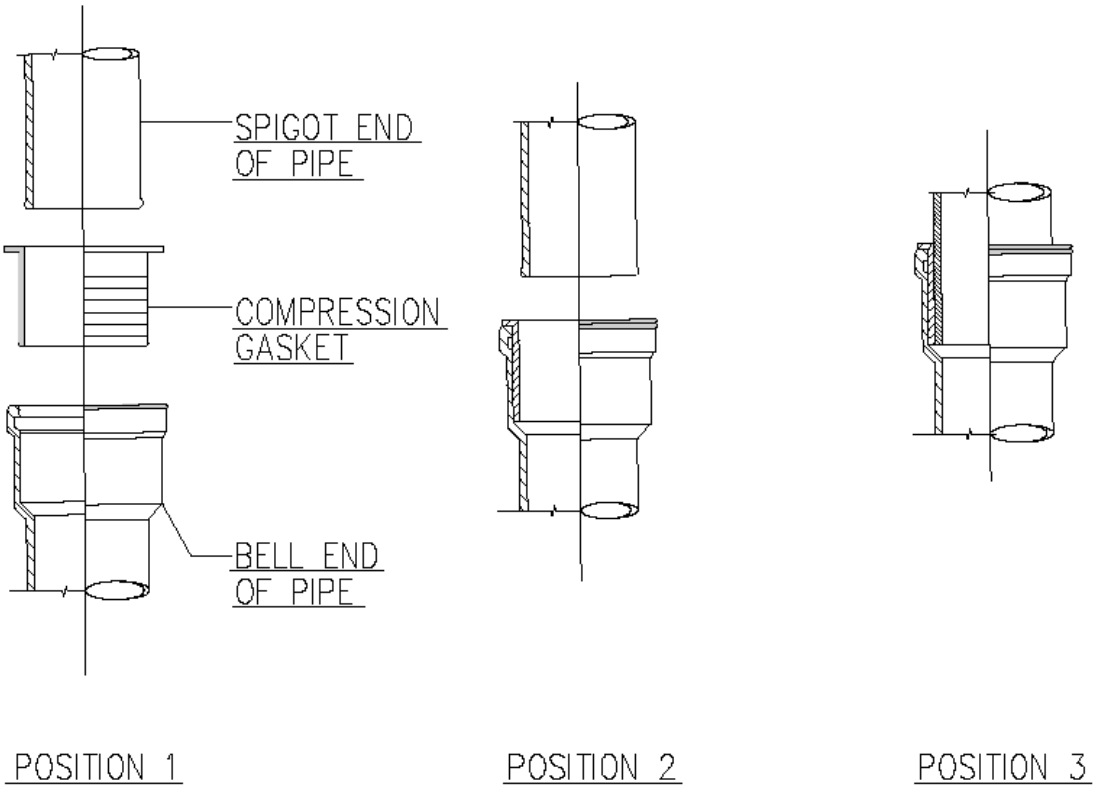
DEPARTMENT OF PUBLIC HEALTH

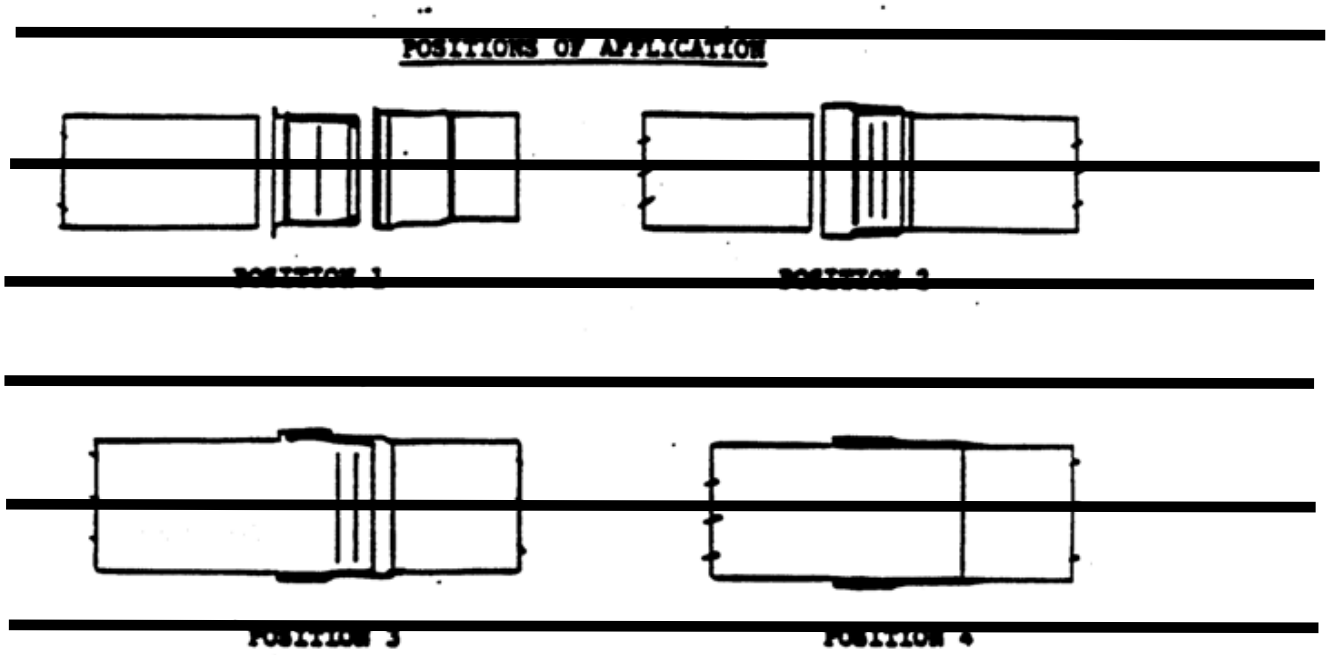
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX C Illustrations for Subpart C

Section 890.ILLUSTRATION C Positions of Application for Compression Type Joints

(Referenced in Section 890.320(o)~~(p)~~(1))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

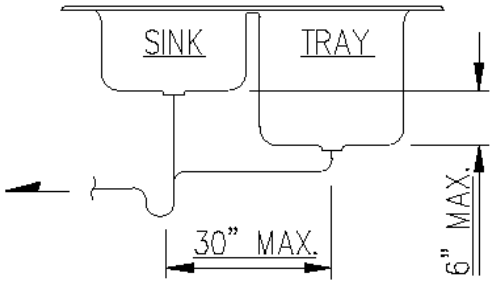
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

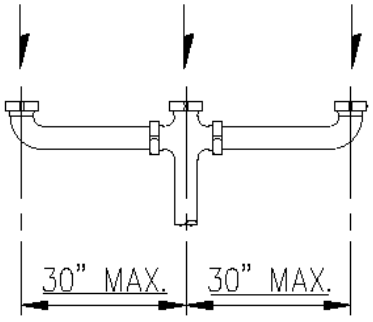
Section 890.APPENDIX D Illustrations for Subpart D

Section 890.ILLUSTRATION A Fixture Traps

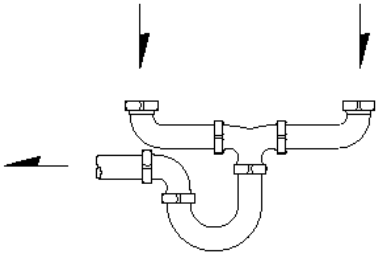
(Referenced in Section 890.410(a)~~(1)~~)



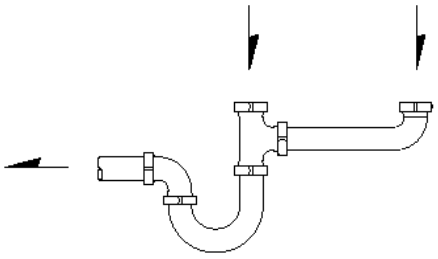
TRAY WASTE CONNECTION BELOW, OR WITHIN, TRAP SEAL PREFERABLE



CONTINUOUS WASTE (DRAIN) FOR THREE COMPARTMENT SINK



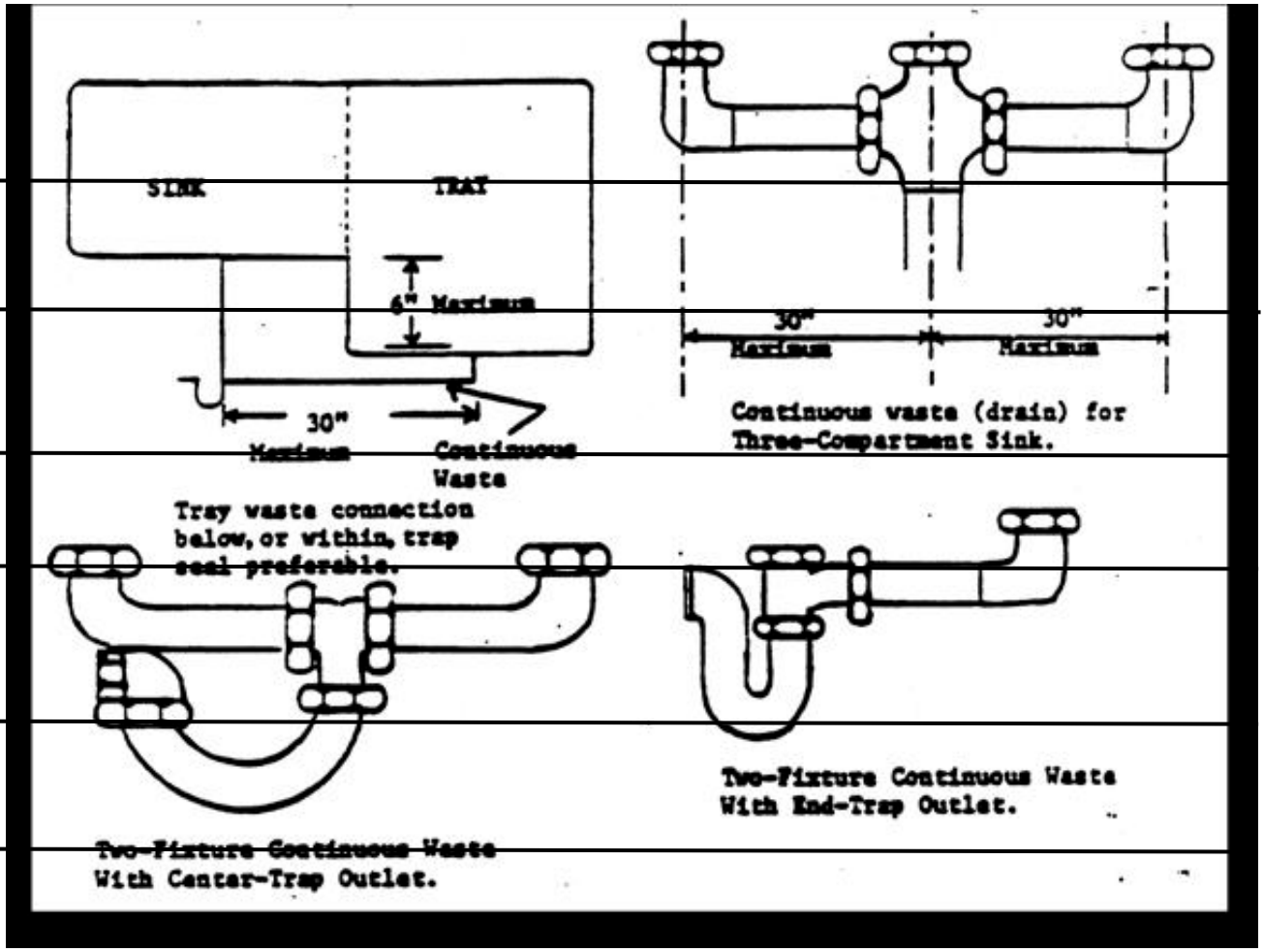
TWO-FIXTURE CONTINUOUS WASTE WITH CENTER-TRAP OUTLET



TWO-FIXTURE CONTINUOUS WASTE WITH END-TRAP OUTLET

DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

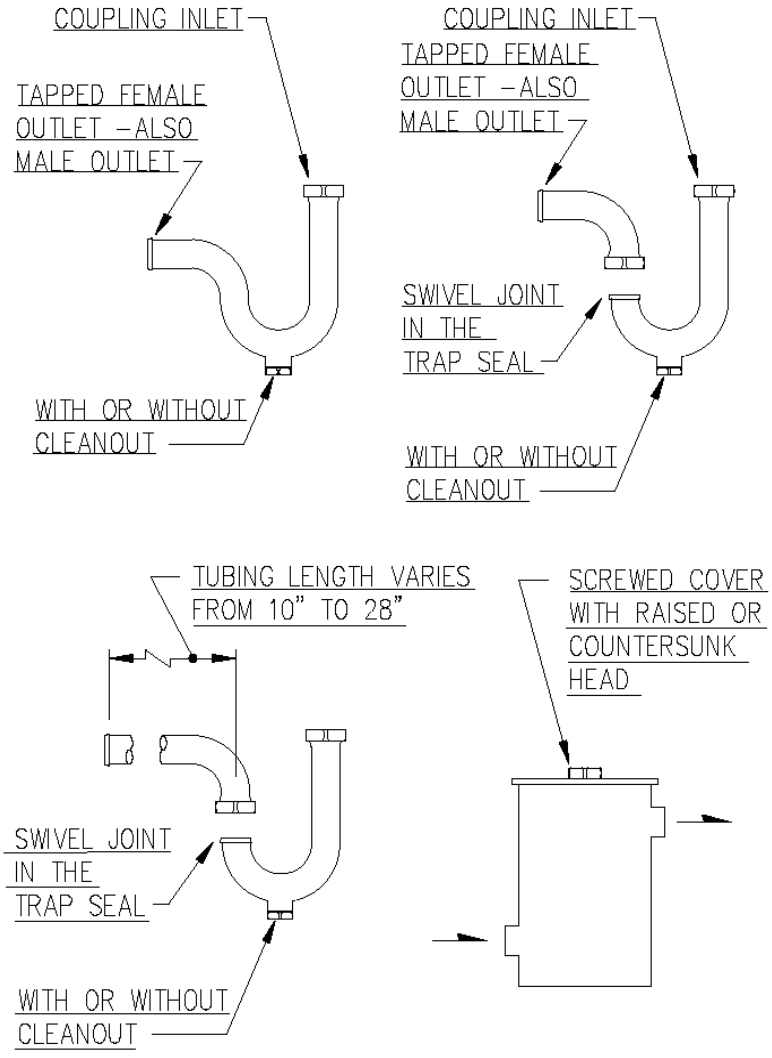
DEPARTMENT OF PUBLIC HEALTH

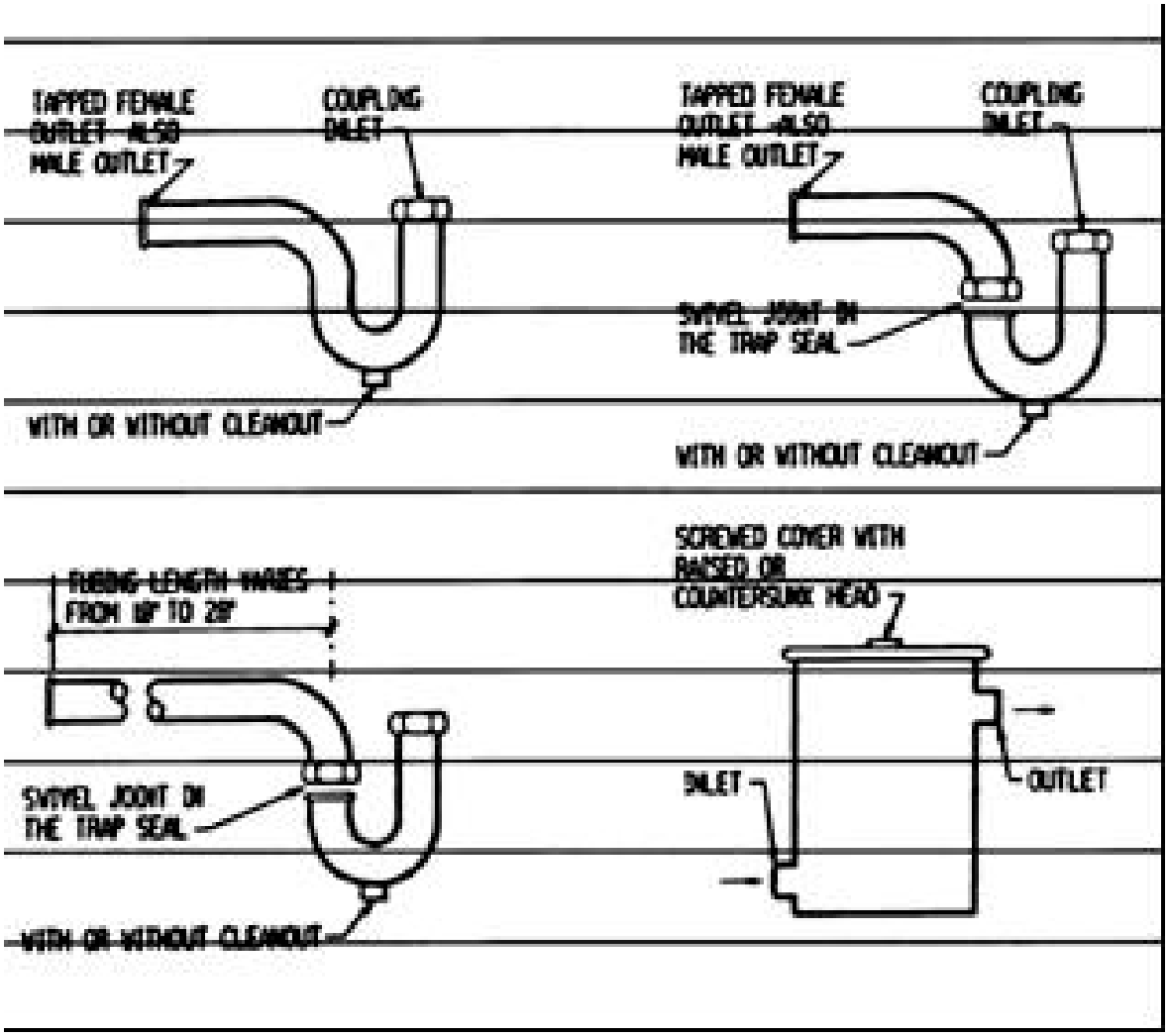
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX D Illustrations for Subpart D

Section 890.ILLUSTRATION C Types of Traps

(Referenced in Section 890.410(d))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

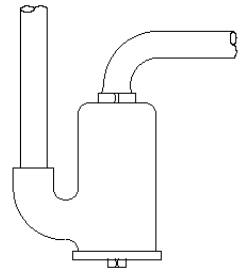
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

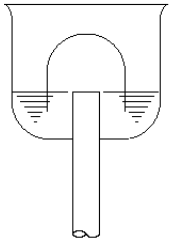
Section 890.APPENDIX D Illustrations for Subpart D

Section 890.ILLUSTRATION E Prohibited Traps

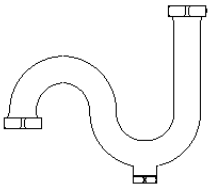
(Referenced in Section 890.410(k))



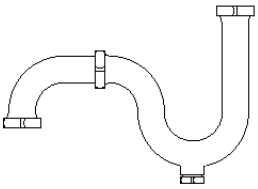
ANTI–SIPHON TRAP



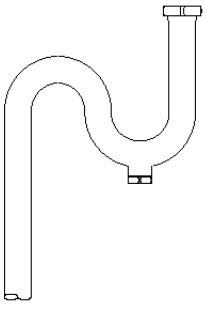
BELL TRAP



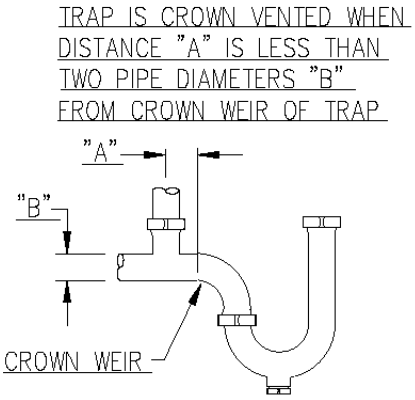
FULL "S" TRAP



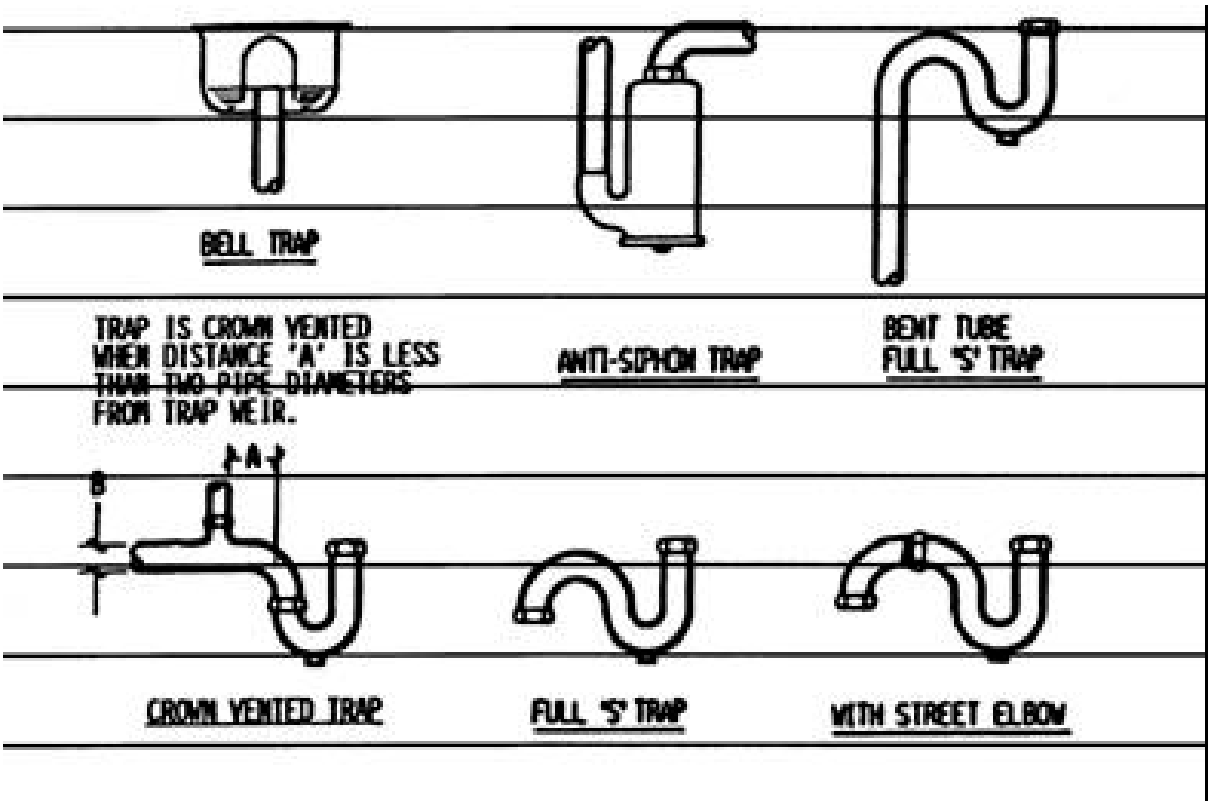
WITH STREET ELBOW



BENT TUBE FULL "S" TRAP



CROWN VENTED TRAP



(Source: Amended at 37 Ill. Reg. _____, effective _____)

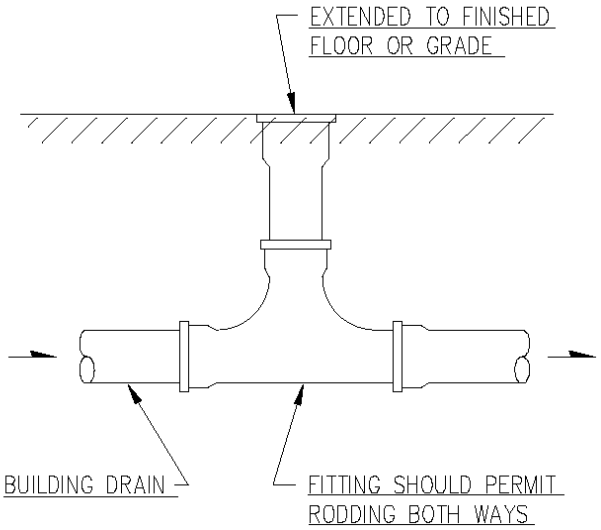
DEPARTMENT OF PUBLIC HEALTH

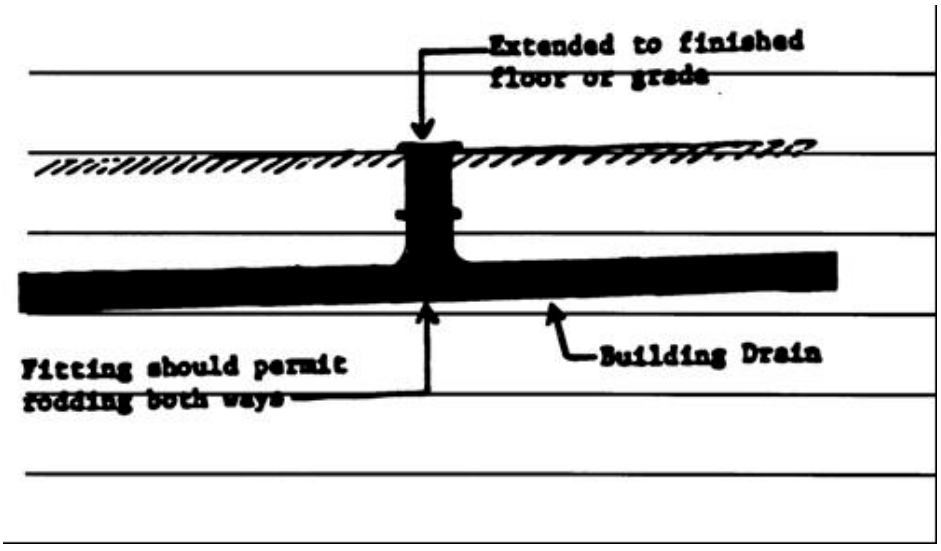
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX D Illustrations for Subpart D

Section 890.ILLUSTRATION F Underground Drainage

(Referenced in Section 890.420(c))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

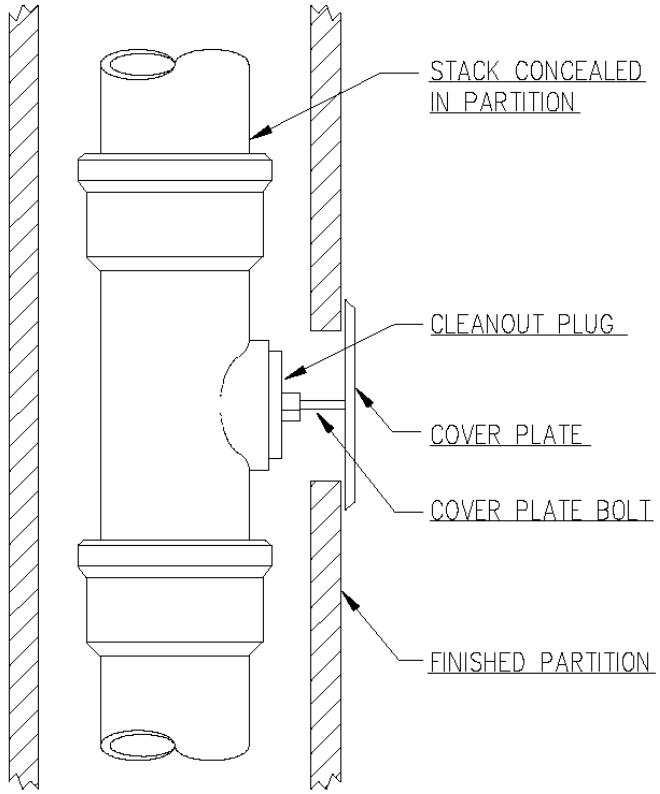
DEPARTMENT OF PUBLIC HEALTH

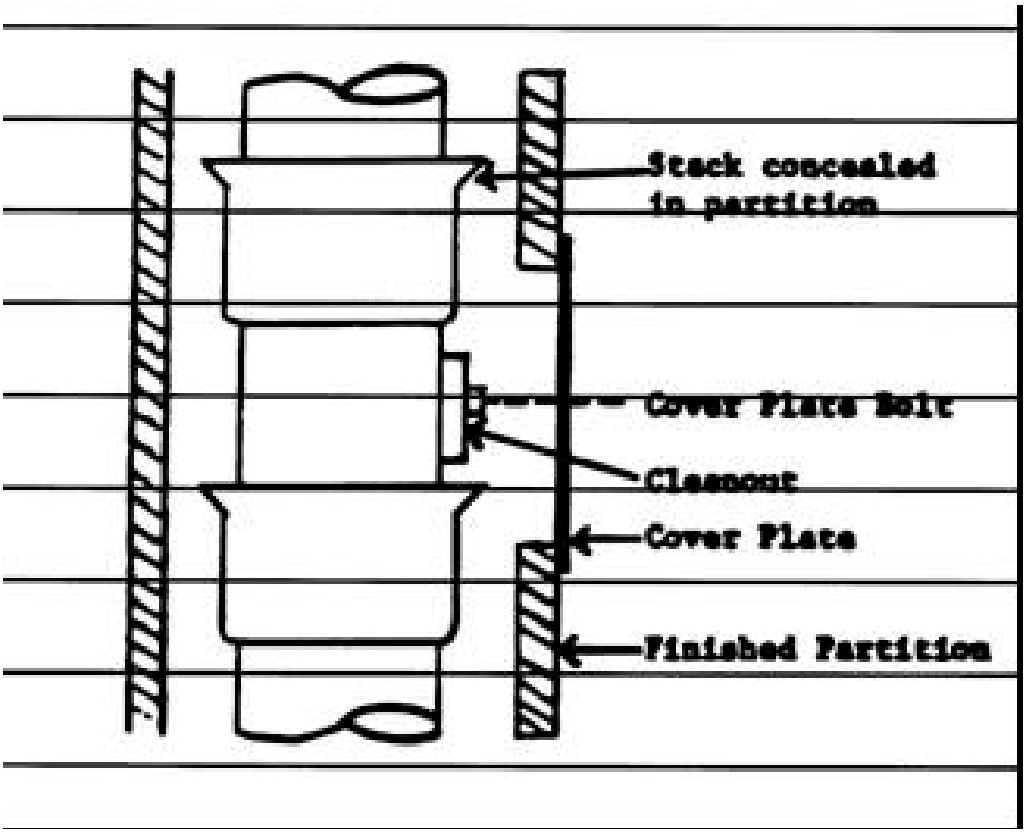
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX D Illustrations for Subpart D

Section 890.ILLUSTRATION G Concealed Piping

(Referenced in Section 890.420(d))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

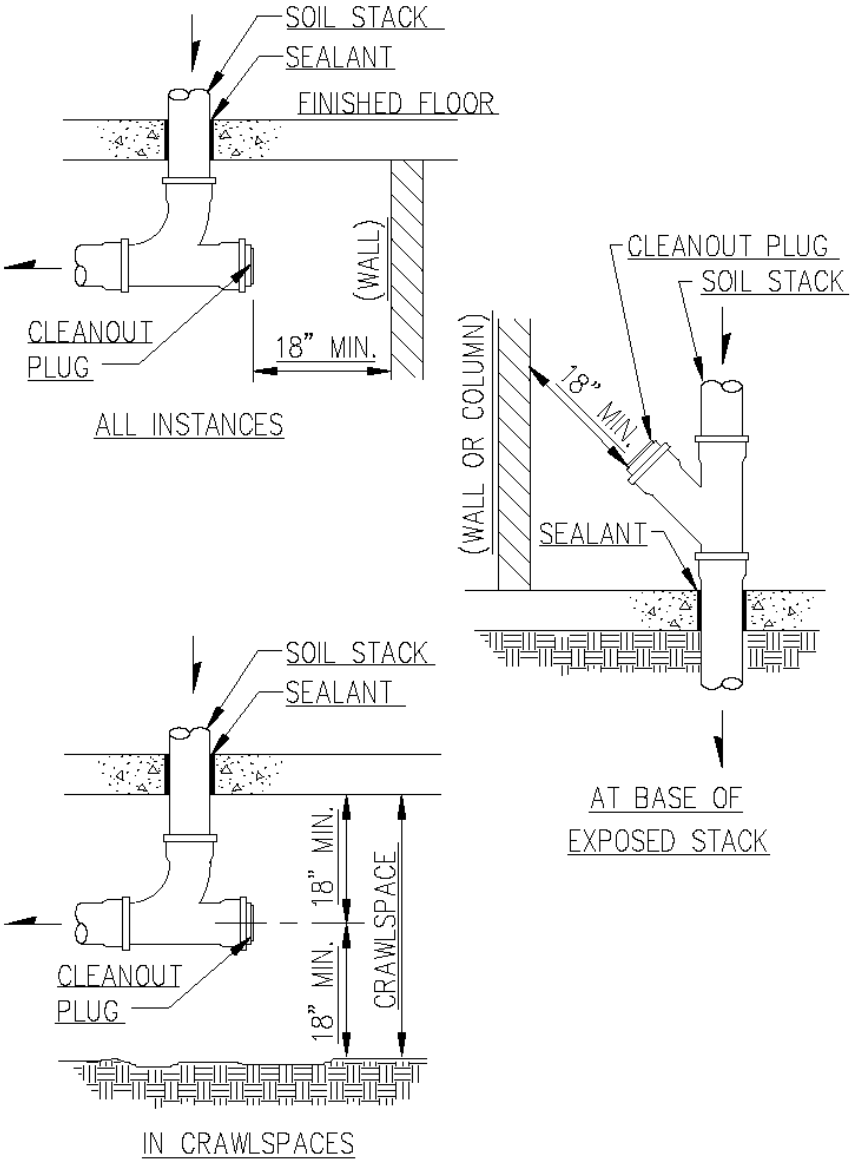
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX D Illustrations for Subpart D

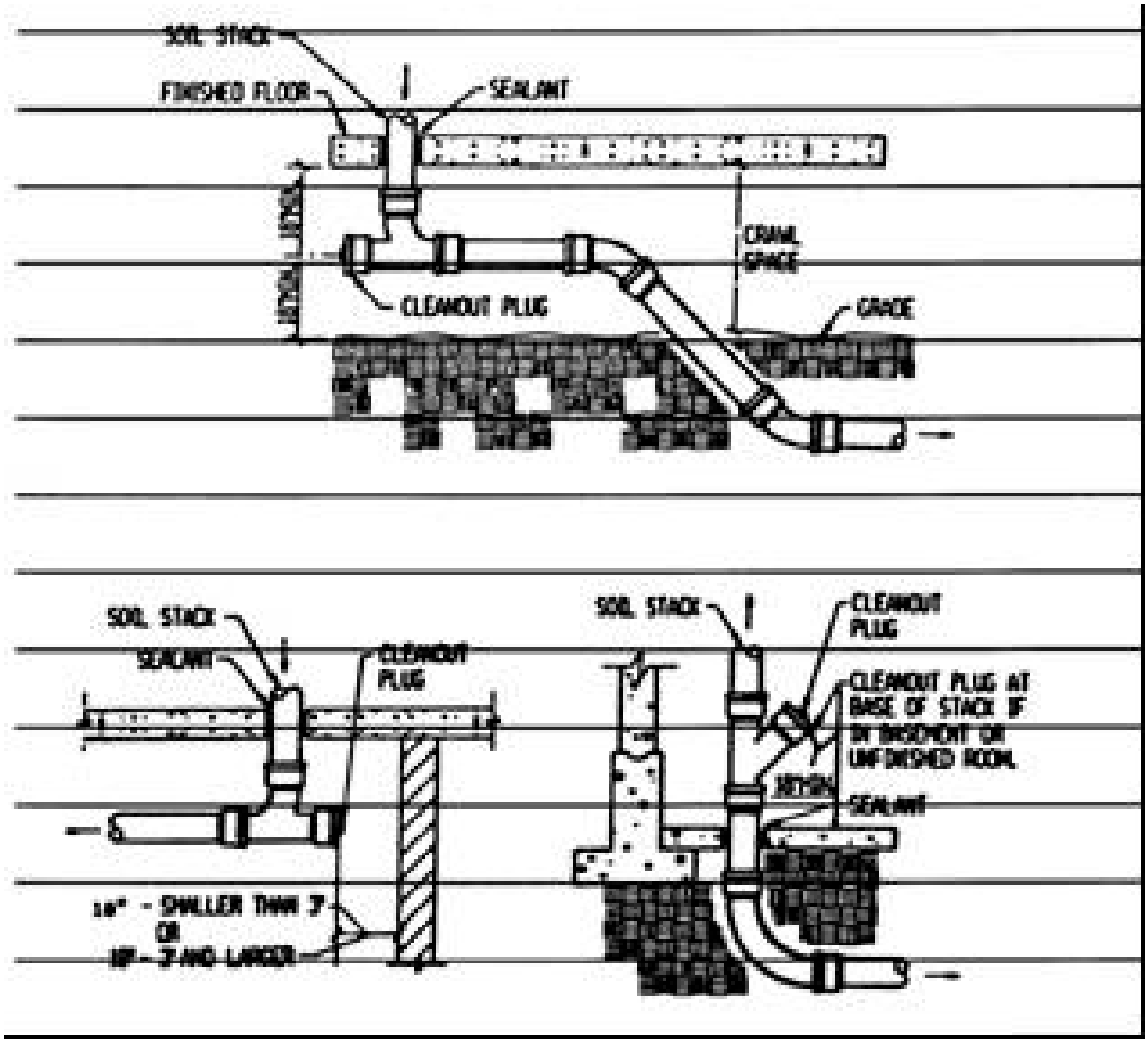
Section 890.ILLUSTRATION H Cleanout Clearance

(Referenced in Section 890.420(j))



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

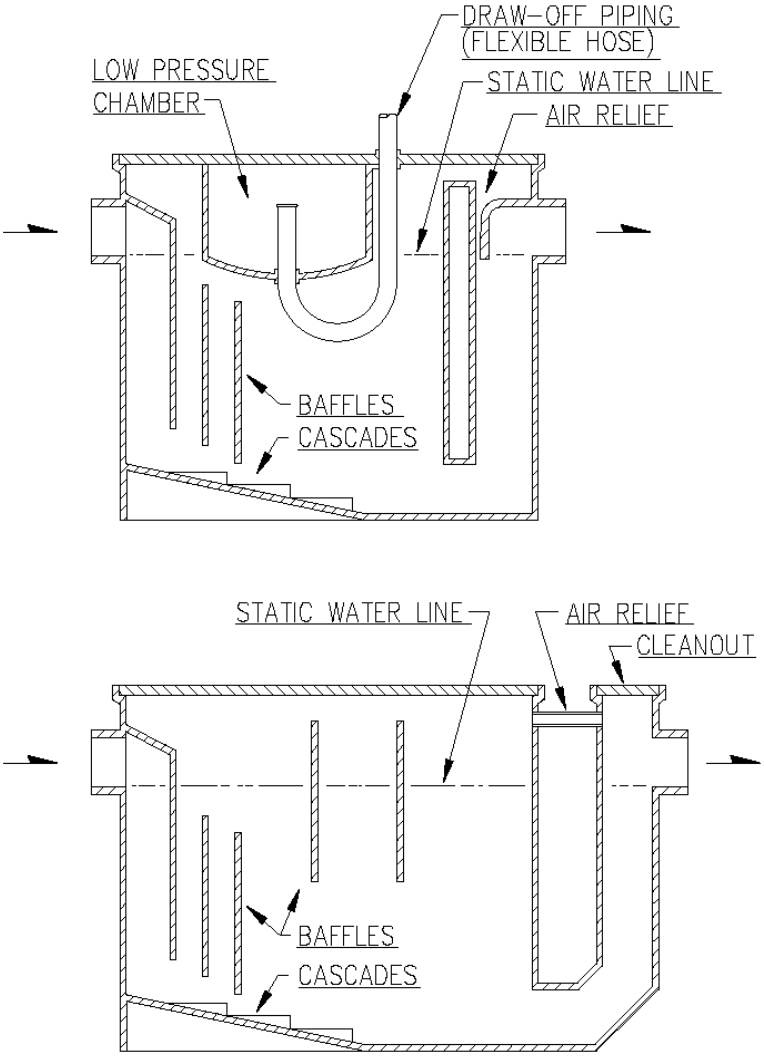
DEPARTMENT OF PUBLIC HEALTH

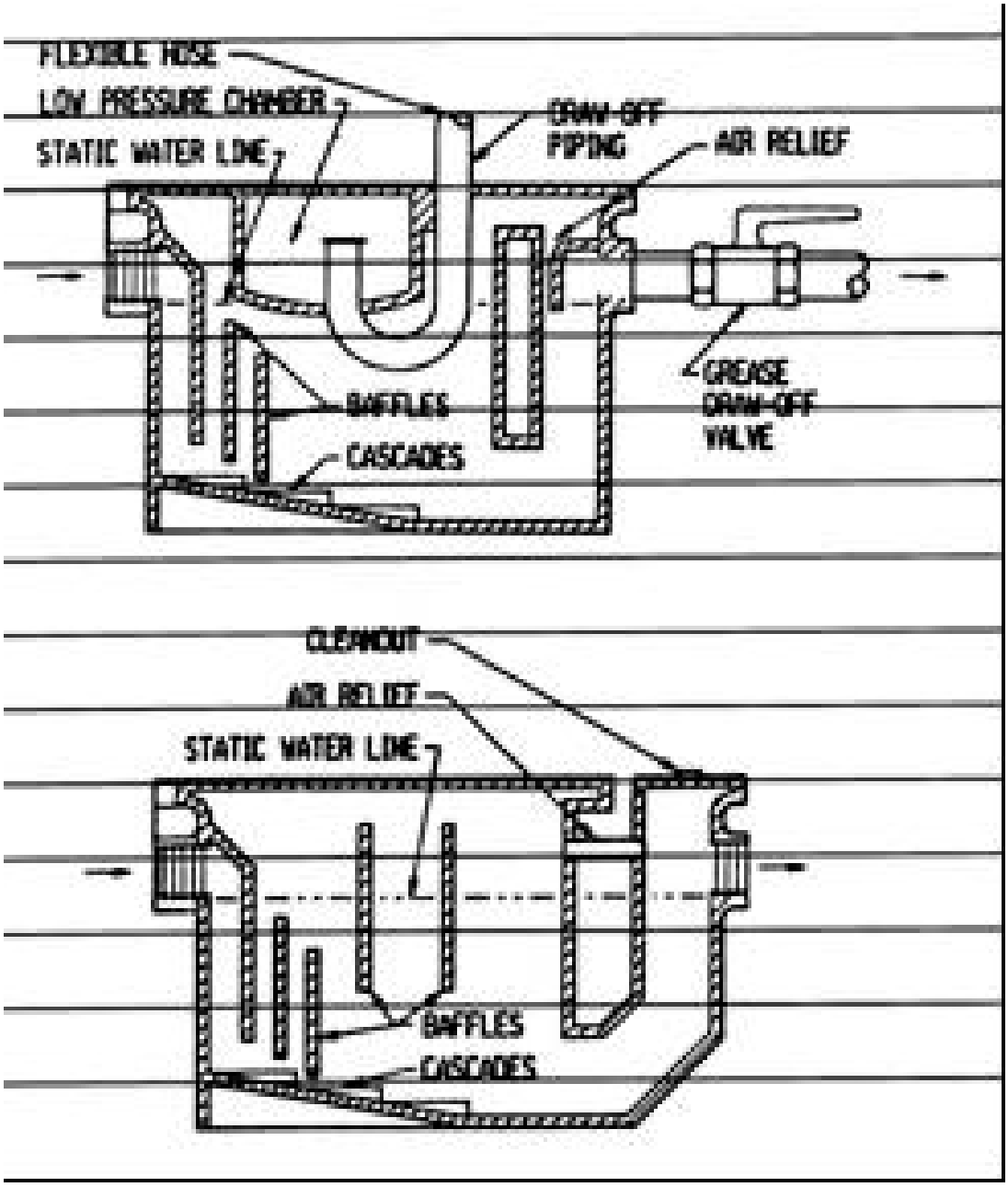
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX E Illustrations for Subpart E

Section 890.ILLUSTRATION A Grease Interceptor

(Referenced in Section 890.510)





(Source: Amended at 37 Ill. Reg. _____, effective _____)

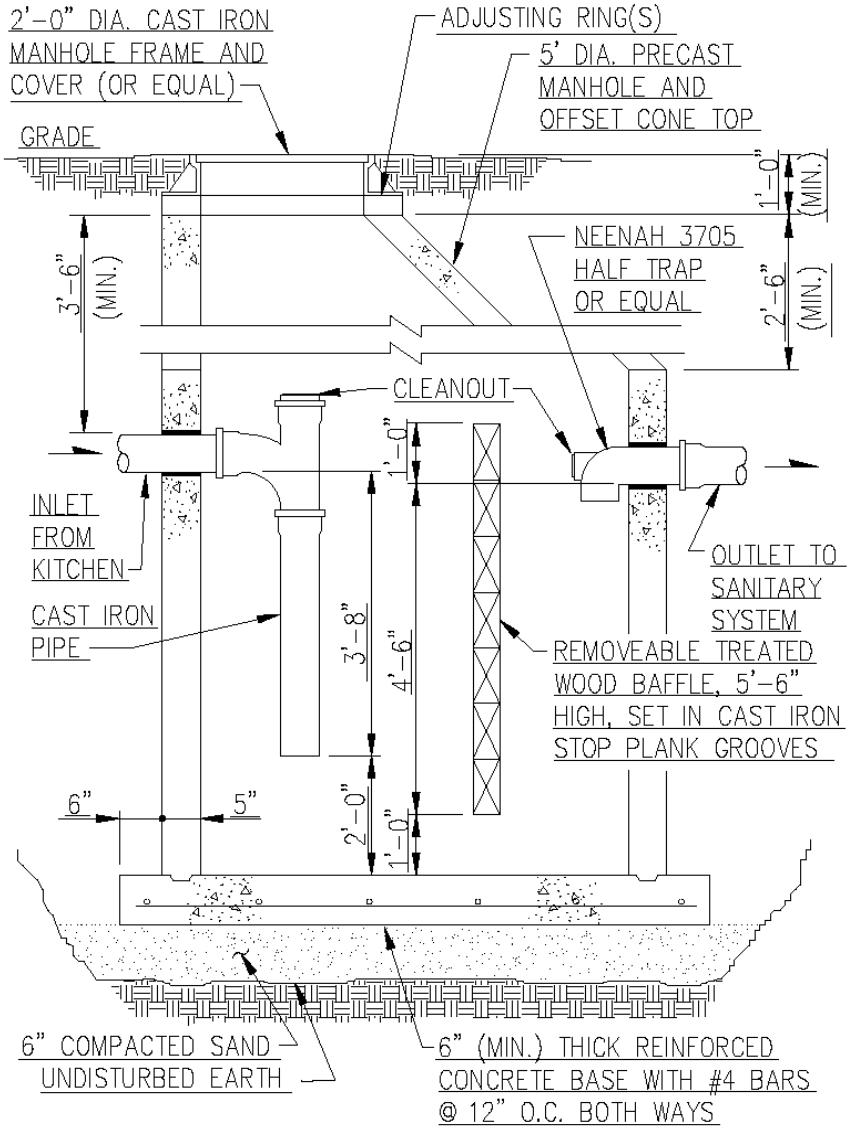
DEPARTMENT OF PUBLIC HEALTH

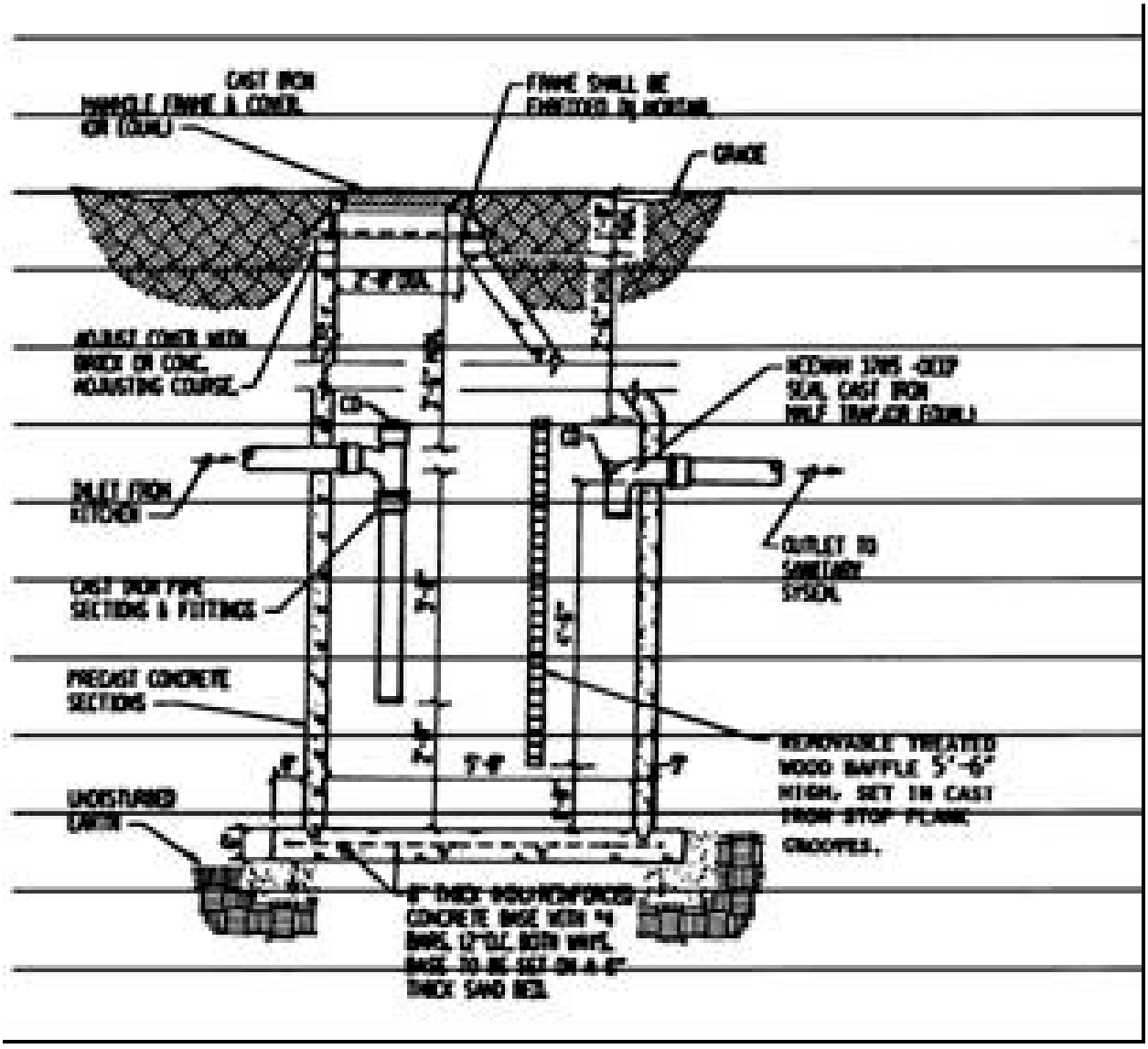
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX E Illustrations for Subpart E

Section 890.ILLUSTRATION B Typical Grease Interceptor/Catch Basin

(Referenced in Section 890.510)





(Source: Amended at 37 Ill. Reg. _____, effective _____)

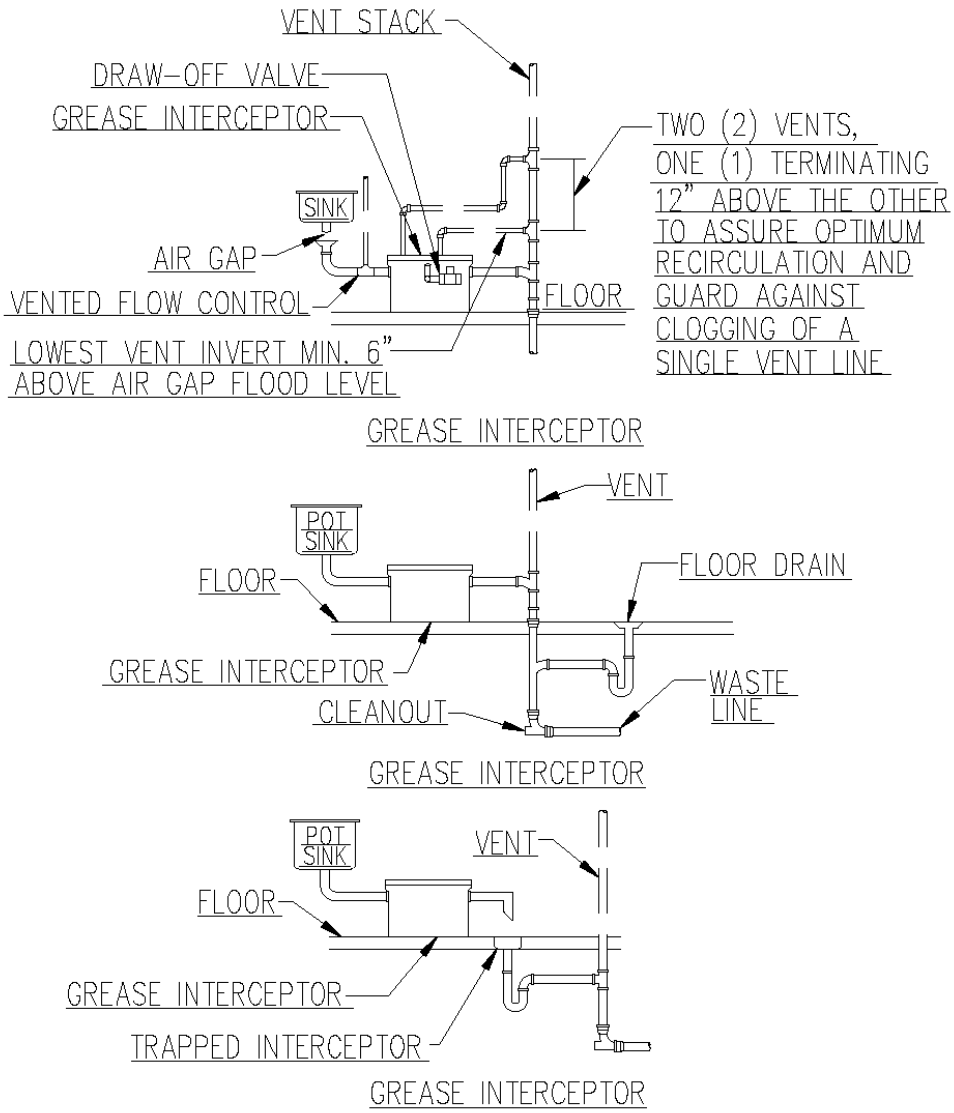
DEPARTMENT OF PUBLIC HEALTH

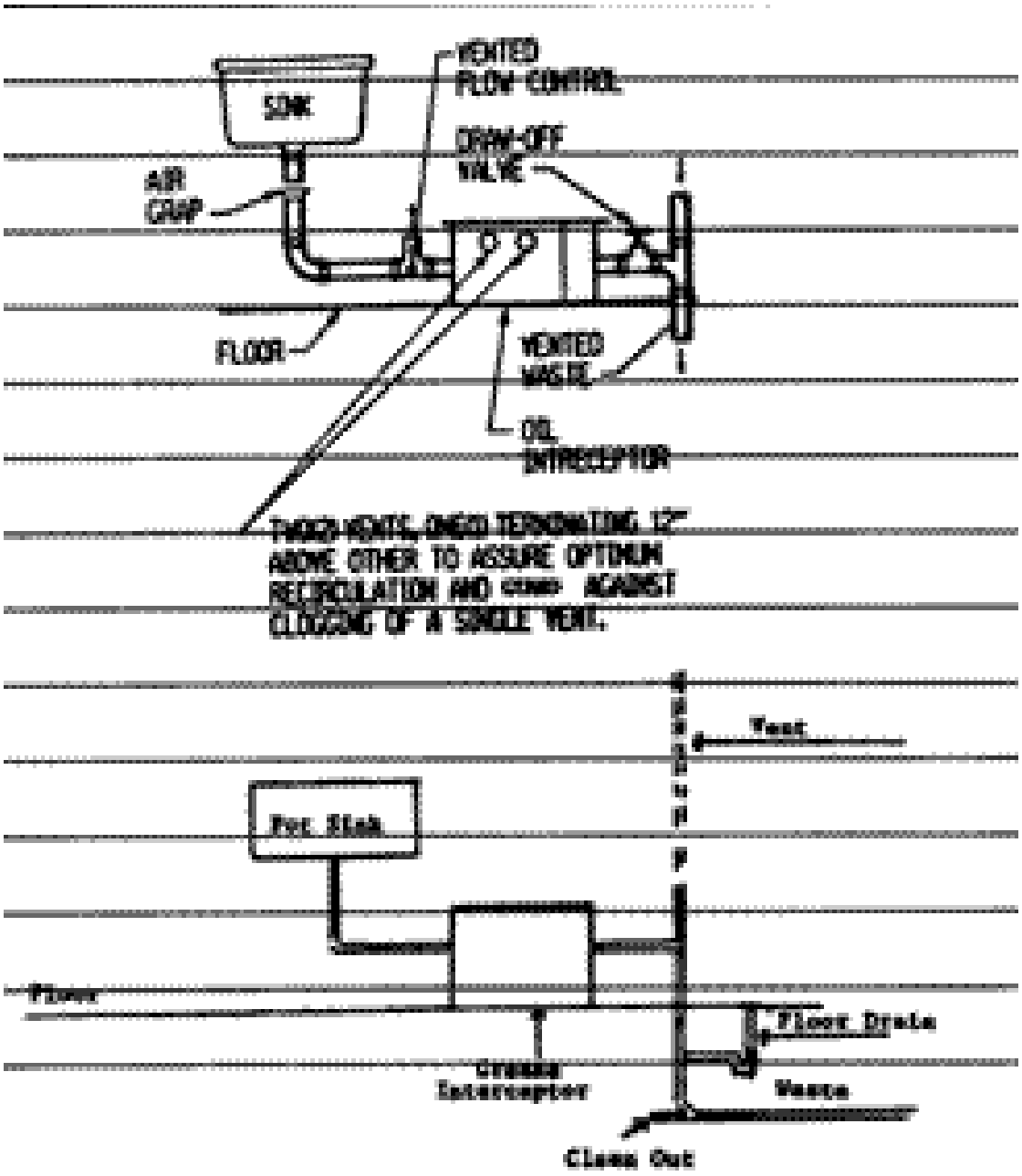
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX E Illustrations for Subpart E

Section 890.ILLUSTRATION C Interceptor/Separator Vents

(Referenced in Section 890.510(a)(6))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

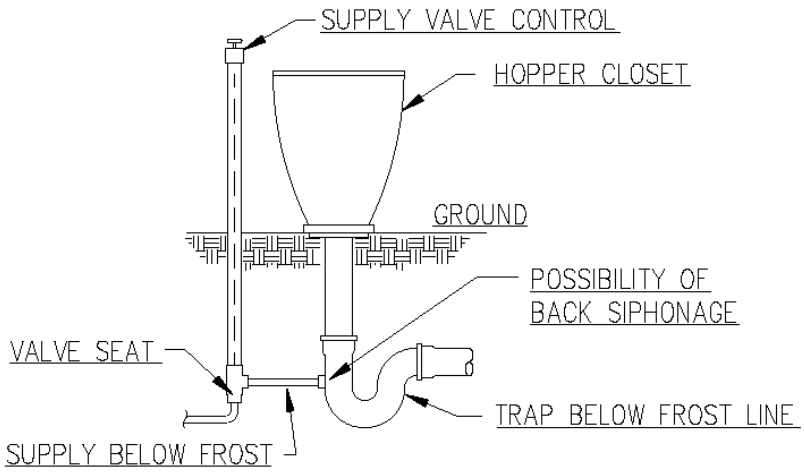
DEPARTMENT OF PUBLIC HEALTH

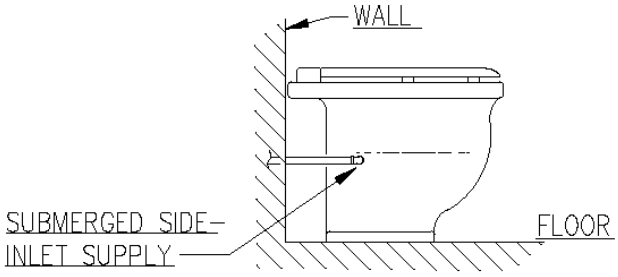
NOTICE OF PROPOSED AMENDMENTS

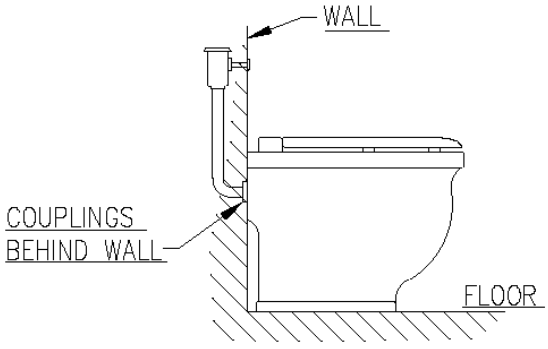
Section 890.APPENDIX F Illustrations for Subpart F

Section 890.ILLUSTRATION A Prohibited Fixtures

(Referenced in Section 890.650(j)

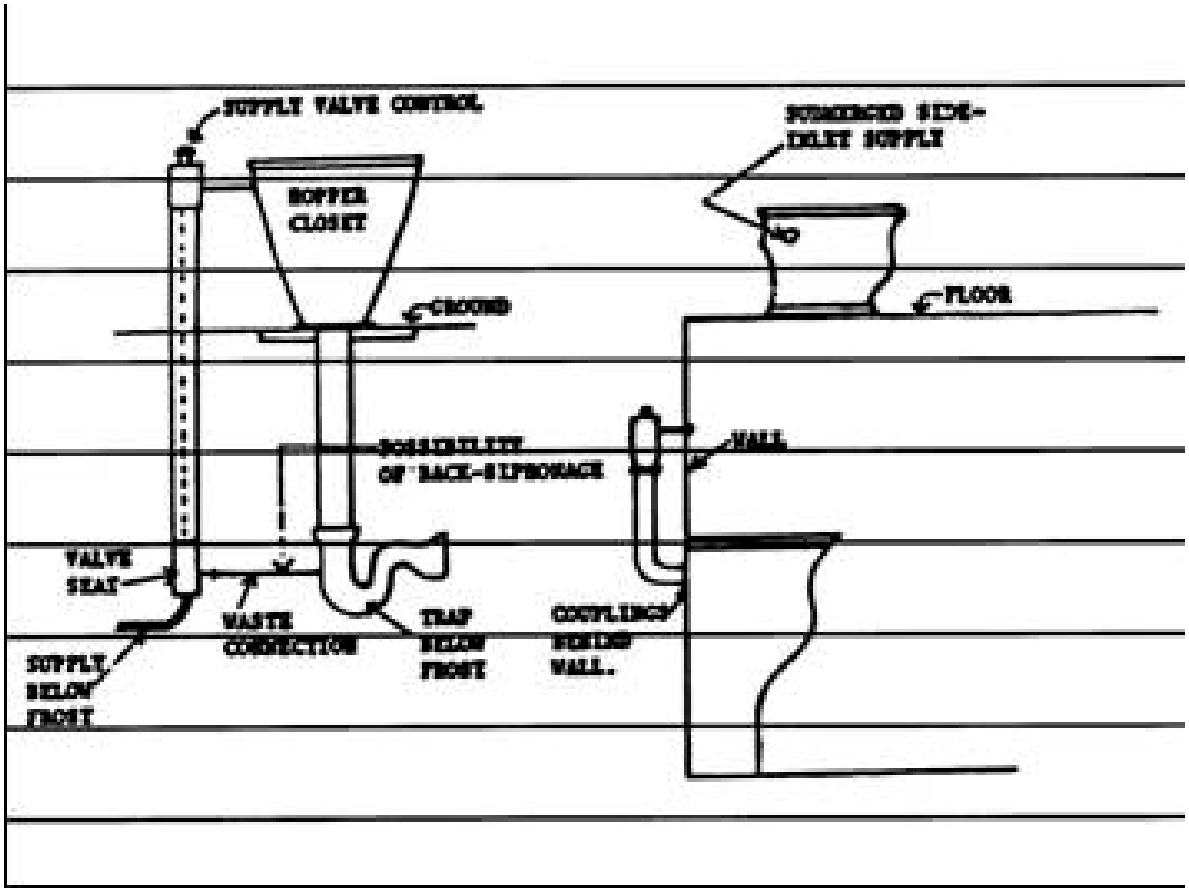






DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

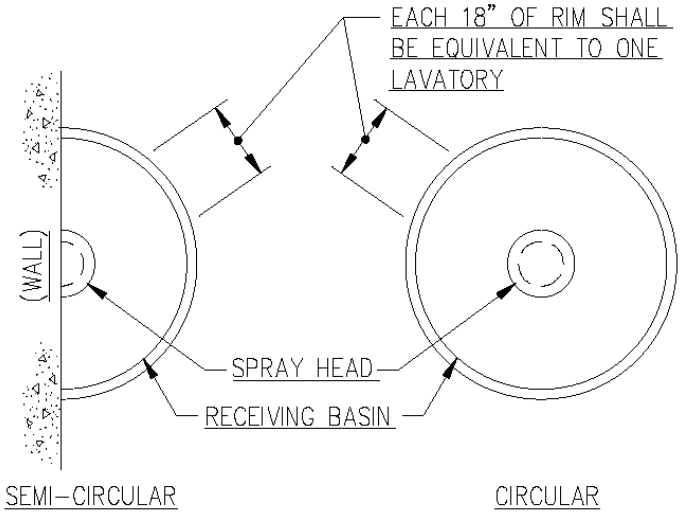
DEPARTMENT OF PUBLIC HEALTH

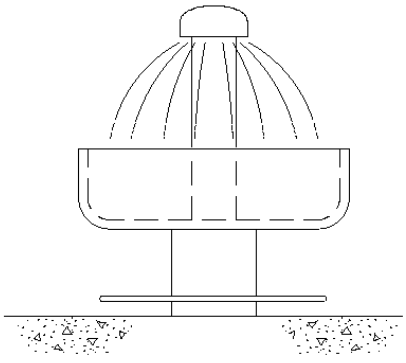
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX F Illustrations for Subpart F

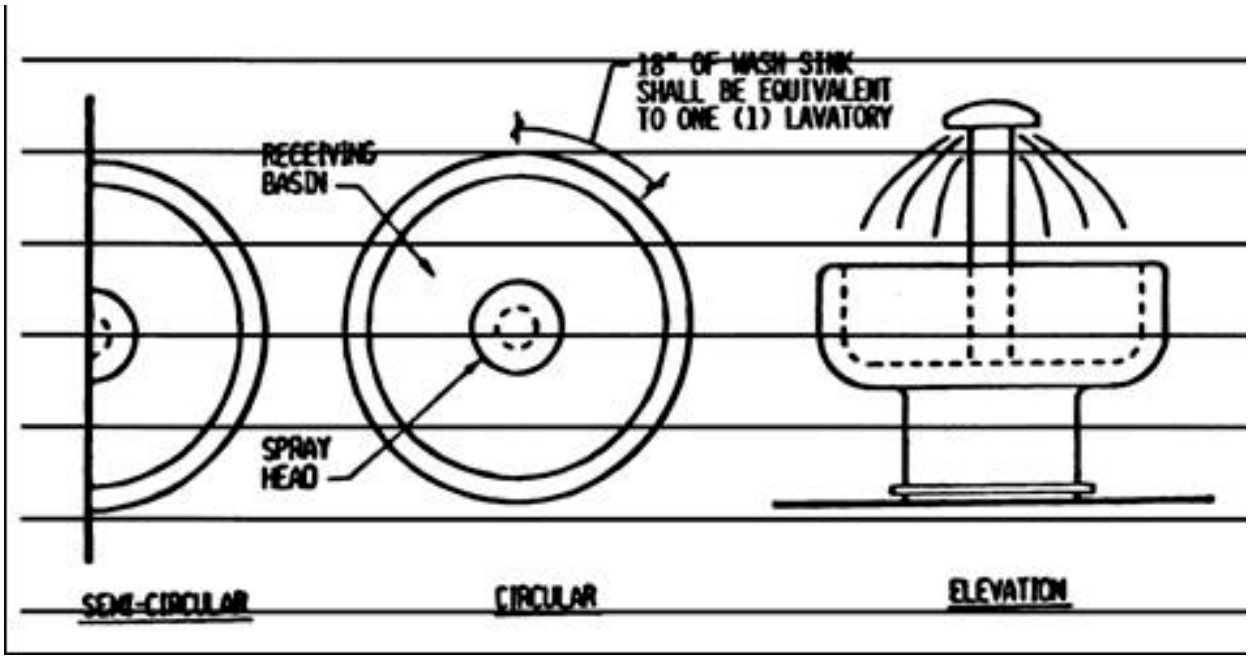
Section 890.ILLUSTRATION B Circular Wash Sinks

(Referenced in Section 890.680(d))





ELEVATION



(Source: Amended at 37 Ill. Reg. _____, effective _____)

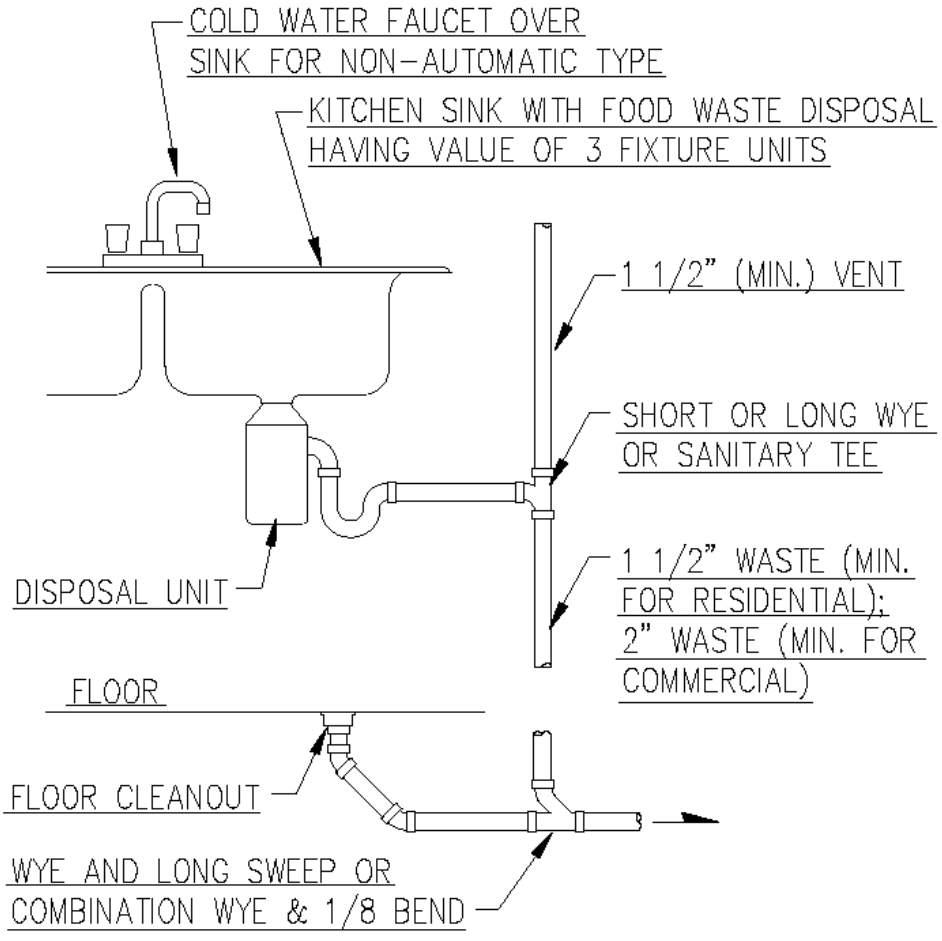
DEPARTMENT OF PUBLIC HEALTH

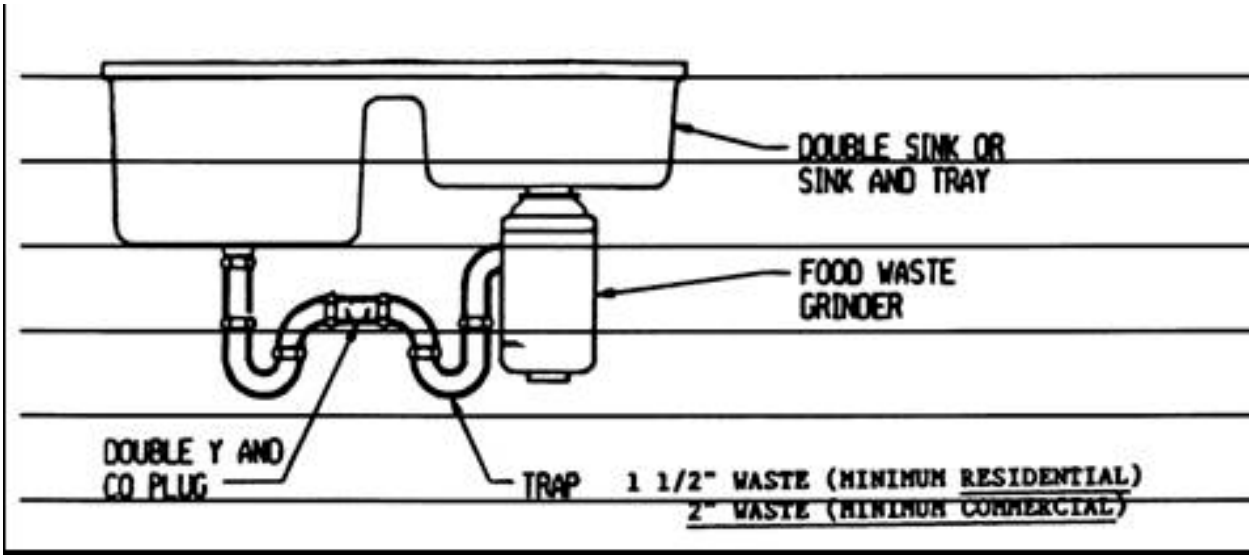
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX F Illustrations for Subpart F

Section 890.ILLUSTRATION D Commercial-Type Grinder #~~2~~

(Referenced in Section 890.710(b))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

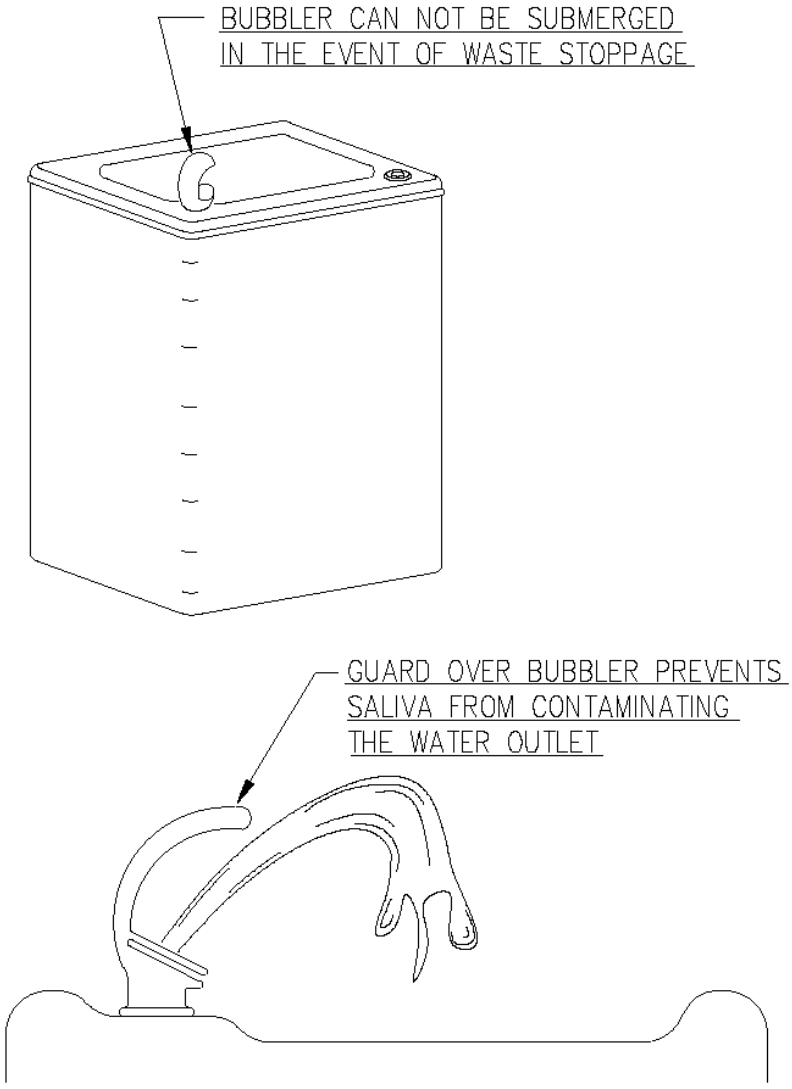
DEPARTMENT OF PUBLIC HEALTH

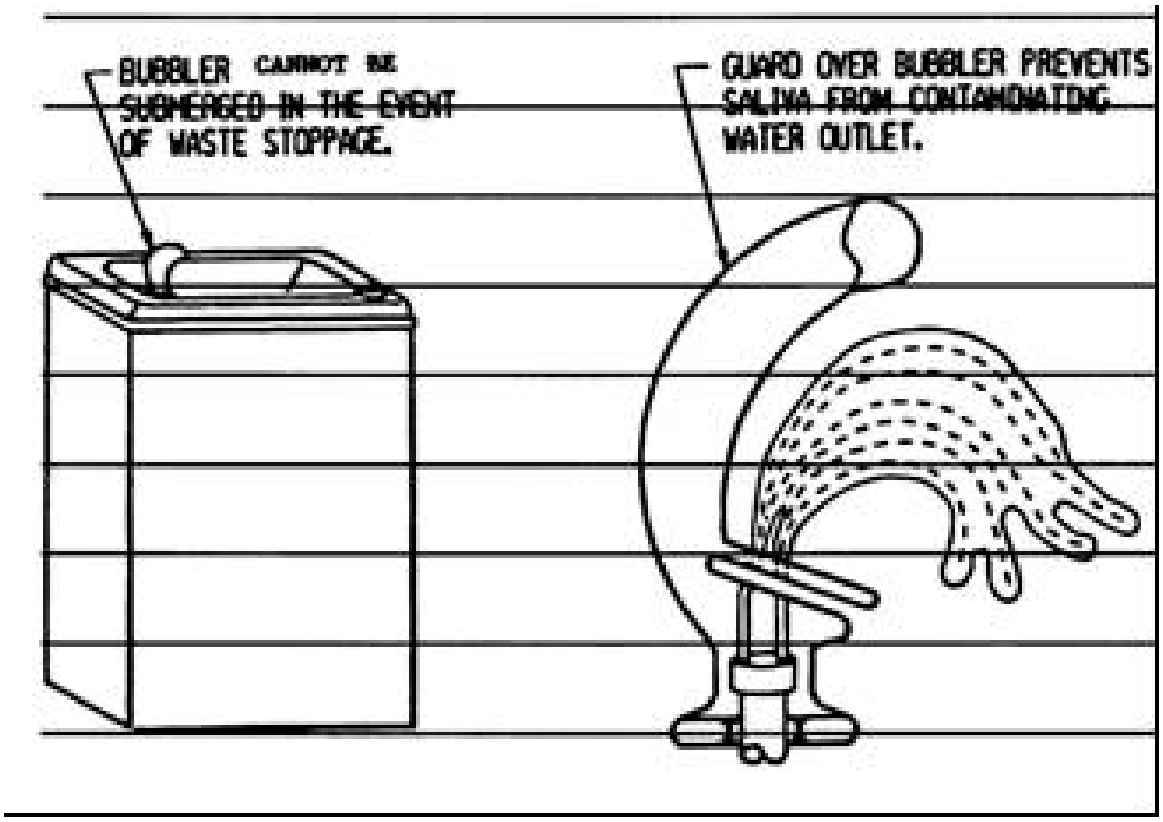
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX F Illustrations for Subpart F

Section 890.ILLUSTRATION E Protective Guard

(Referenced in Section 890.720(a) ~~& (b)~~)





(Source: Amended at 37 Ill. Reg. _____, effective _____)

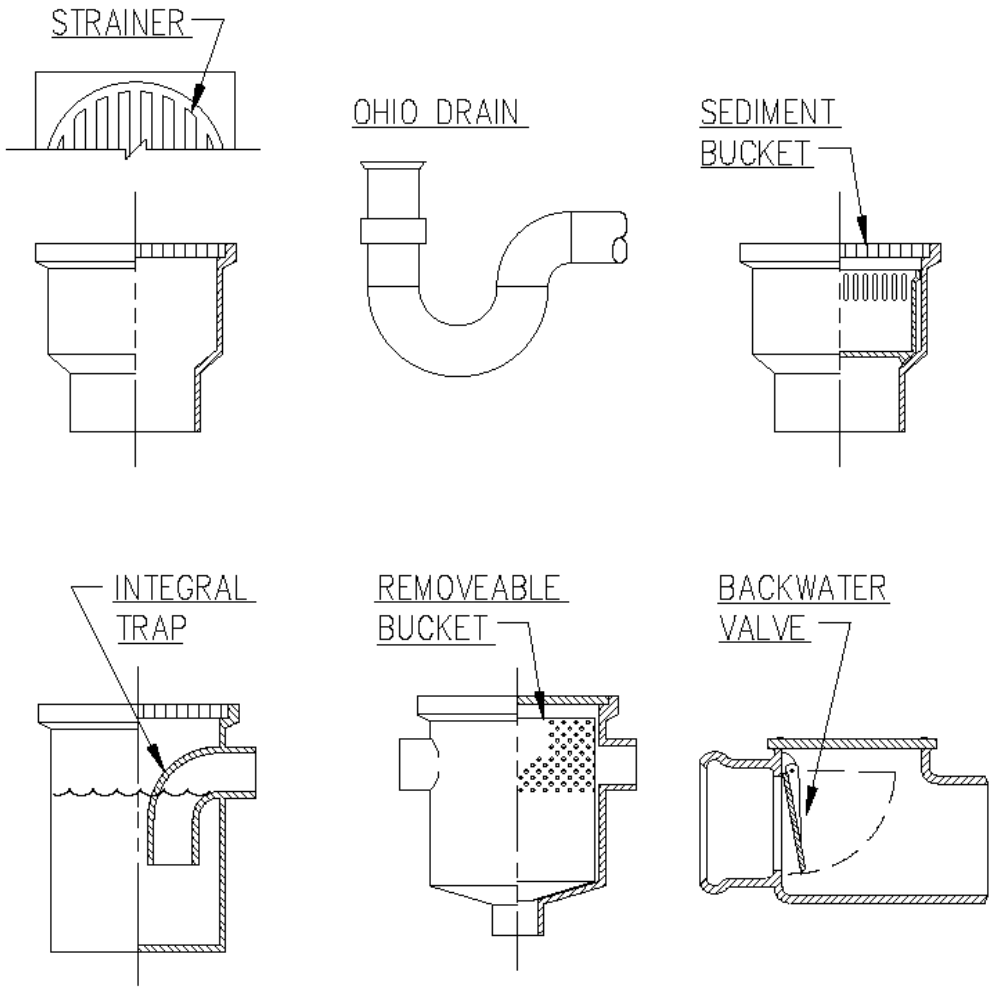
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX F Illustrations for Subpart F

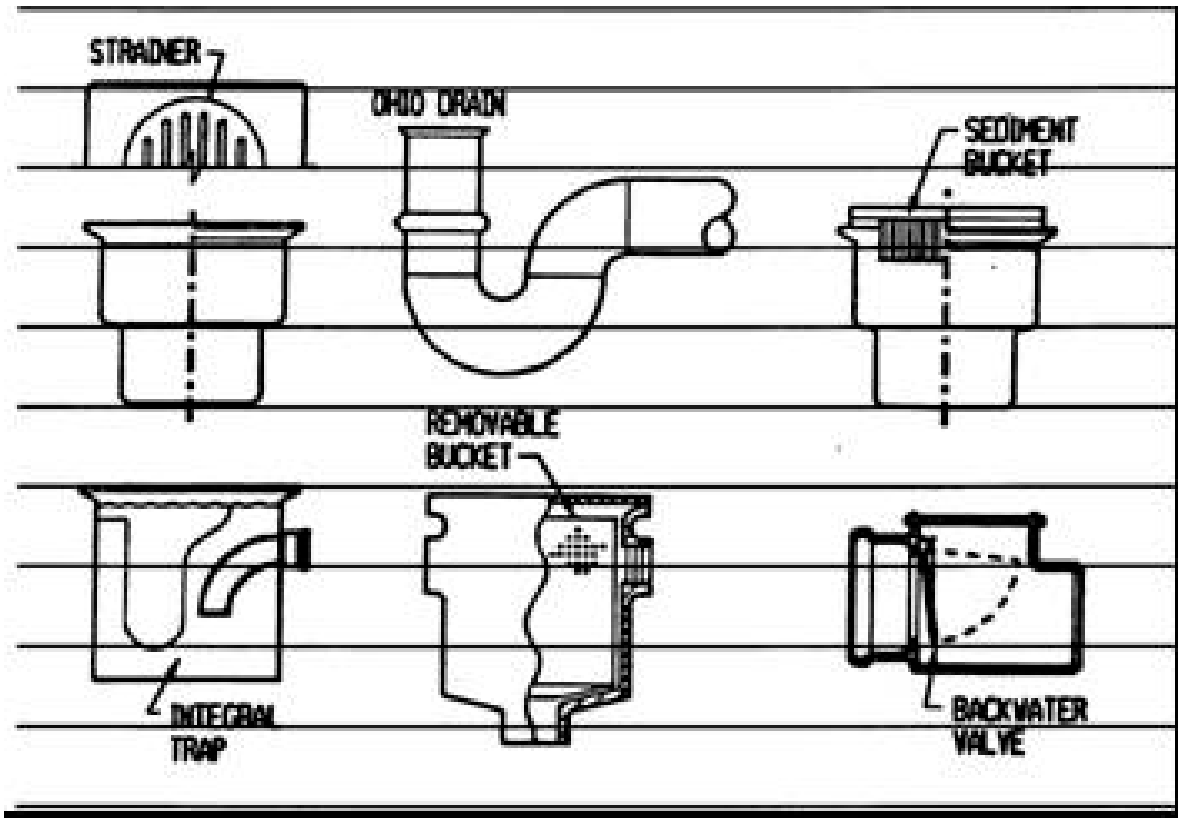
Section 890.ILLUSTRATION F Trap and Strainer

(Referenced in Section 890.730)



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

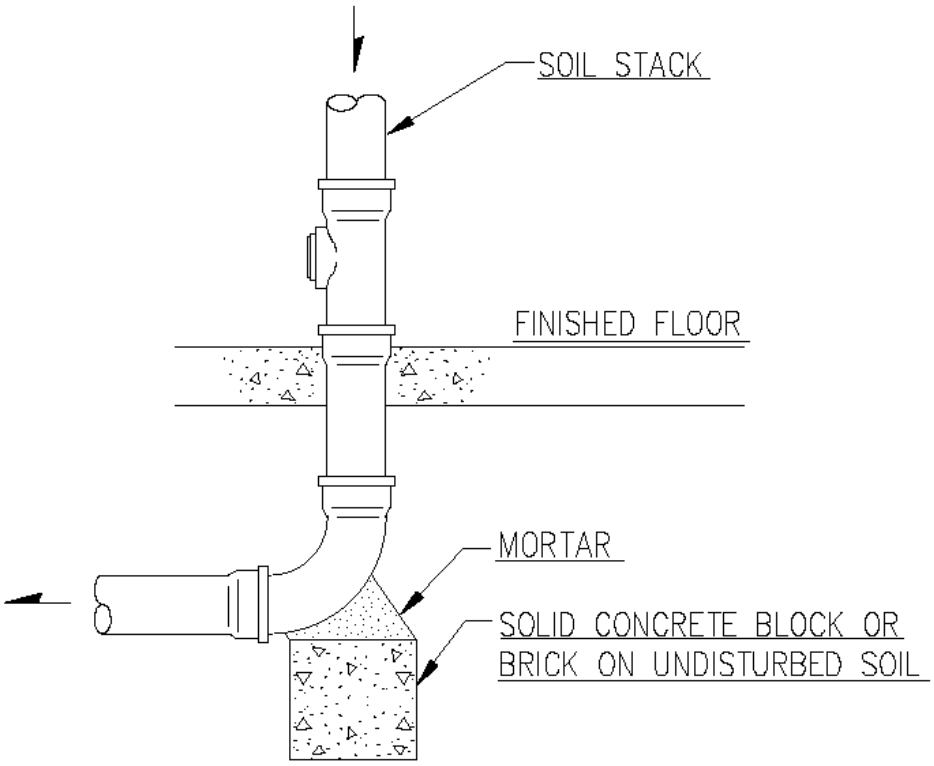
DEPARTMENT OF PUBLIC HEALTH

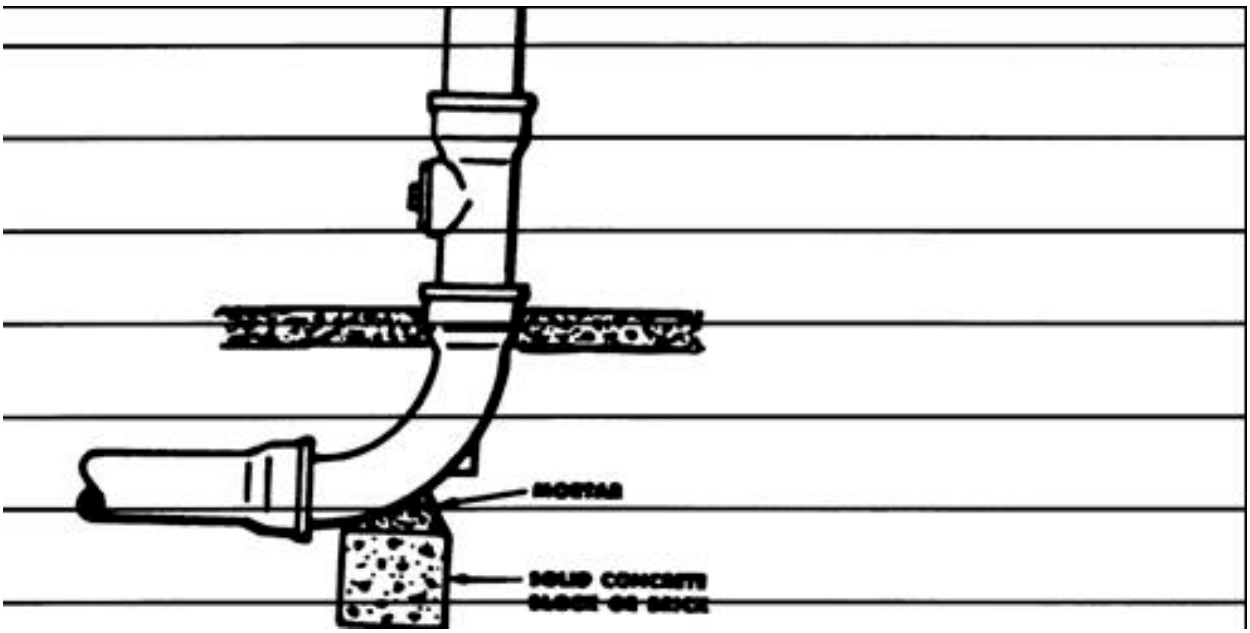
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX G Illustrations for Subpart G

Section 890.ILLUSTRATION B Cast Iron Soil Pipe Support #2

(Referenced in Section 890.920)





(Source: Amended at 37 Ill. Reg. _____, effective _____)

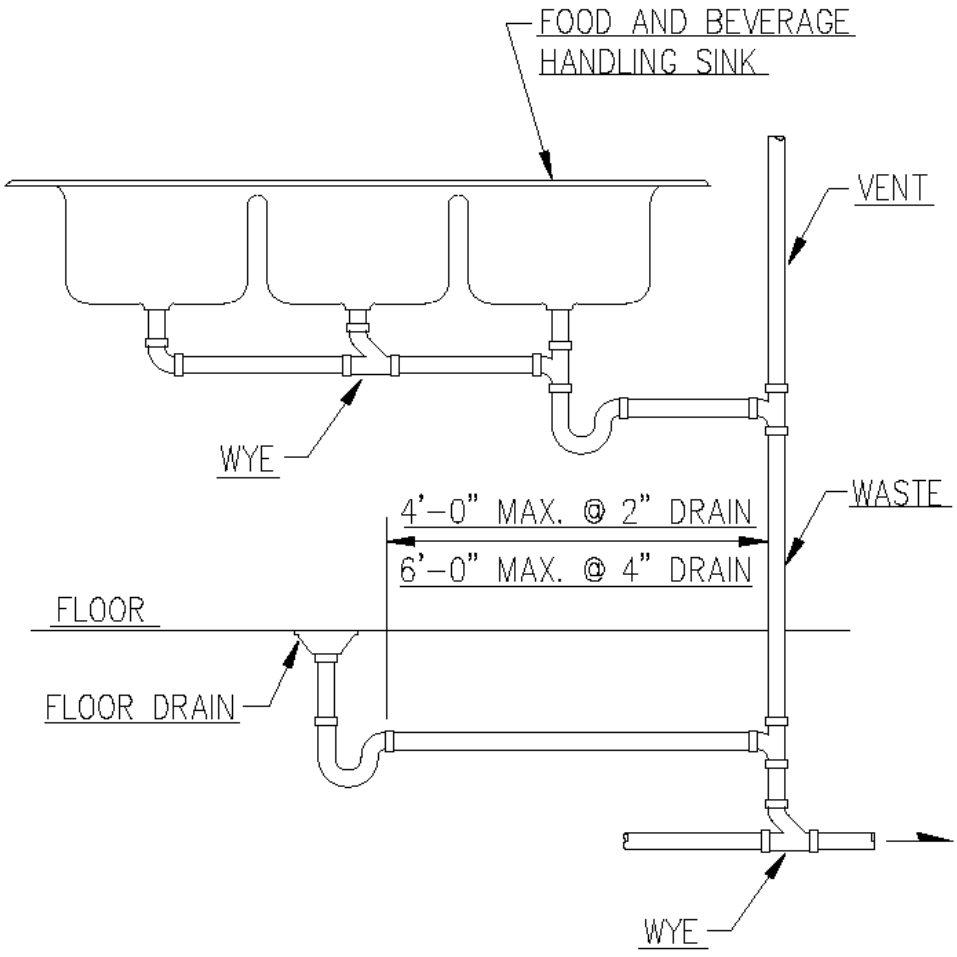
DEPARTMENT OF PUBLIC HEALTH

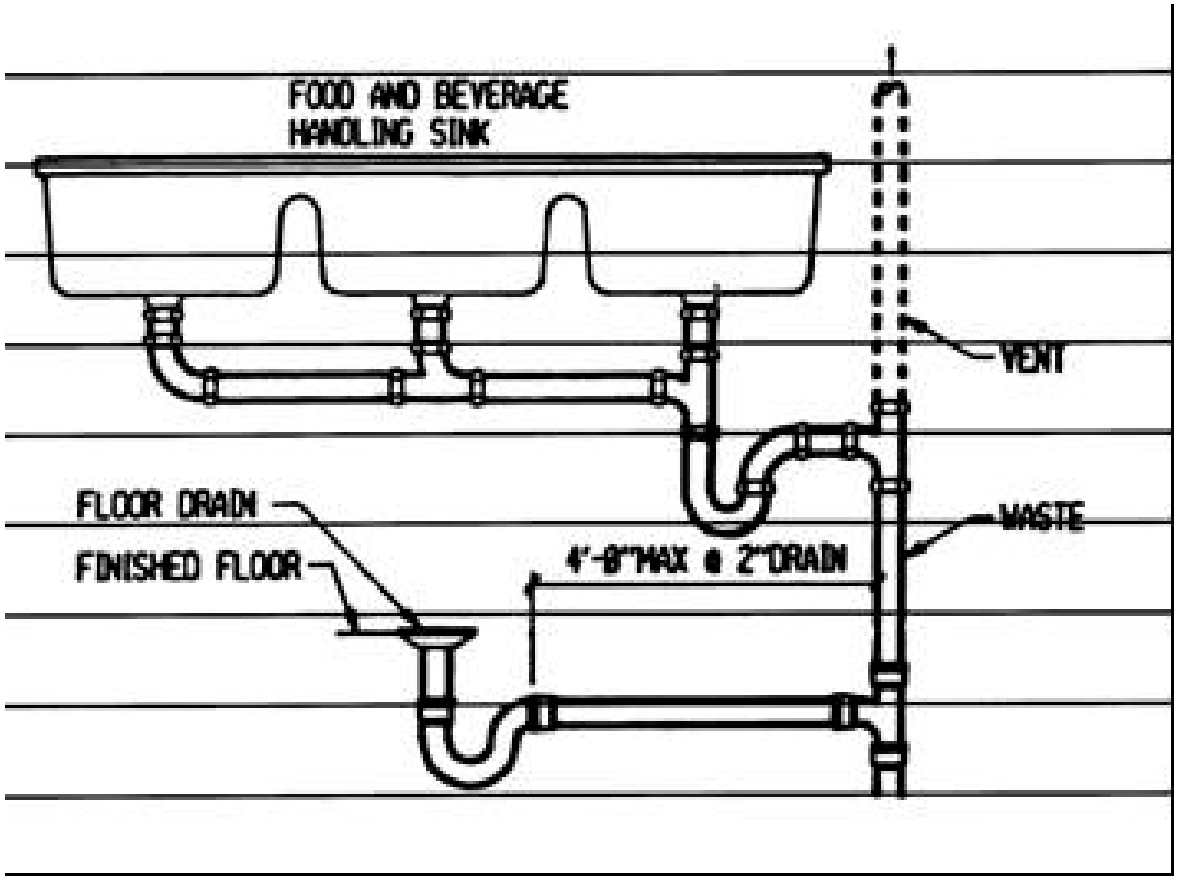
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX H Illustrations for Subpart H ~~Indirect Waste Piping #1~~

Section 890.ILLUSTRATION A Indirect Waste Piping #1

(Referenced in Section 890.1010(a))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

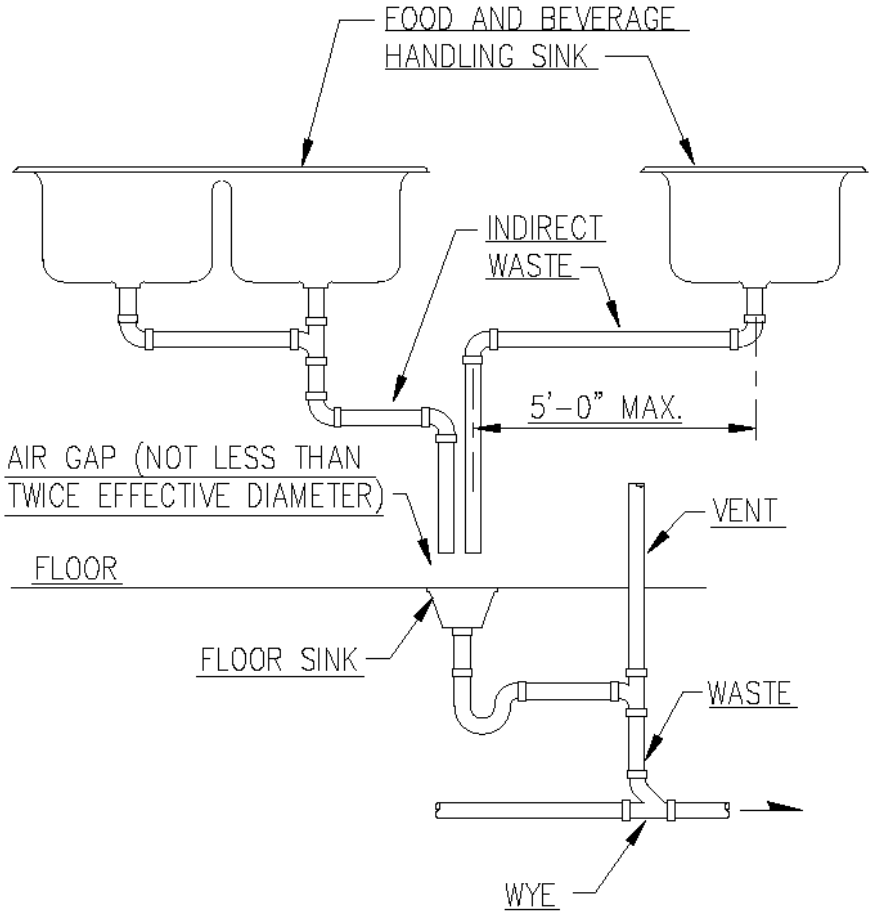
DEPARTMENT OF PUBLIC HEALTH

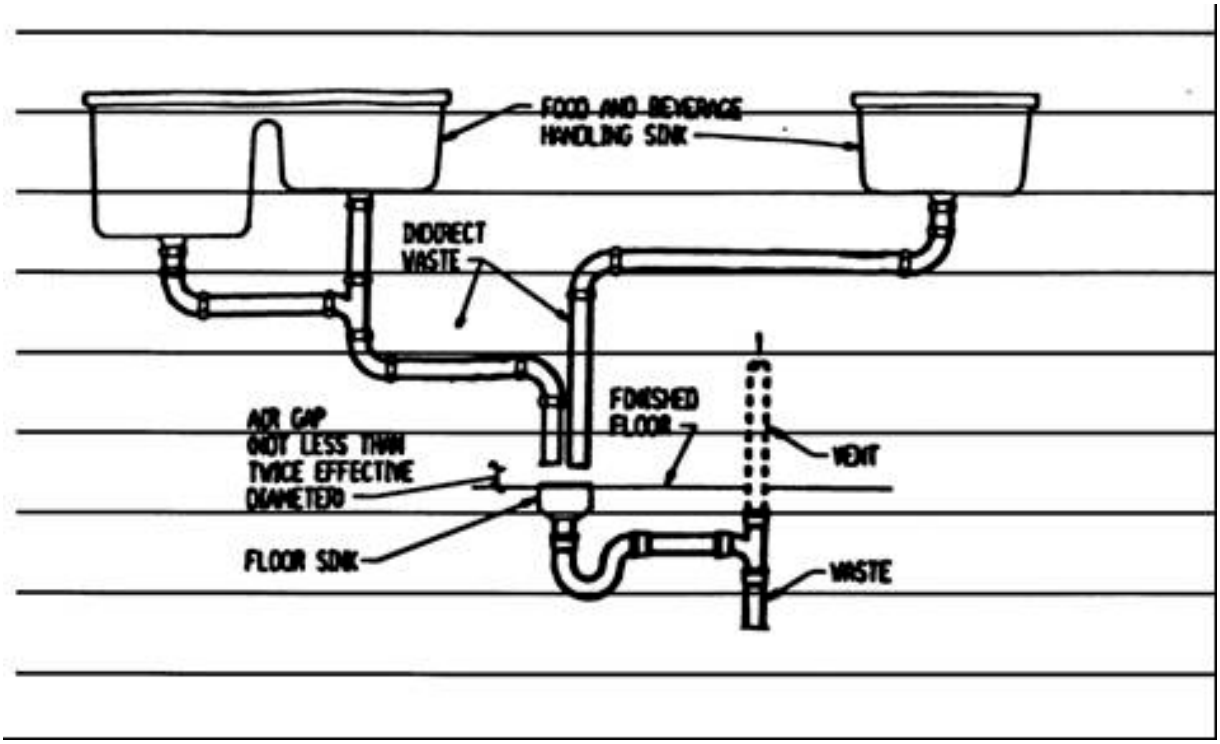
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX H Illustrations for Subpart H ~~Indirect Waste Piping #1~~

Section 890.ILLUSTRATION B Indirect Waste Piping #2

(Referenced in Section 890.1010(a))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

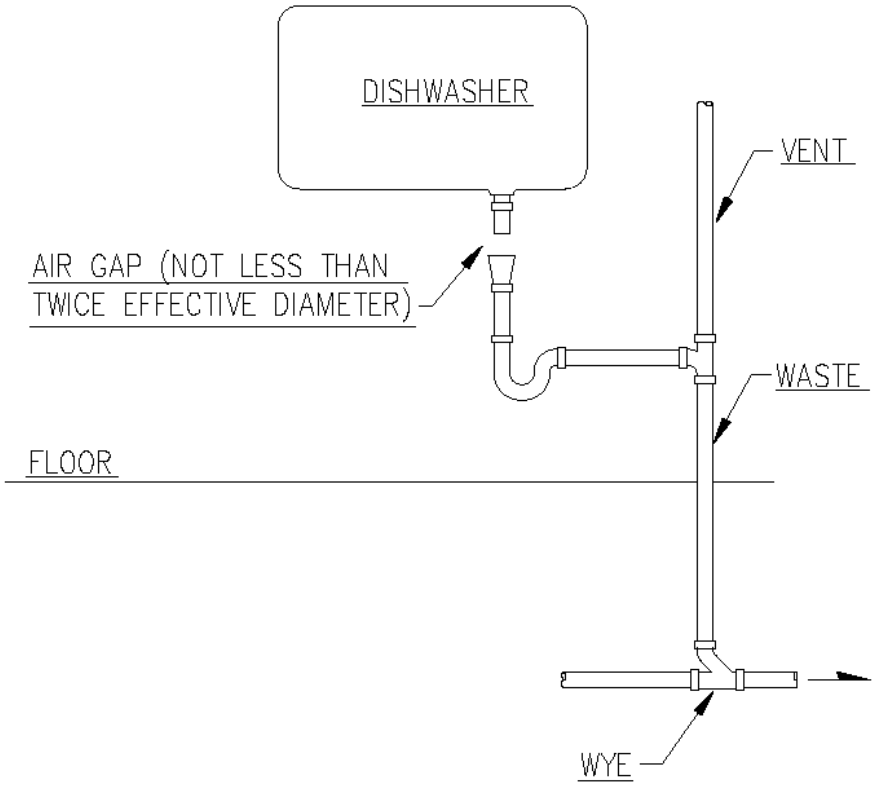
DEPARTMENT OF PUBLIC HEALTH

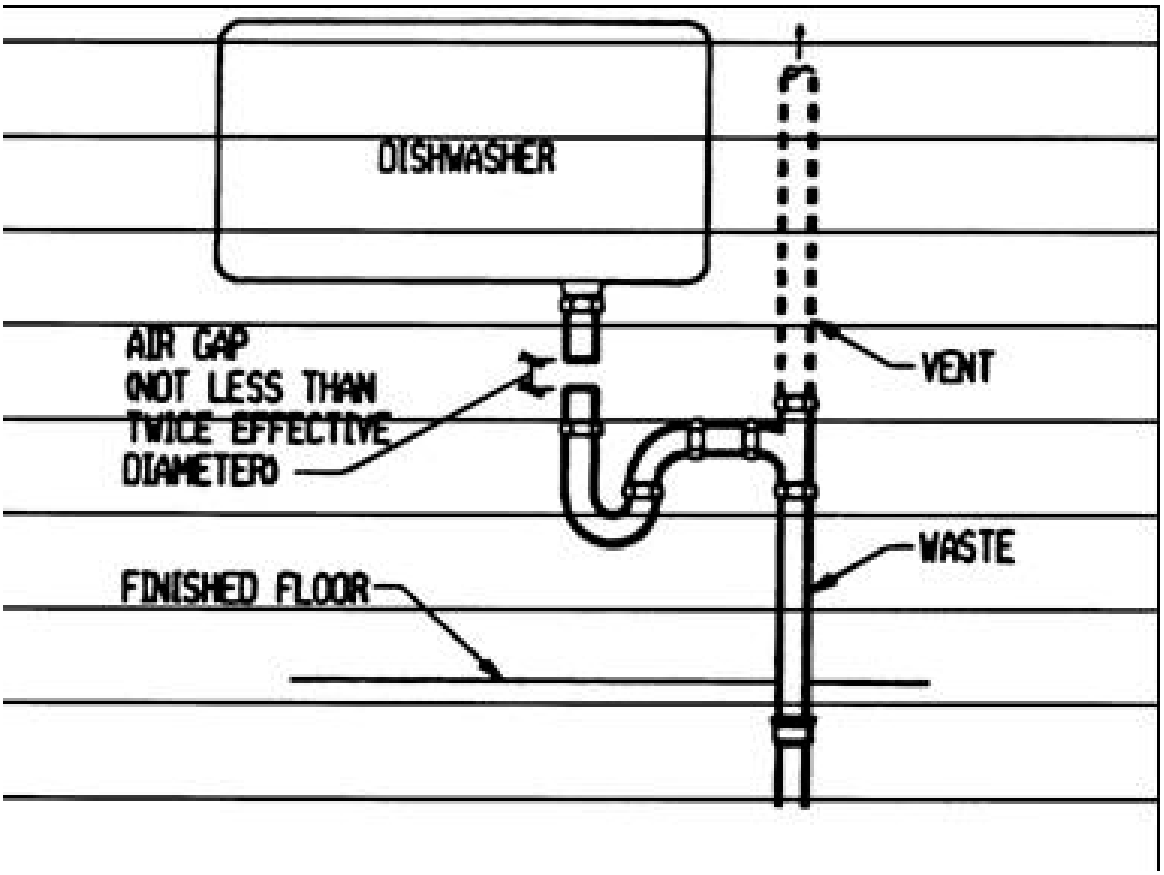
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX H Illustrations for Subpart H ~~Indirect Waste Piping #1~~

Section 890.ILLUSTRATION C Indirect Waste Piping #3

(Referenced in Section 890.1010(a))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

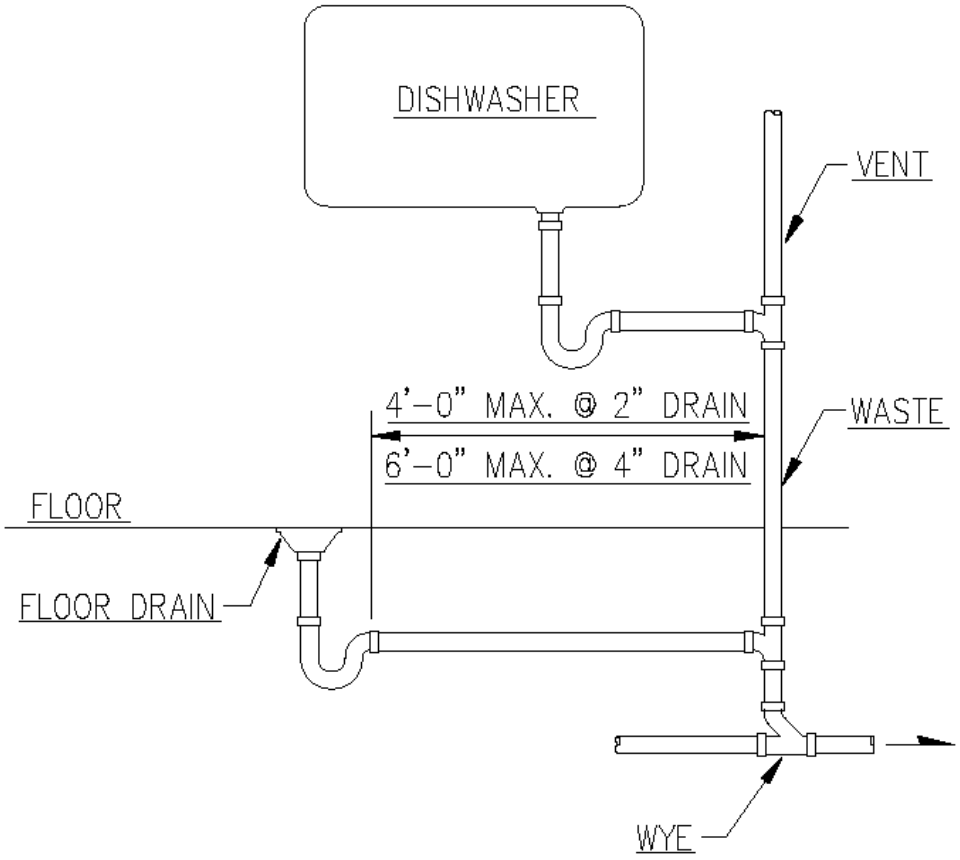
DEPARTMENT OF PUBLIC HEALTH

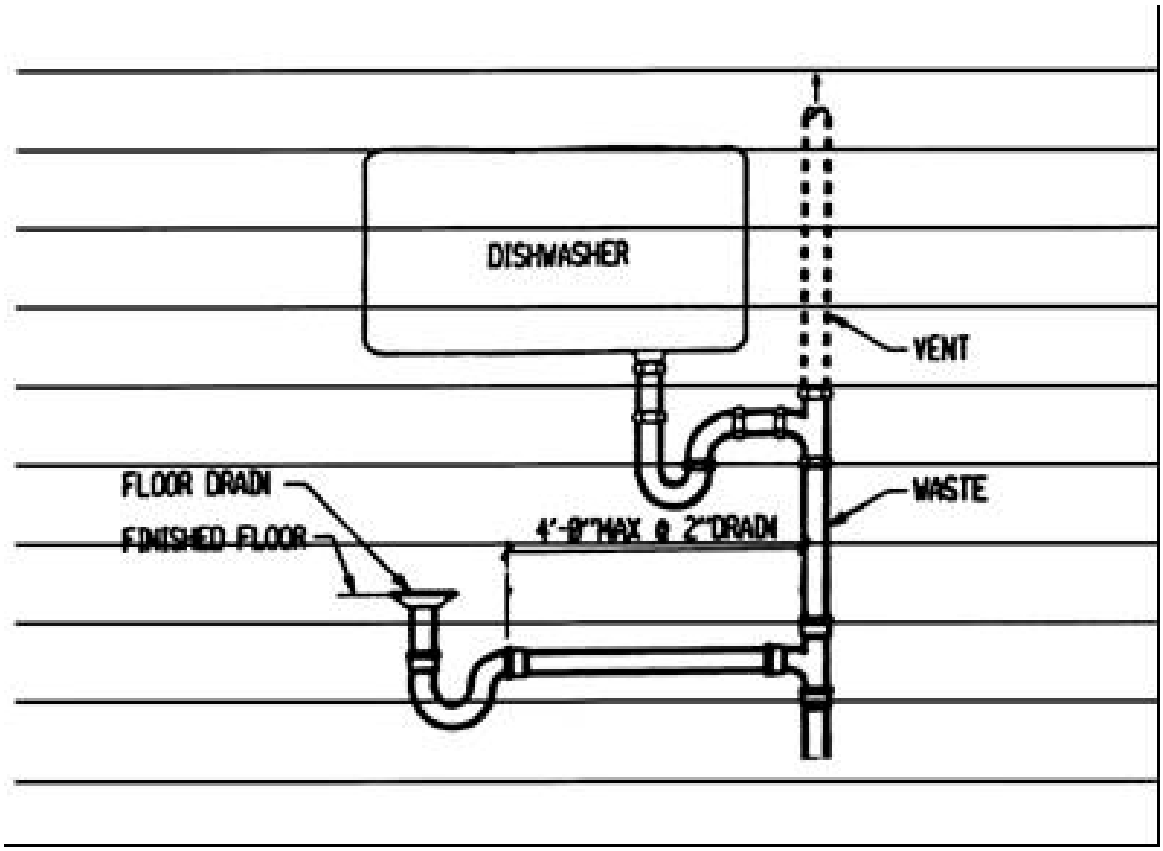
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX H Illustrations for Subpart H ~~Indirect Waste Piping #1~~

Section 890.ILLUSTRATION D Indirect Waste Piping #4

(Referenced in Section 890.1010(a))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

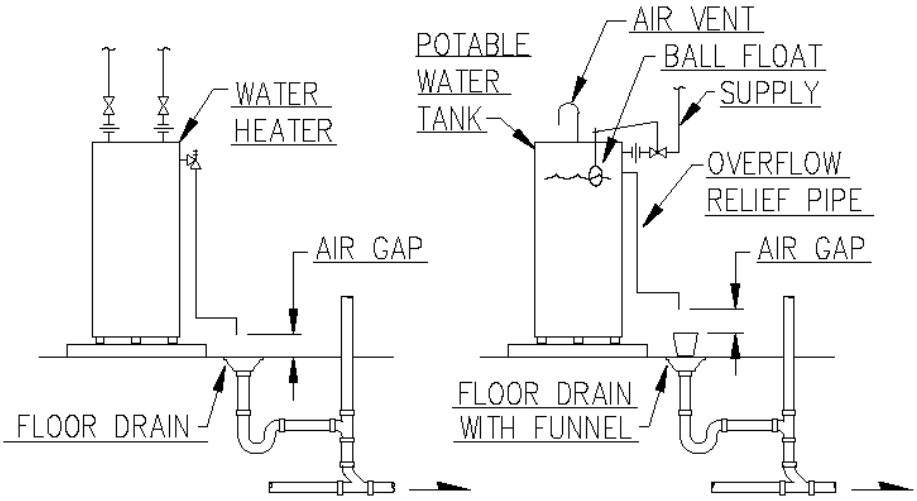
DEPARTMENT OF PUBLIC HEALTH

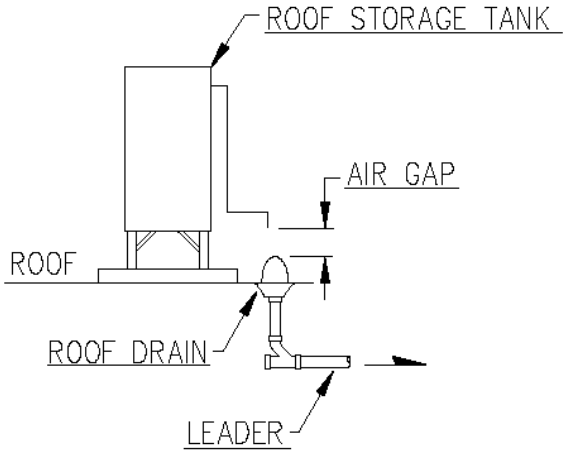
NOTICE OF PROPOSED AMENDMENTS

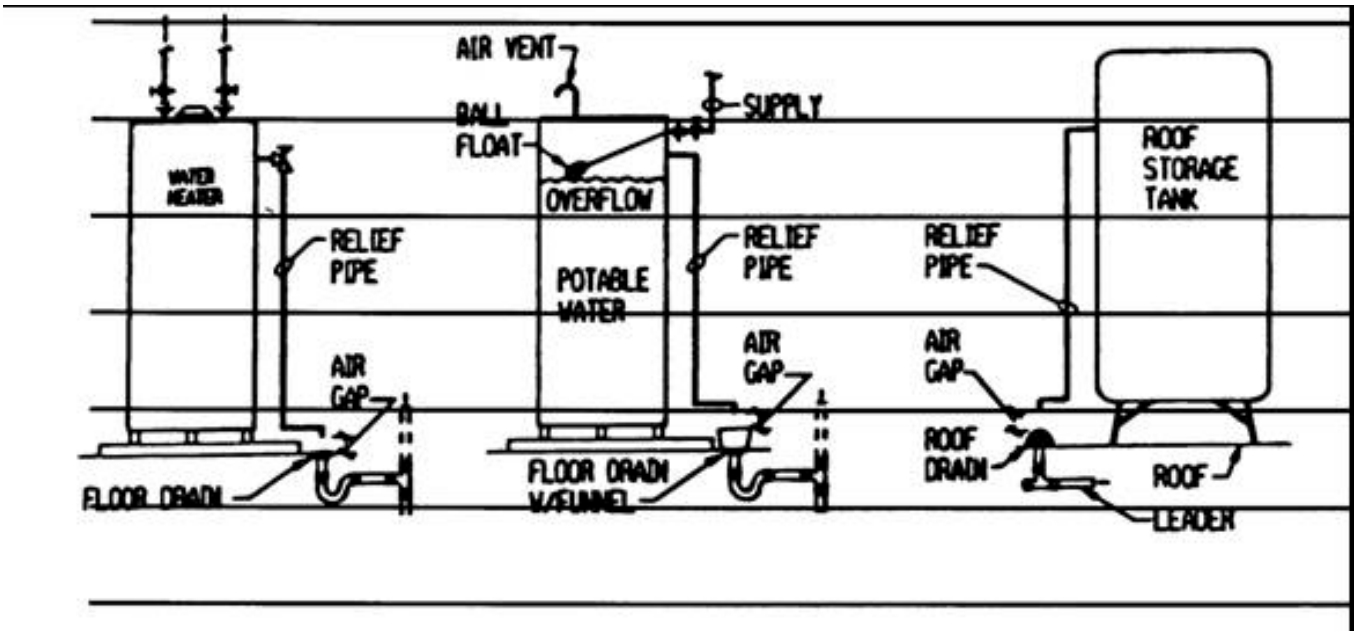
Section 890.APPENDIX H Illustrations for Subpart H ~~Indirect Waste Piping #1~~

Section 890.ILLUSTRATION E Indirect Waste Connection

(Referenced in Section 890.1010(b))







(Source: Amended at 37 Ill. Reg. _____, effective _____)

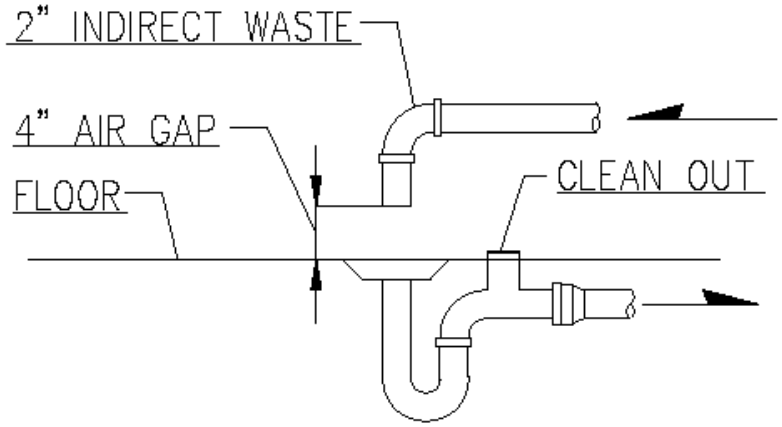
DEPARTMENT OF PUBLIC HEALTH

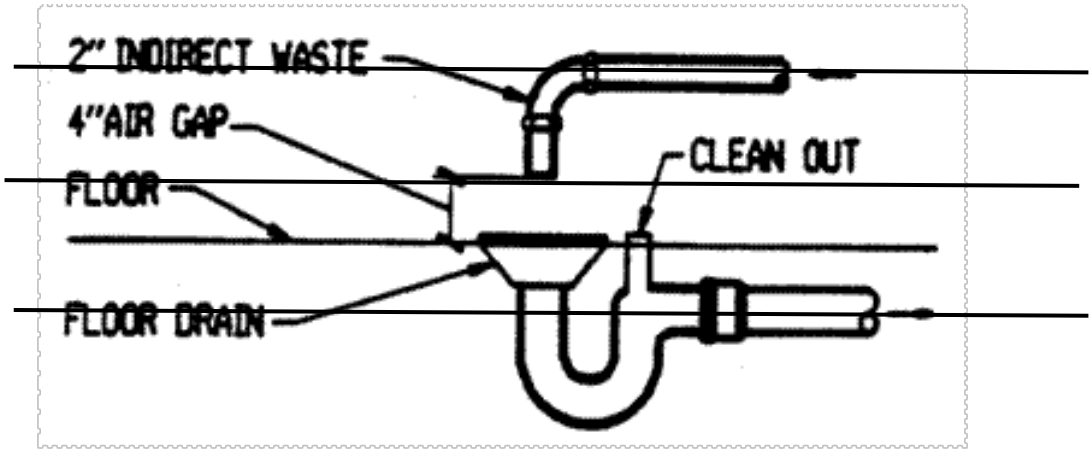
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX H Illustrations for Subpart H ~~Indirect Waste Piping #1~~

Section 890.ILLUSTRATION F Air Gaps

(Referenced in Section 890.1040)





(Source: Amended at 37 Ill. Reg. _____, effective _____)

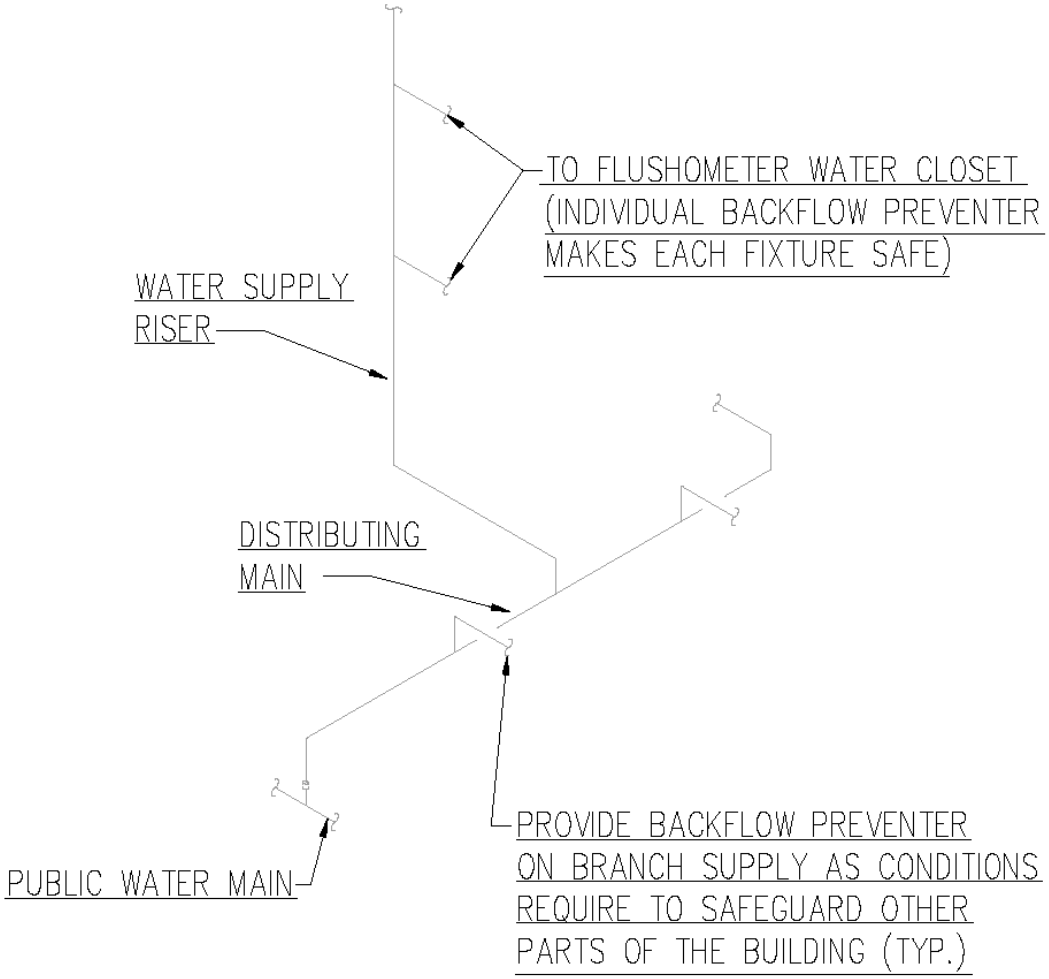
DEPARTMENT OF PUBLIC HEALTH

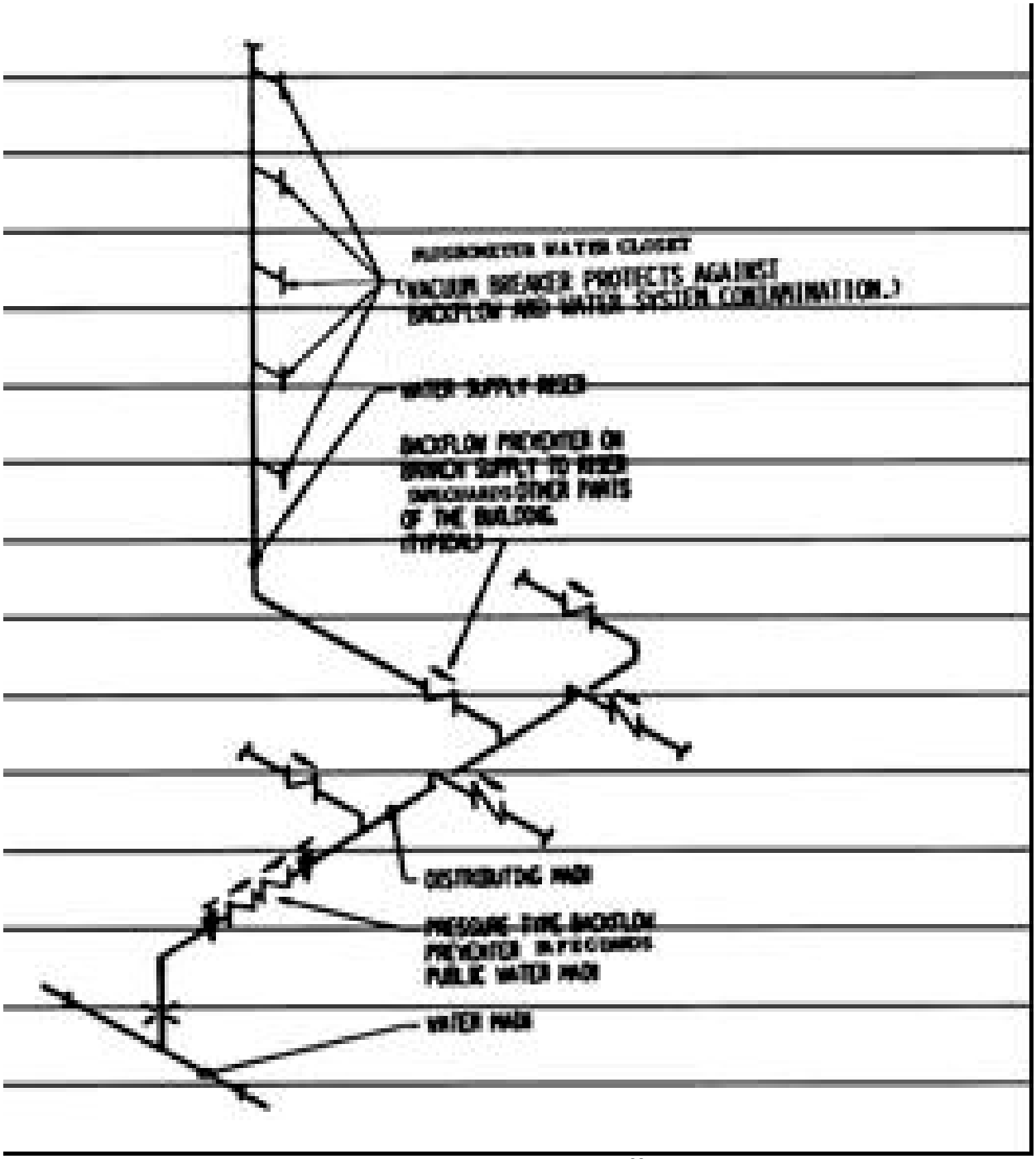
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX I Illustrations for Subpart I

Section 890.ILLUSTRATION A Cross Connection #1

(Referenced in Section 890.1130(a))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

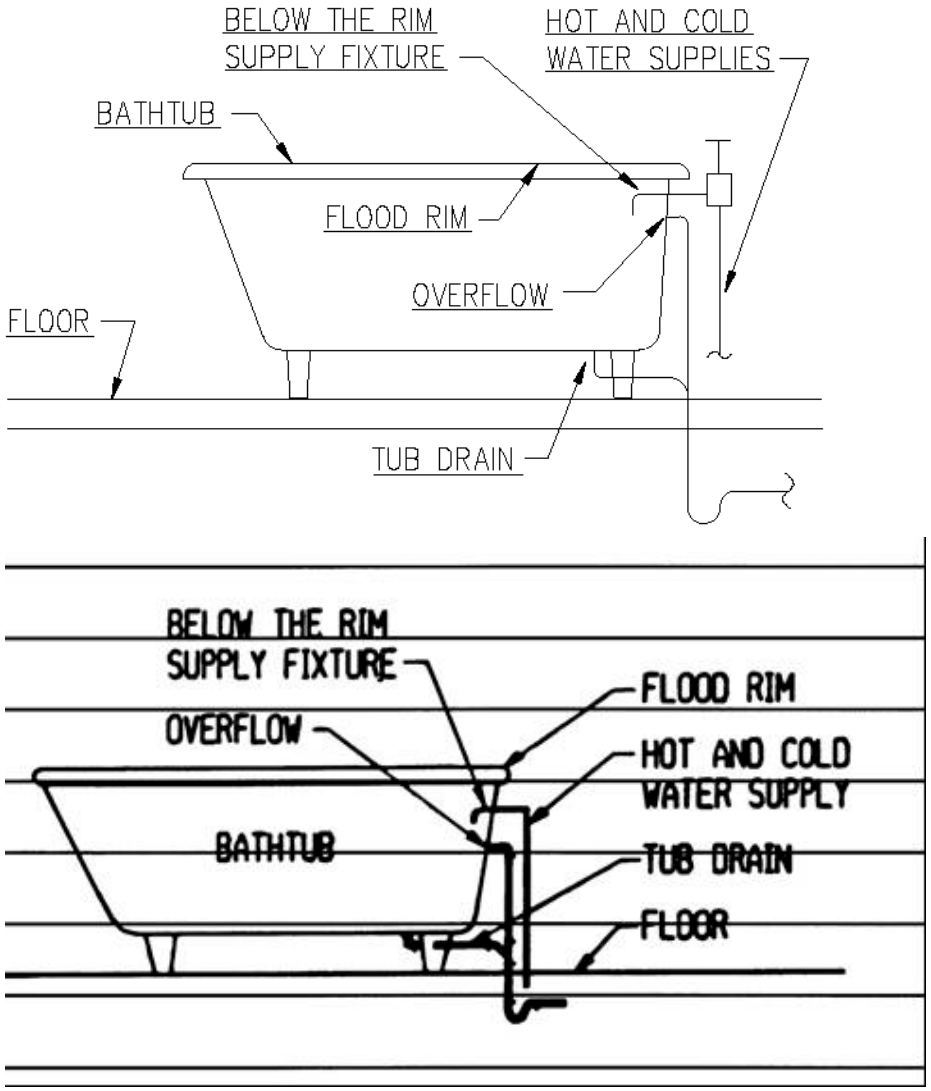
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX I Illustrations for Subpart I

Section 890.ILLUSTRATION B Cross Connection #2

(Referenced in Section 890.1130(a))



(Source: Amended at 37 Ill. Reg. _____, effective _____)

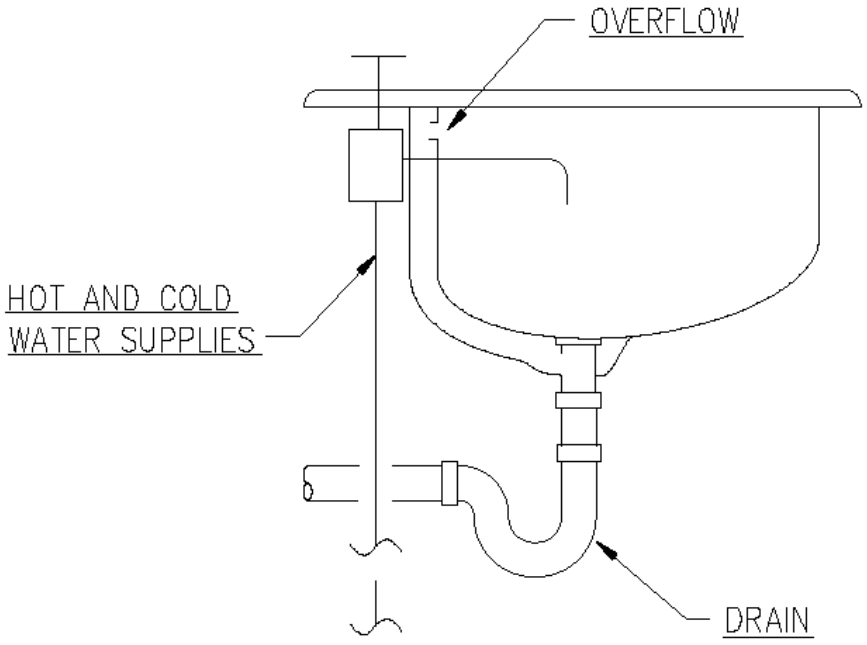
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX I Illustrations for Subpart I

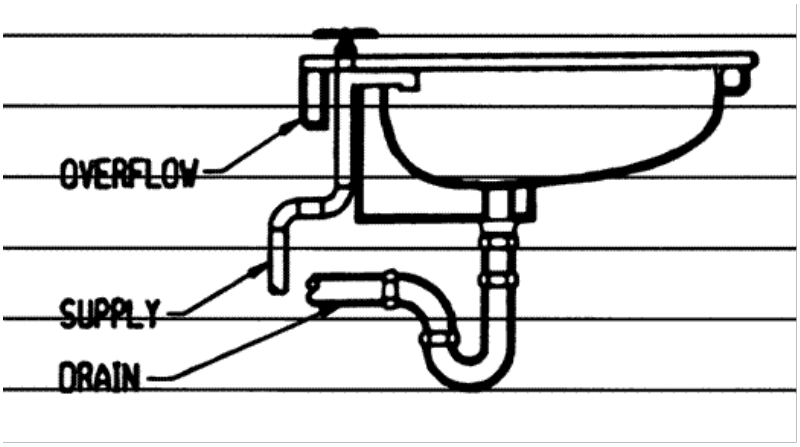
Section 890.ILLUSTRATION C Cross Connection #3

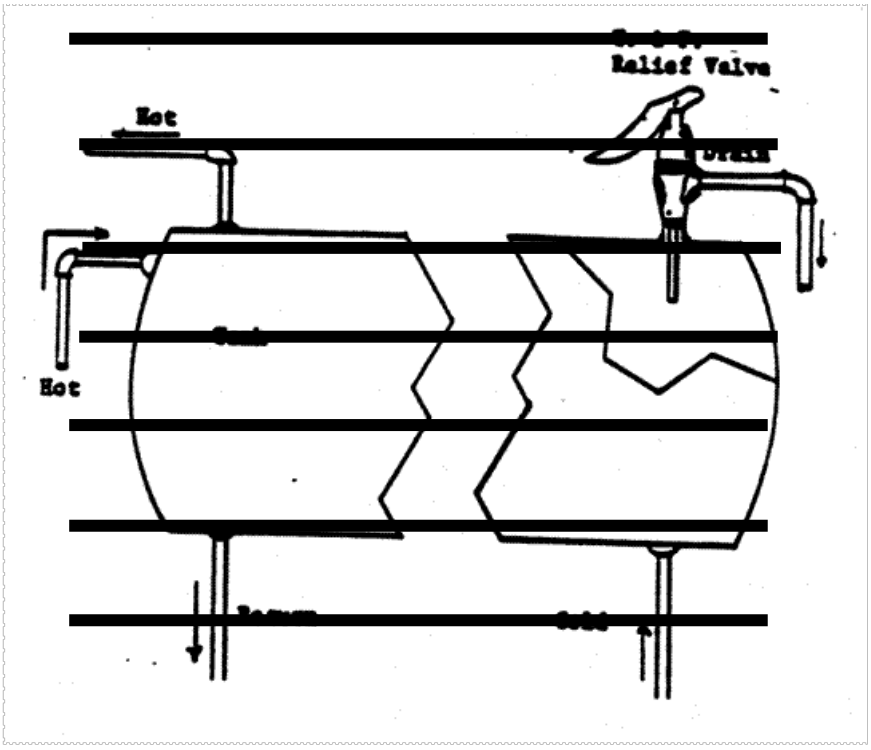
(Referenced in Section 890.1130(a))



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS





(Source: Amended at 37 Ill. Reg. _____, effective _____)

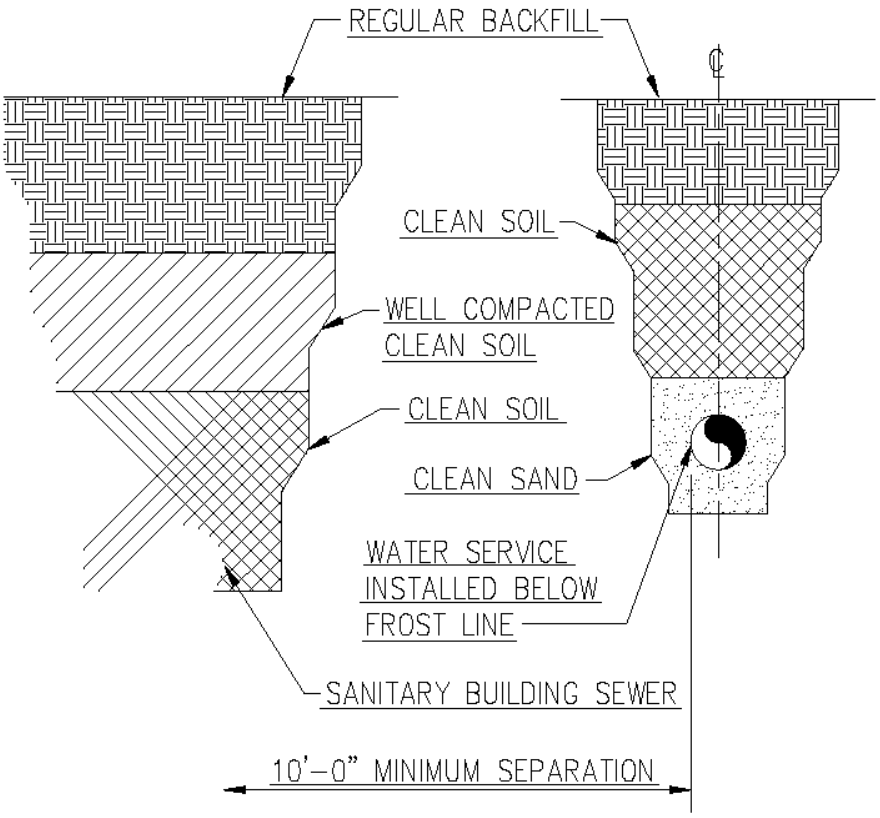
DEPARTMENT OF PUBLIC HEALTH

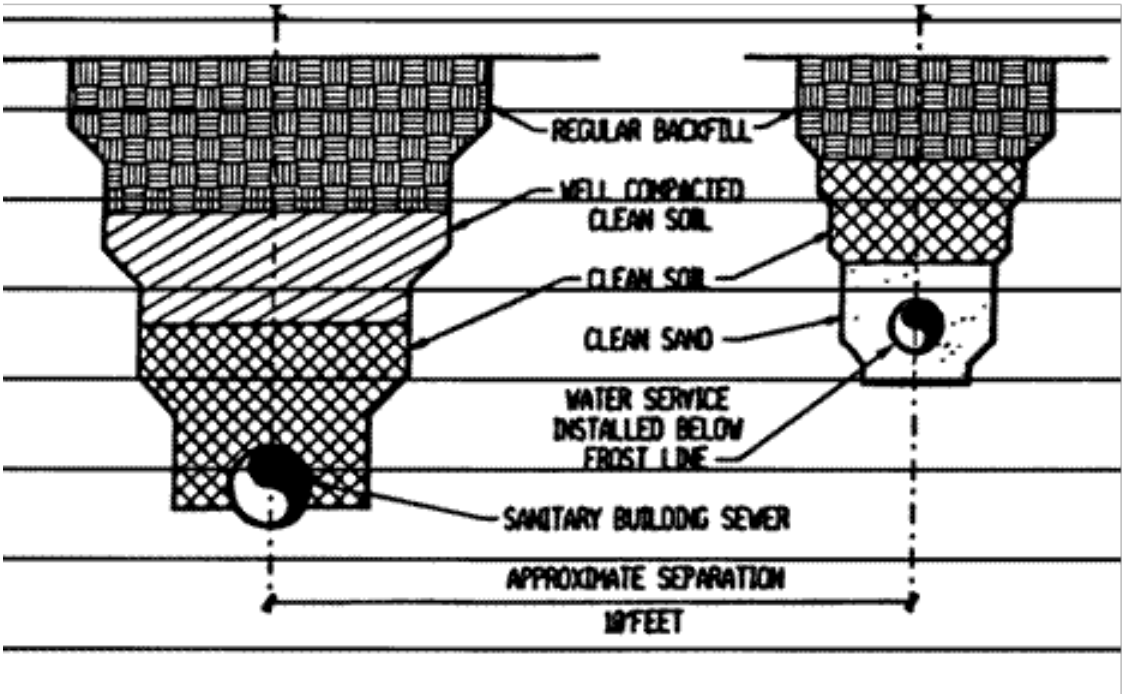
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX I Illustrations for Subpart I

Section 890.ILLUSTRATION E Underground Water Piping #1

(Referenced in Section 890.1150(a)(1))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

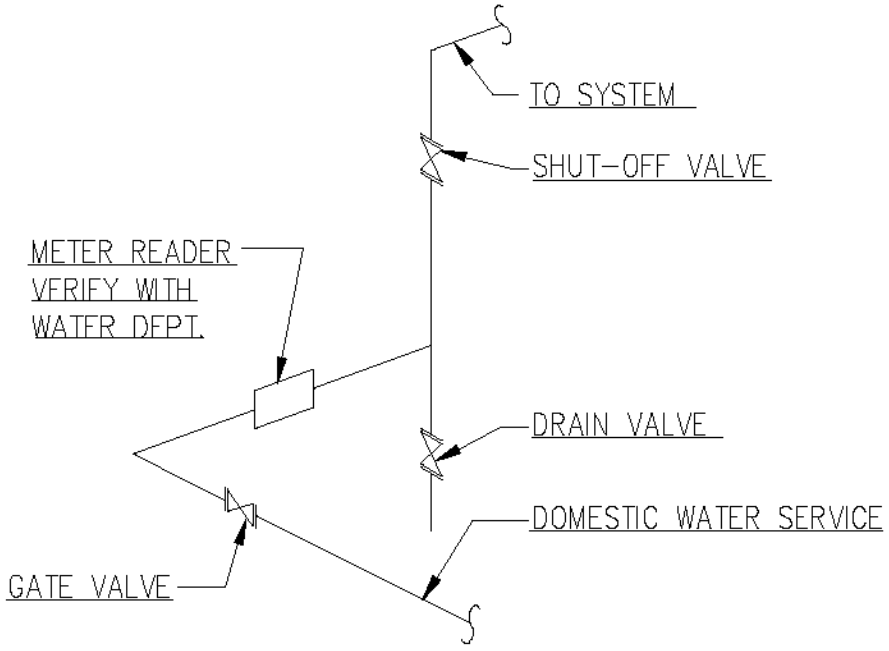
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX I Illustrations for Subpart I

Section 890.ILLUSTRATION H Water Supply Control

(Referenced in Section 890.1190(a) & (b))



(Source: Amended at 37 Ill. Reg. _____, effective _____)

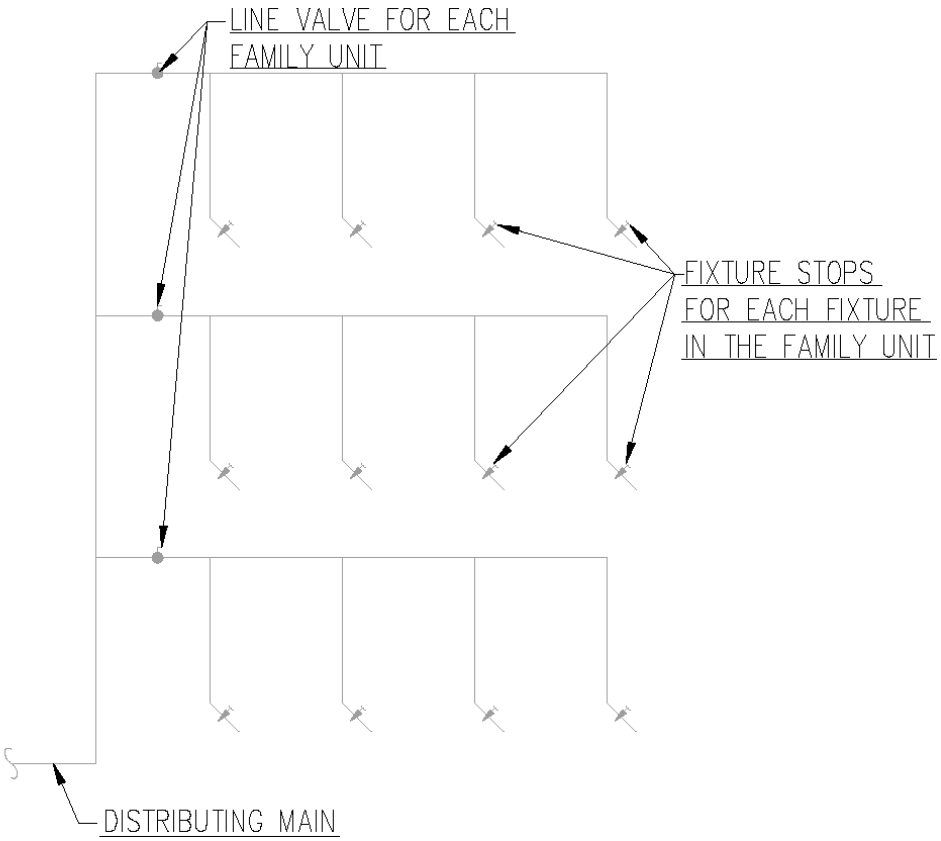
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX I Illustrations for Subpart I

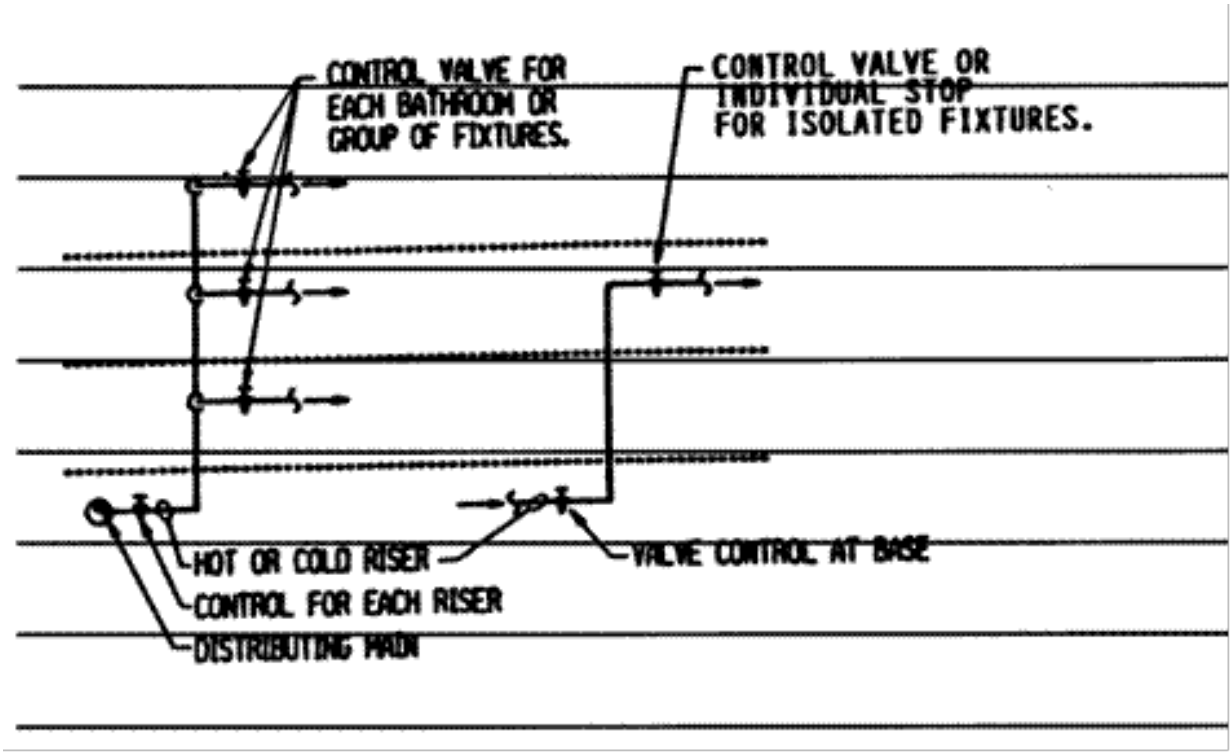
Section 890.ILLUSTRATION J Separate Controls for Each Family Unit

(Referenced in Section 890.1190(e)) ~~890.1190(d))~~



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

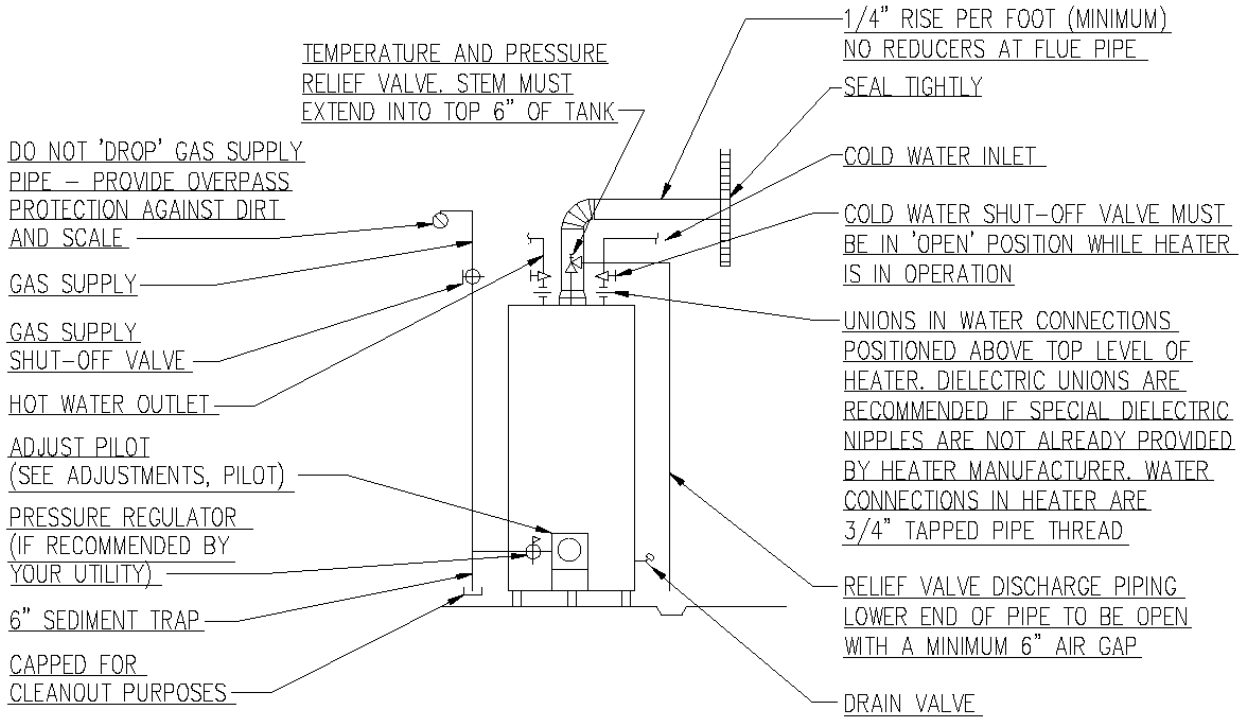
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX I Illustrations for Subpart I

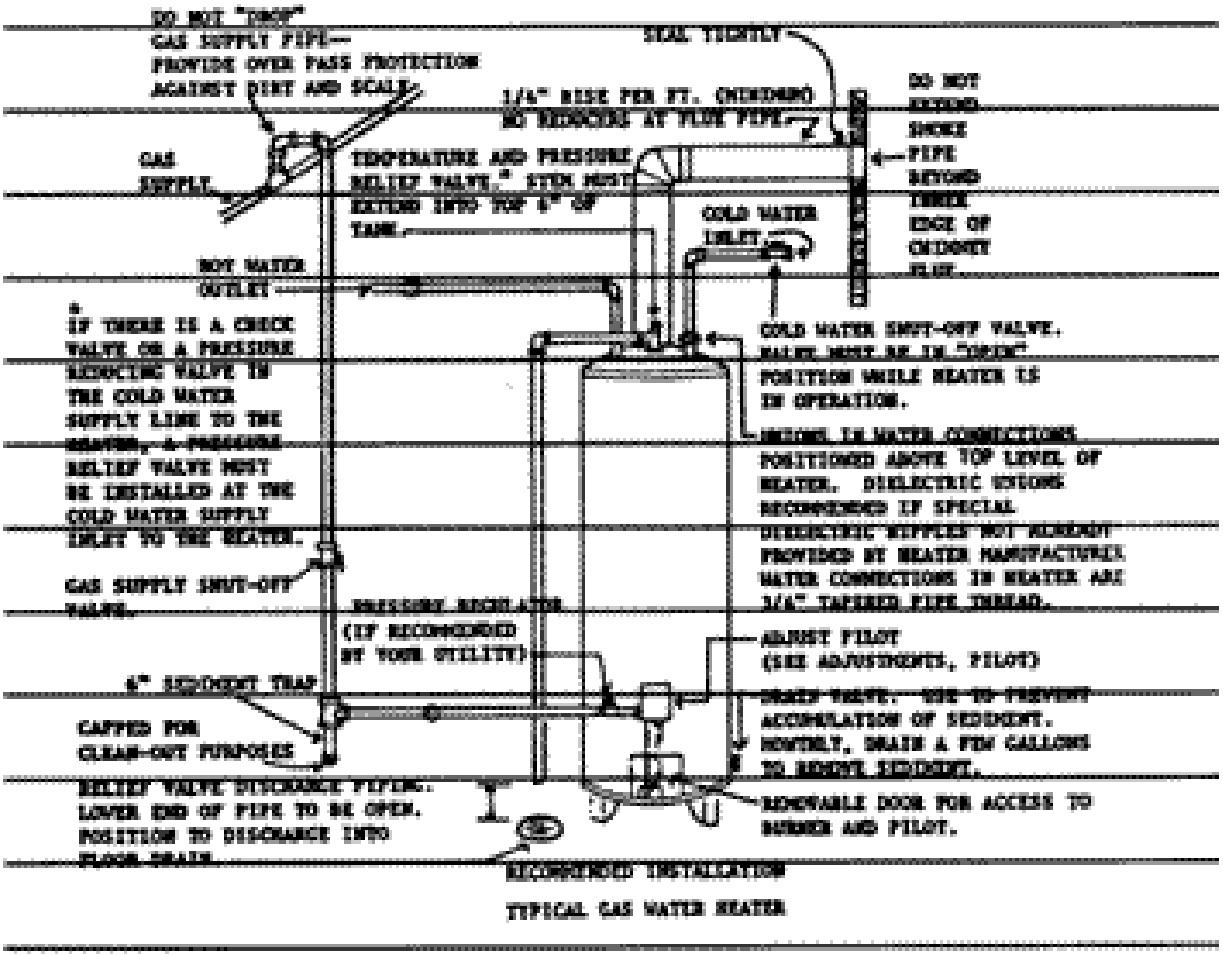
Section 890.ILLUSTRATION L Typical Gas Water Heater

(Referenced in Section 890.1220(a)) ~~890.1220(a)(1))~~



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

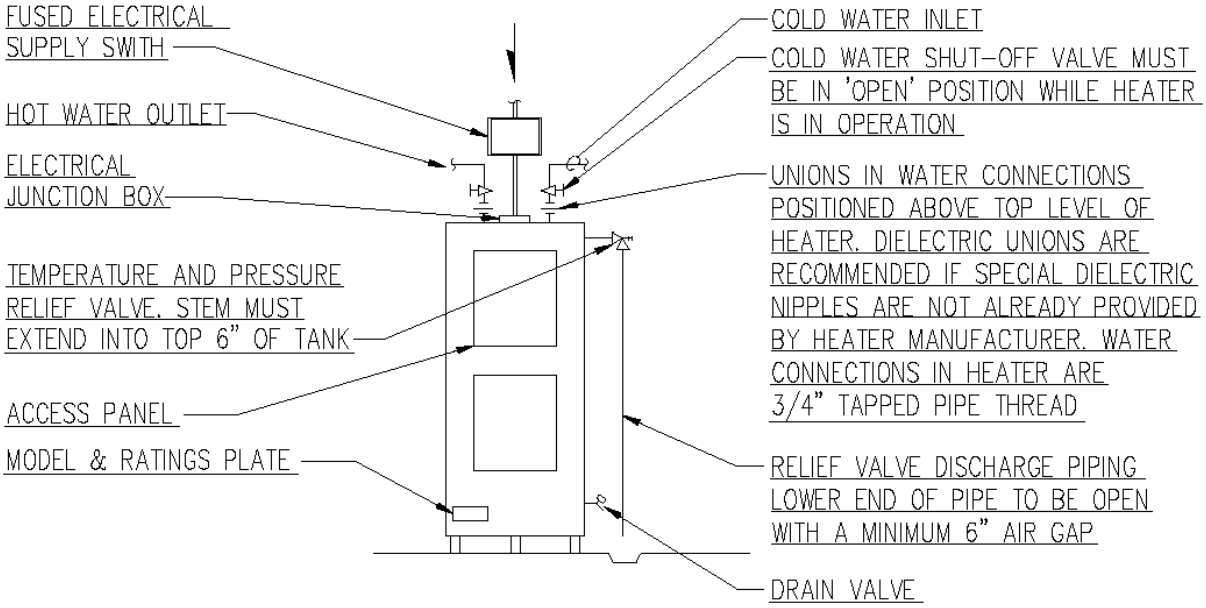
DEPARTMENT OF PUBLIC HEALTH

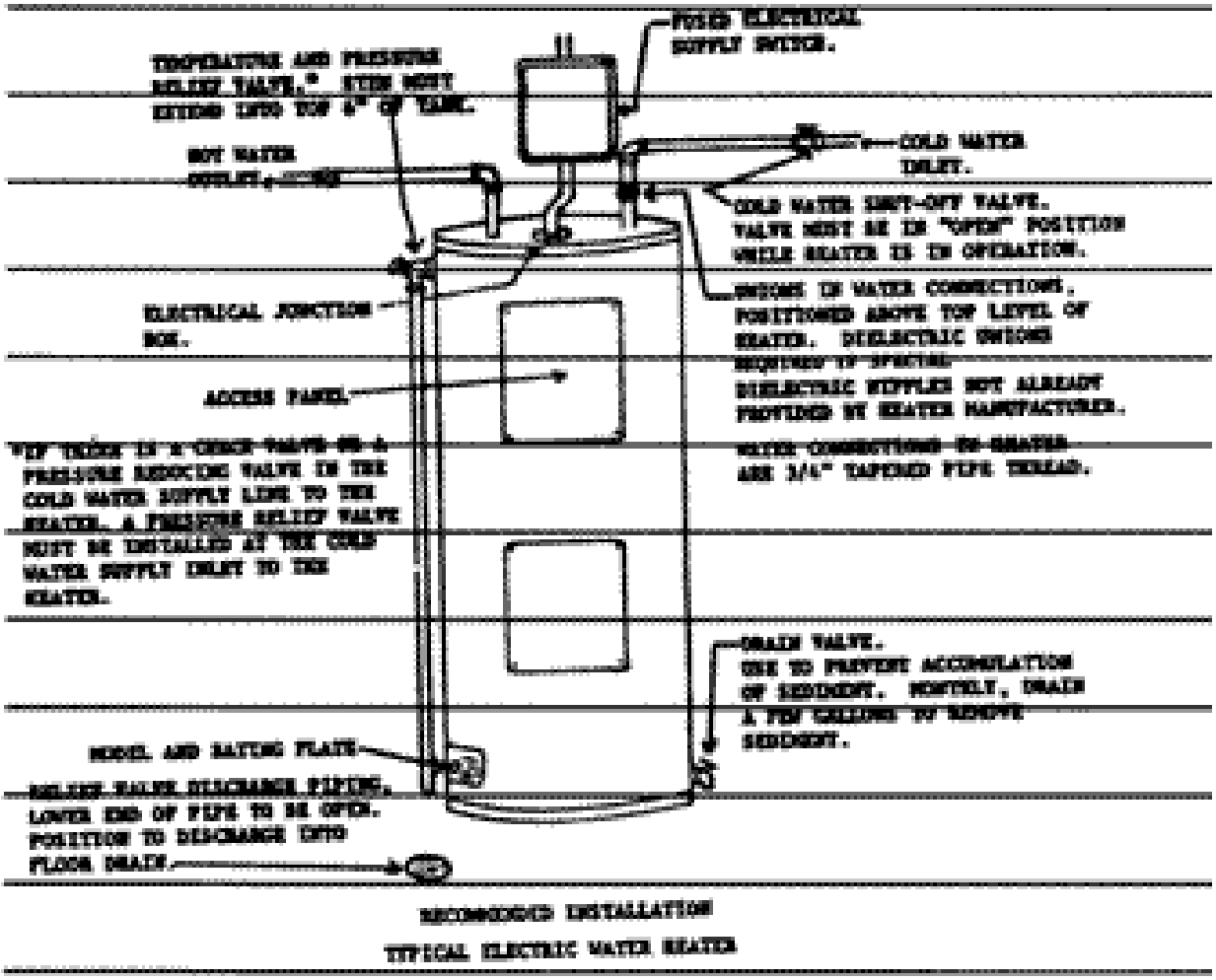
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX I Illustrations for Subpart I

Section 890.ILLUSTRATION M Typical Electric Water Heater

(Referenced in Section 890.1220(a))~~890.1220(a)(1))~~





(Source: Amended at 37 Ill. Reg. _____, effective _____)

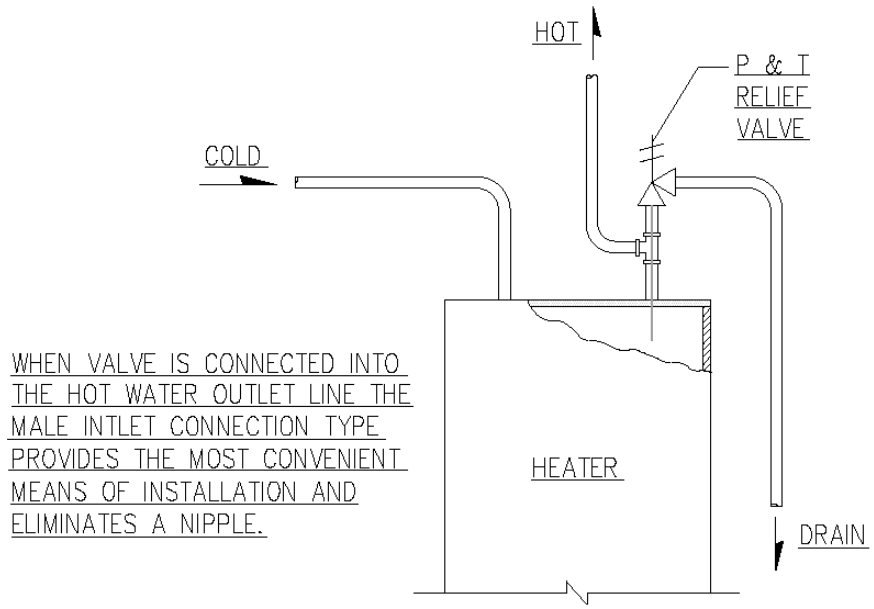
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

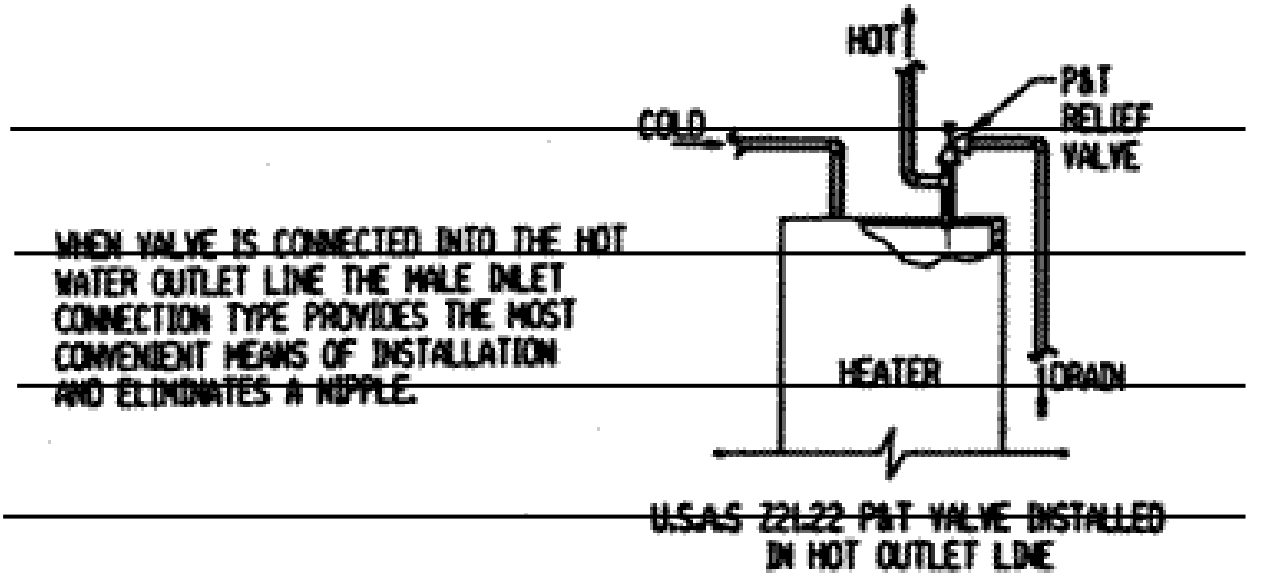
Section 890.APPENDIX I Illustrations for Subpart I

Section 890.ILLUSTRATION N P & T Valve Installed in Hot Outlet Line

(Referenced in Section 890.1230(c)(2))~~890.1230(c))~~



U.S.A.S. Z2L22 P & T VALVE INSTALLED IN HOT OUTLET LINE



(Source: Amended at 37 Ill. Reg. _____, effective _____)

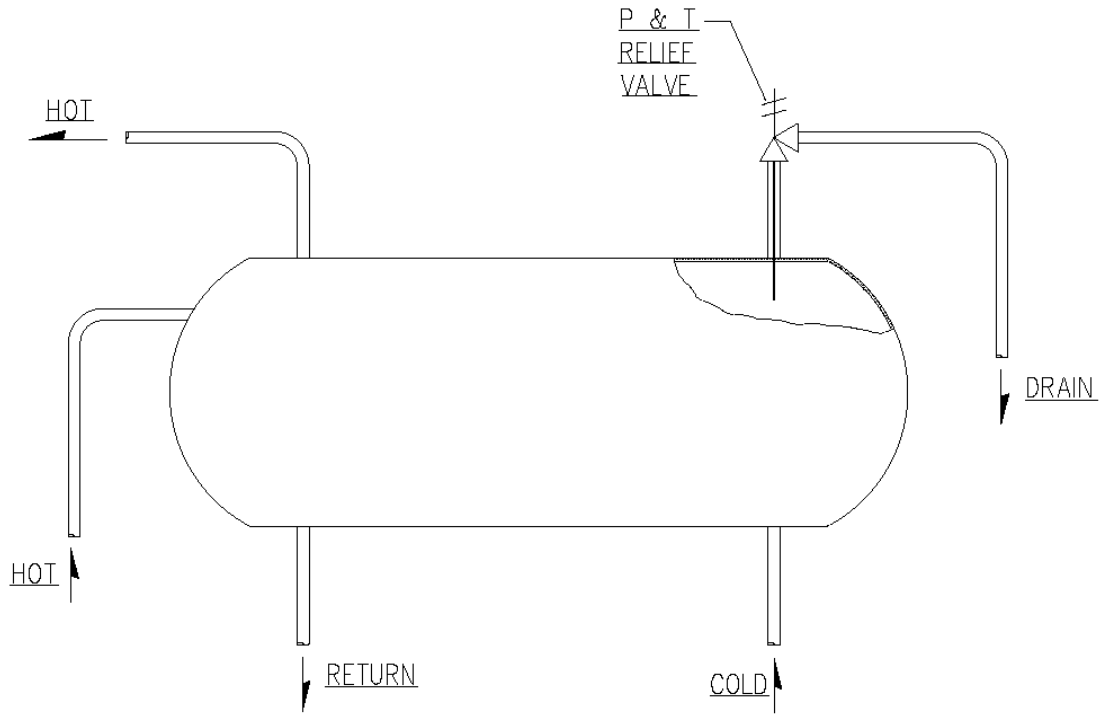
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX I Illustrations for Subpart I

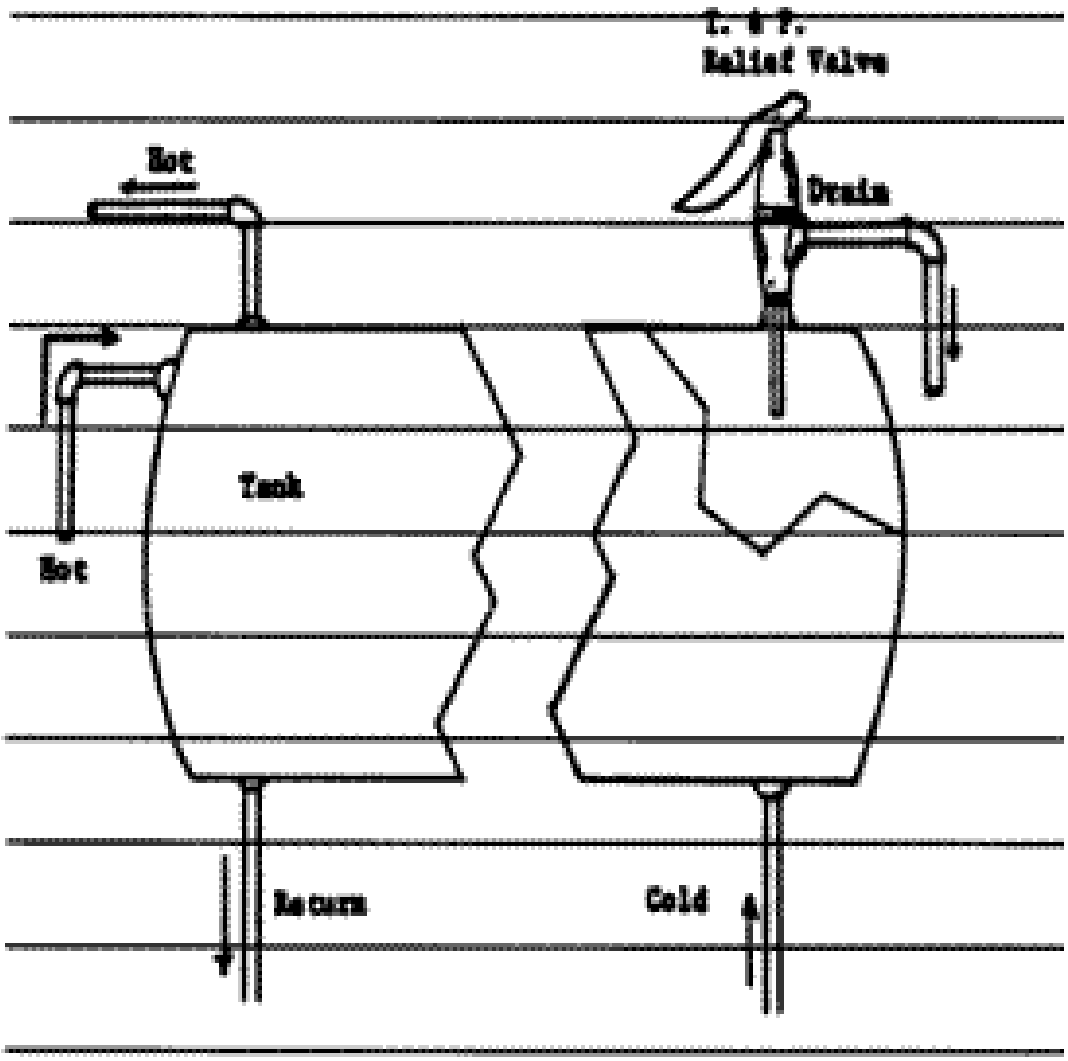
Section 890.ILLUSTRATION O P & T Relief Valve

(Referenced in Section 890.1230(c)(2))~~890.1230(c))~~



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

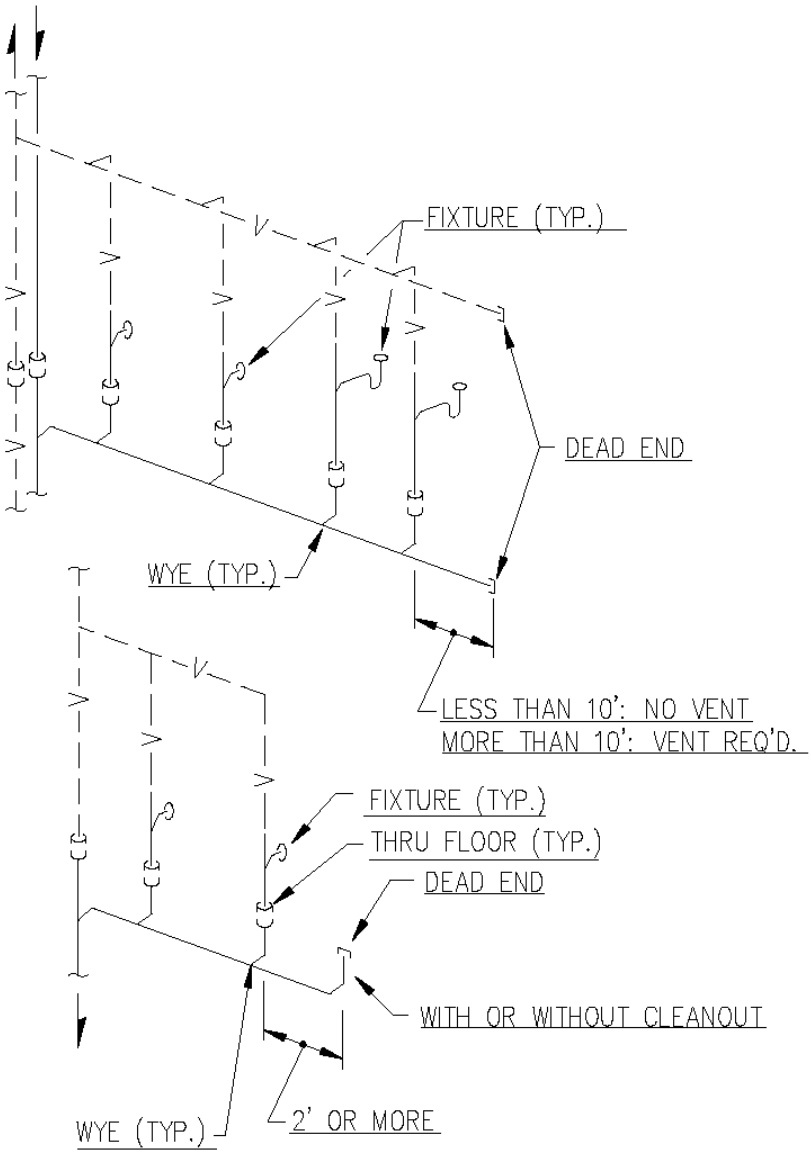
DEPARTMENT OF PUBLIC HEALTH

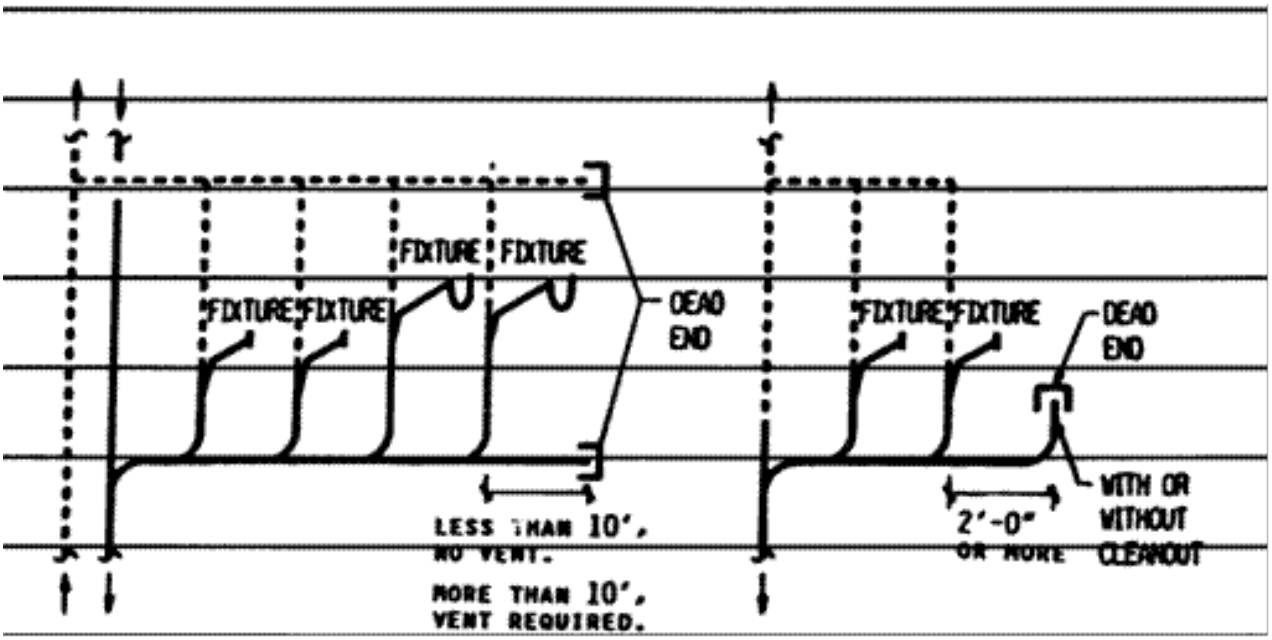
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX J Illustrations for Subpart J

Section 890.ILLUSTRATION A Dead Ends

(Referenced in Section 890.1320(d))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

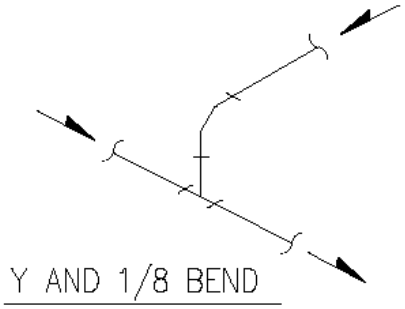
DEPARTMENT OF PUBLIC HEALTH

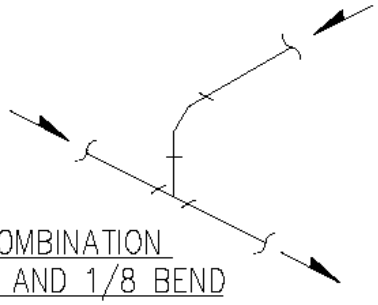
NOTICE OF PROPOSED AMENDMENTS

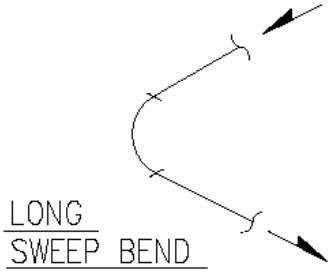
Section 890.APPENDIX J Illustrations for Subpart J

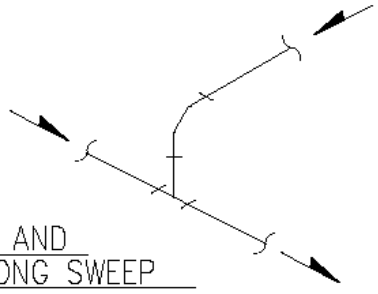
Section 890.ILLUSTRATION C Horizontal to Horizontal Change of Direction

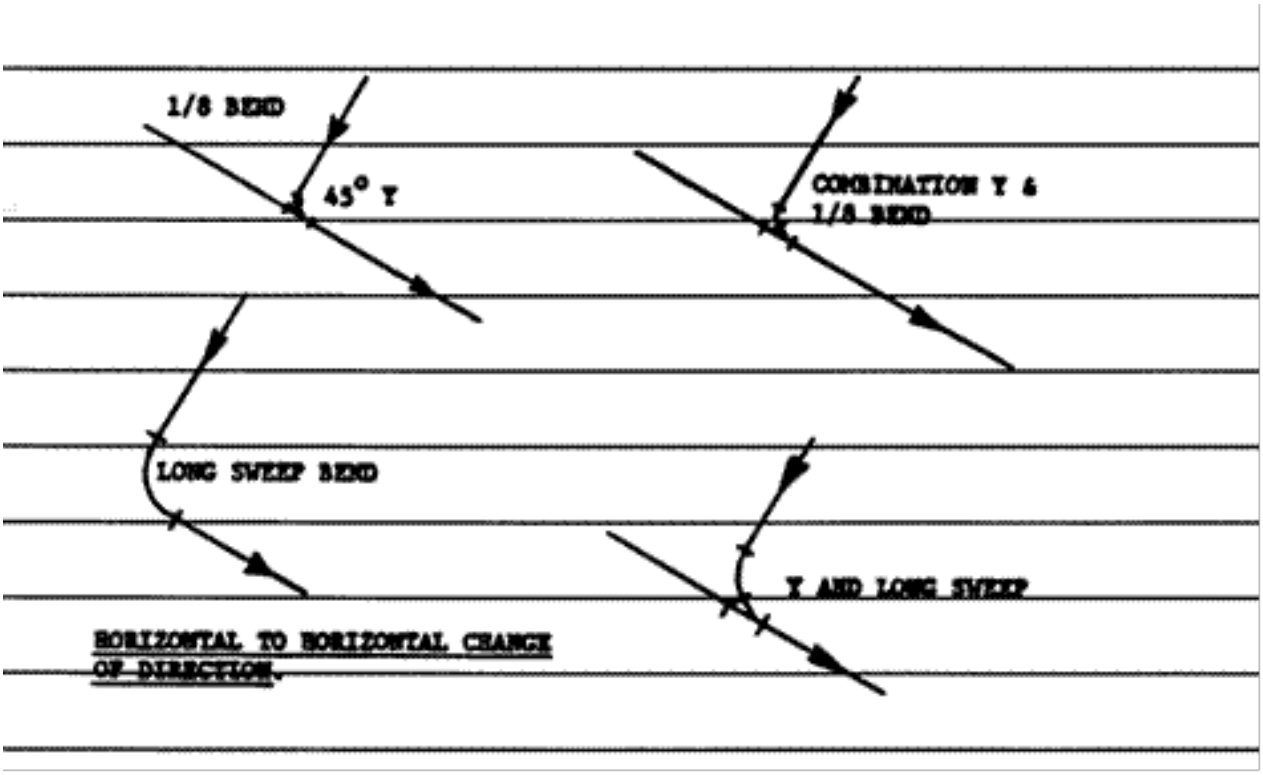
(Referenced in Section 890.1320(i))











(Source: Amended at 37 Ill. Reg. _____, effective _____)

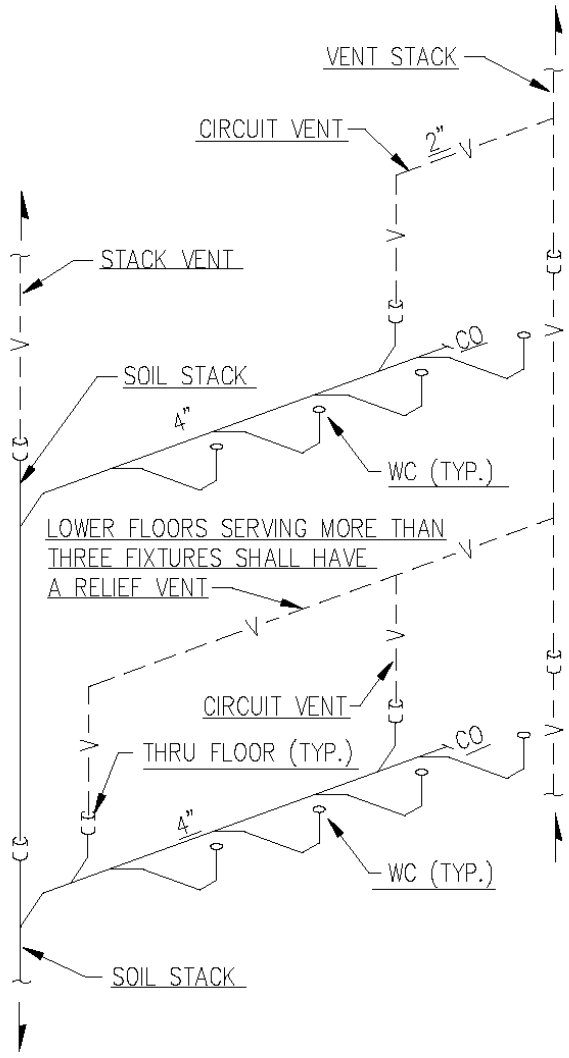
DEPARTMENT OF PUBLIC HEALTH

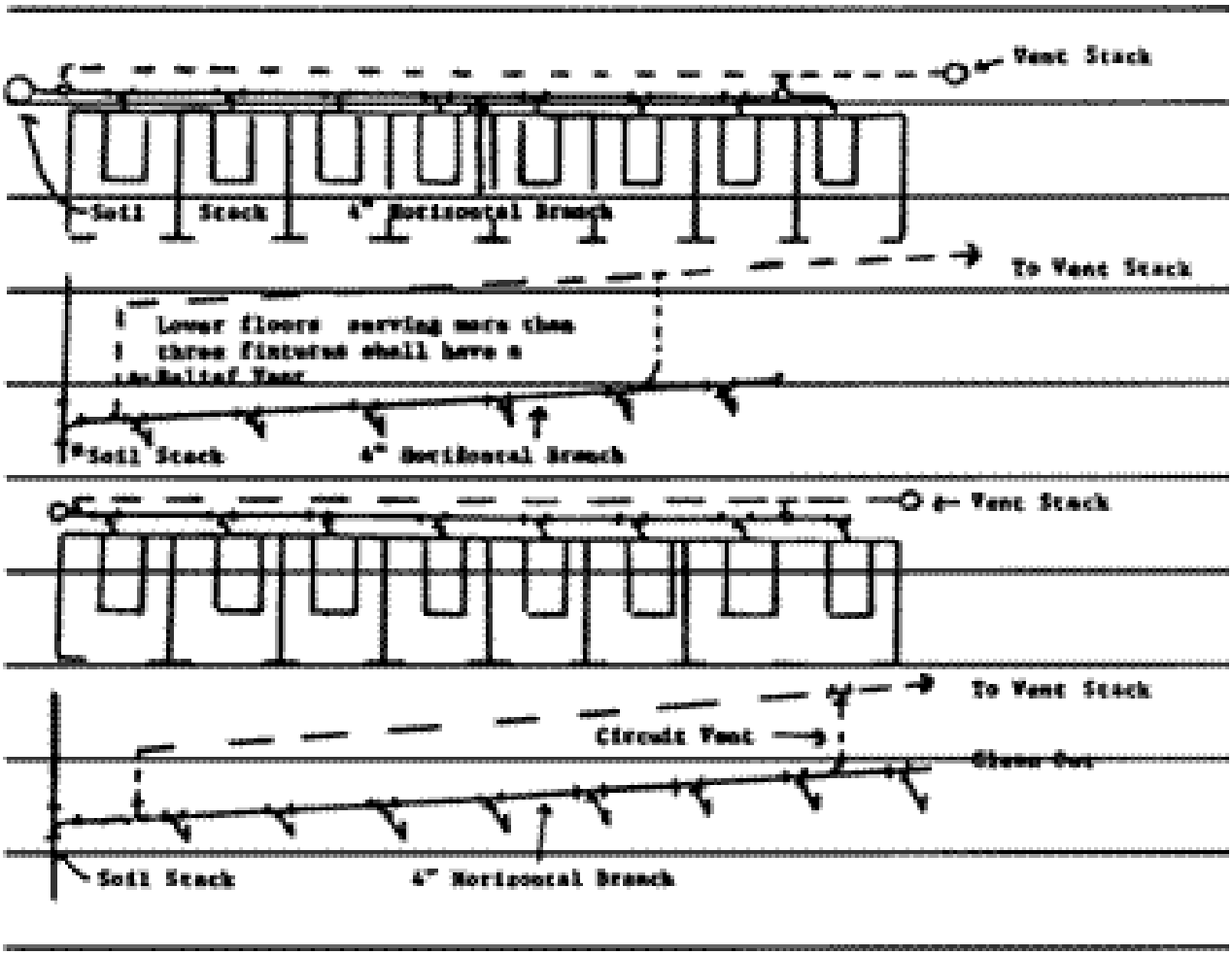
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX J Illustrations for Subpart J

Section 890.ILLUSTRATION E Fixture Connections

(Referenced in Section 890.1320(l))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

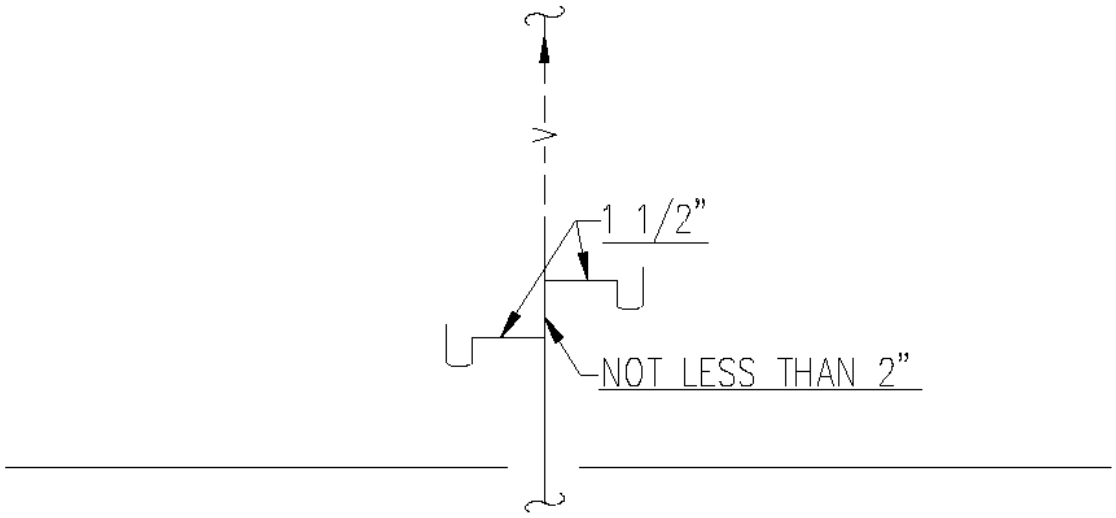
DEPARTMENT OF PUBLIC HEALTH

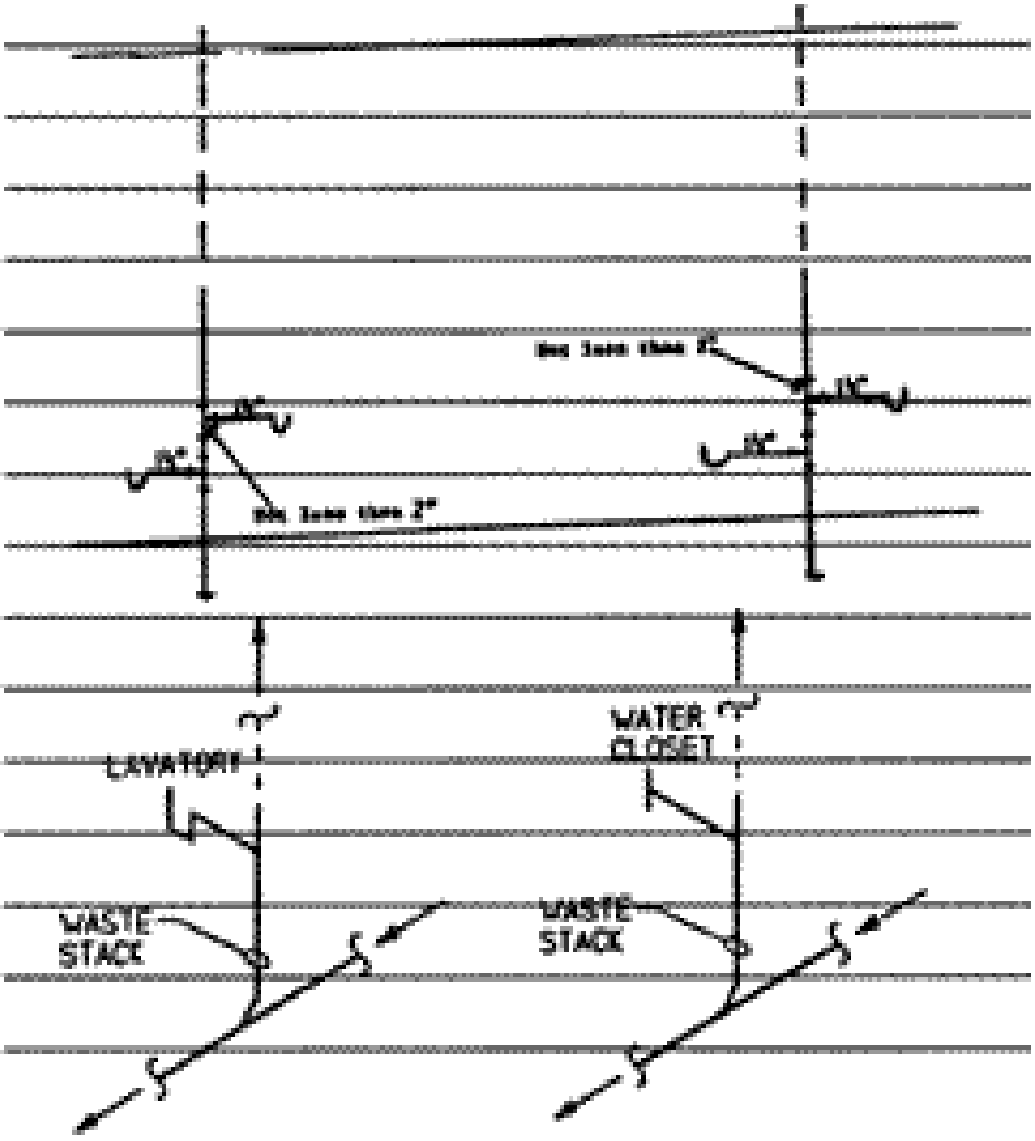
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX J Illustrations for Subpart J

Section 890.ILLUSTRATION F Waste Stacks

(Referenced in Section 890.1340(d))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

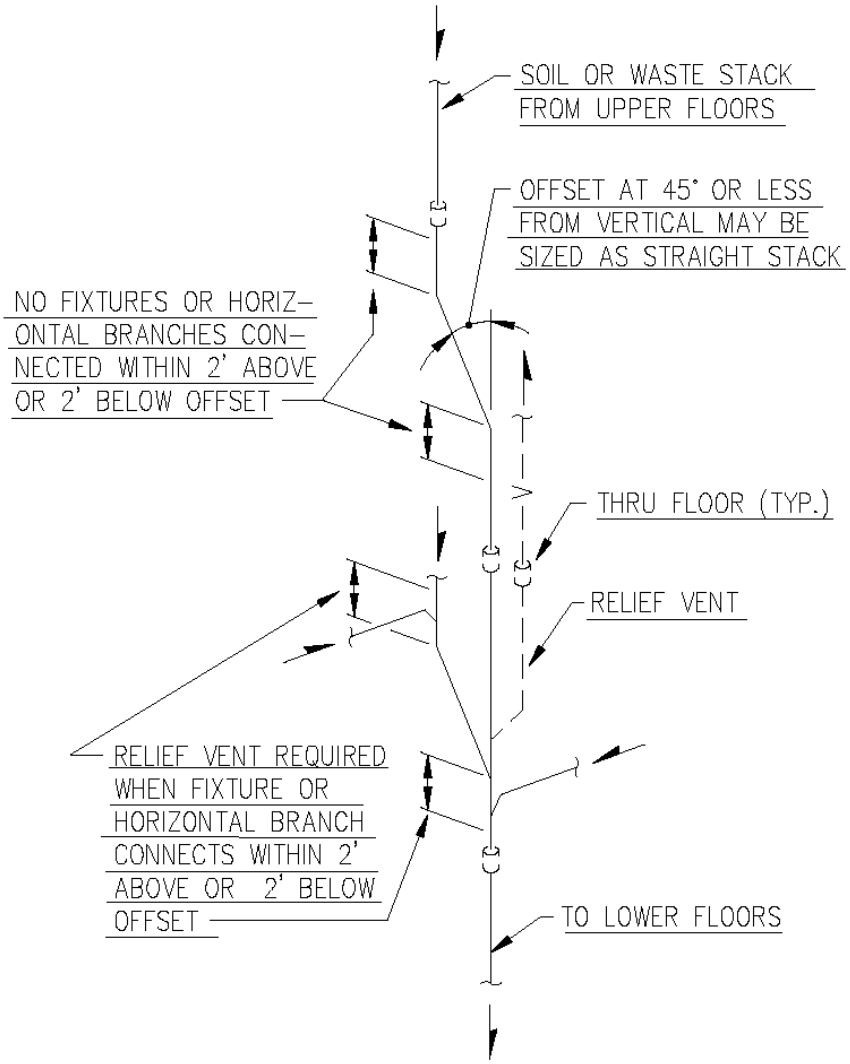
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX J Illustrations for Subpart J

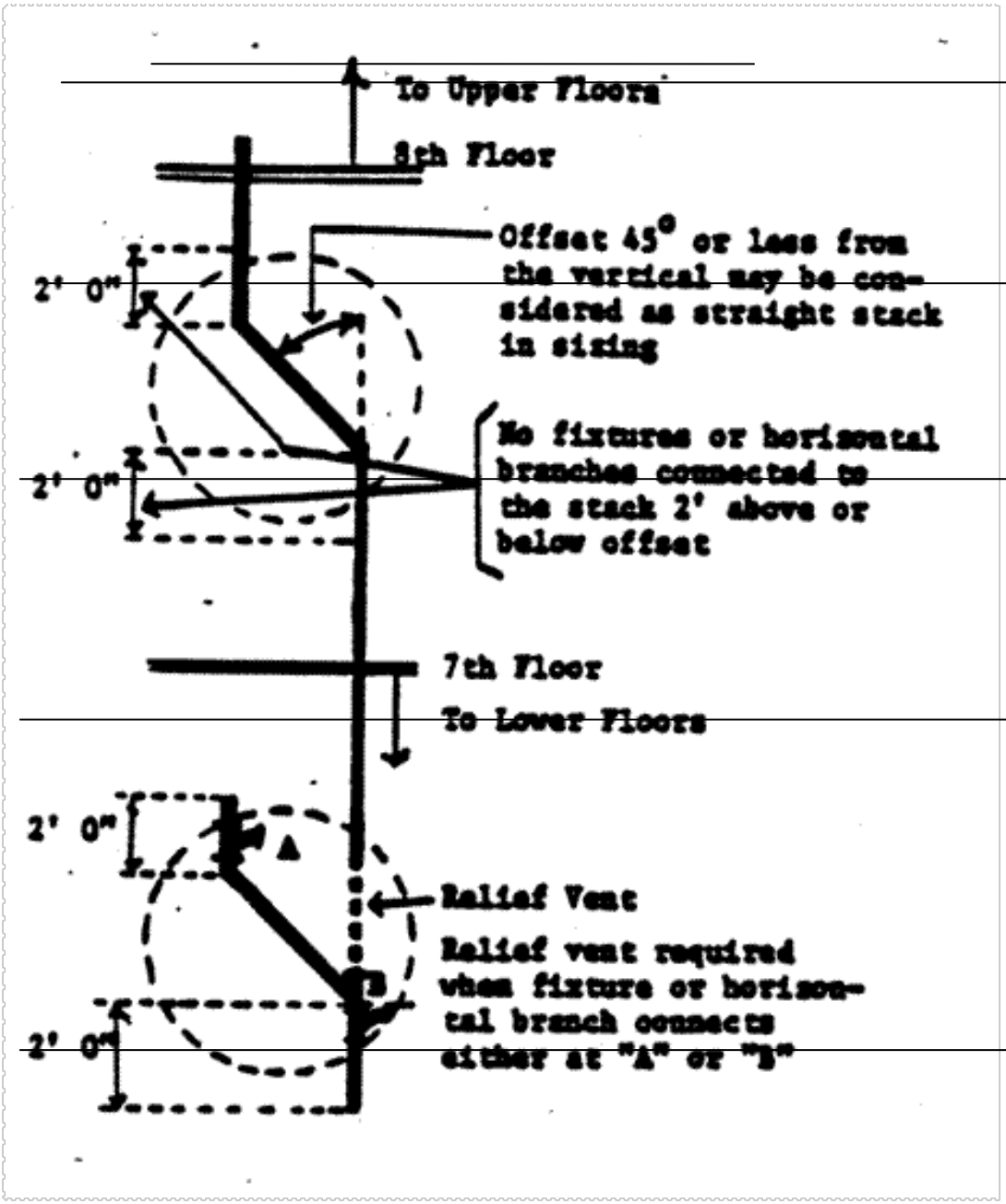
Section 890.ILLUSTRATION G Offsets on Drainage Piping

(Referenced in Section ~~890.1350)~~ 890.1350(a))



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

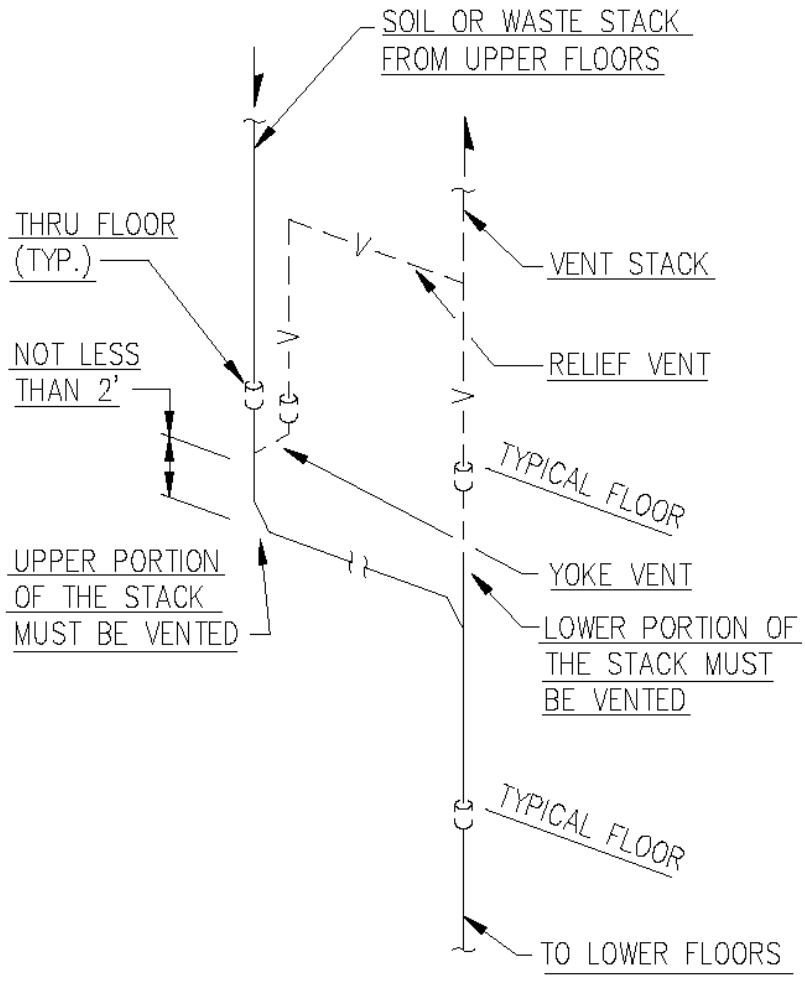
DEPARTMENT OF PUBLIC HEALTH

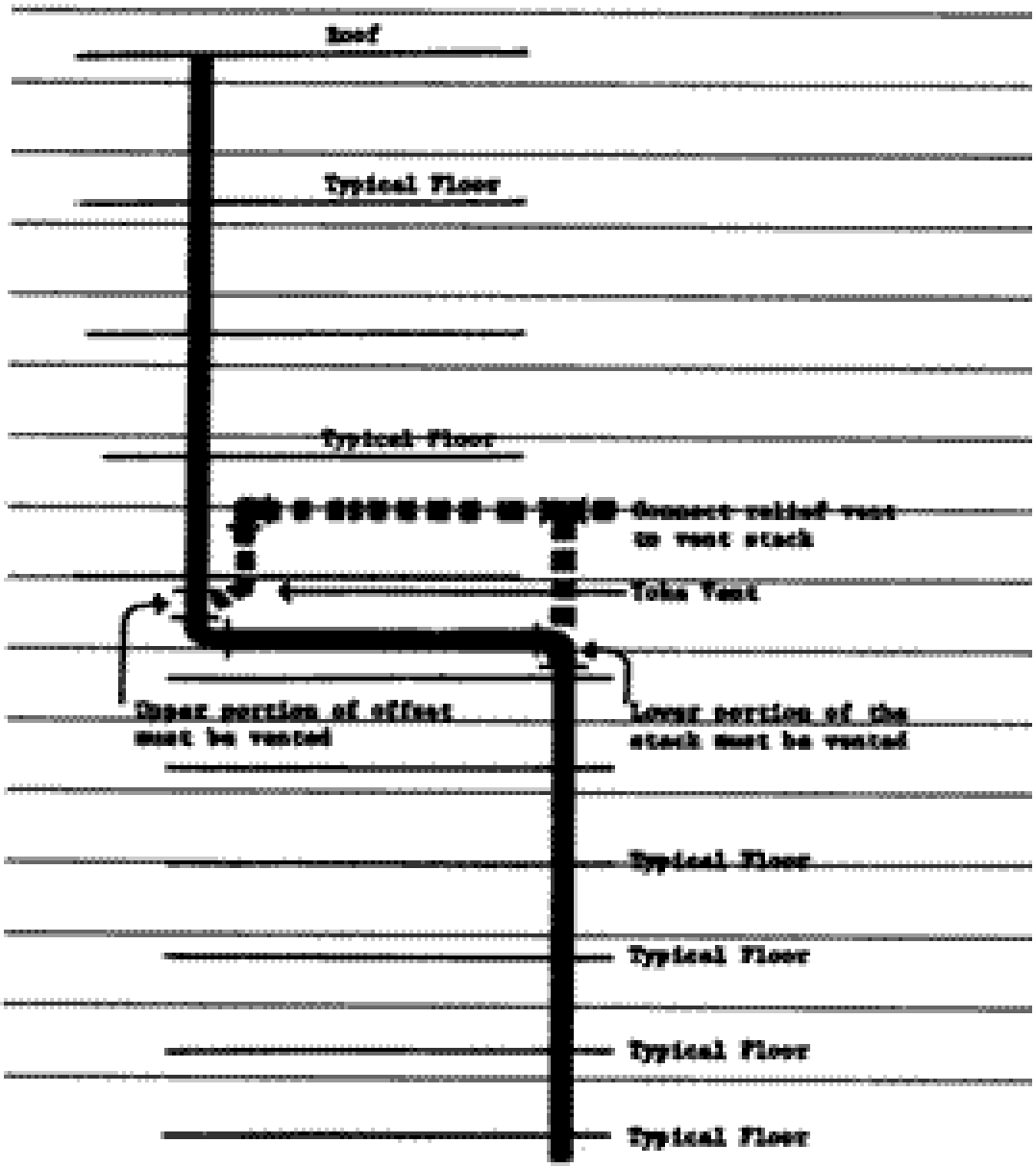
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX J Illustrations for Subpart J

Section 890.ILLUSTRATION H Relief Vent

(Referenced in Section 890.1350(b)(4))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

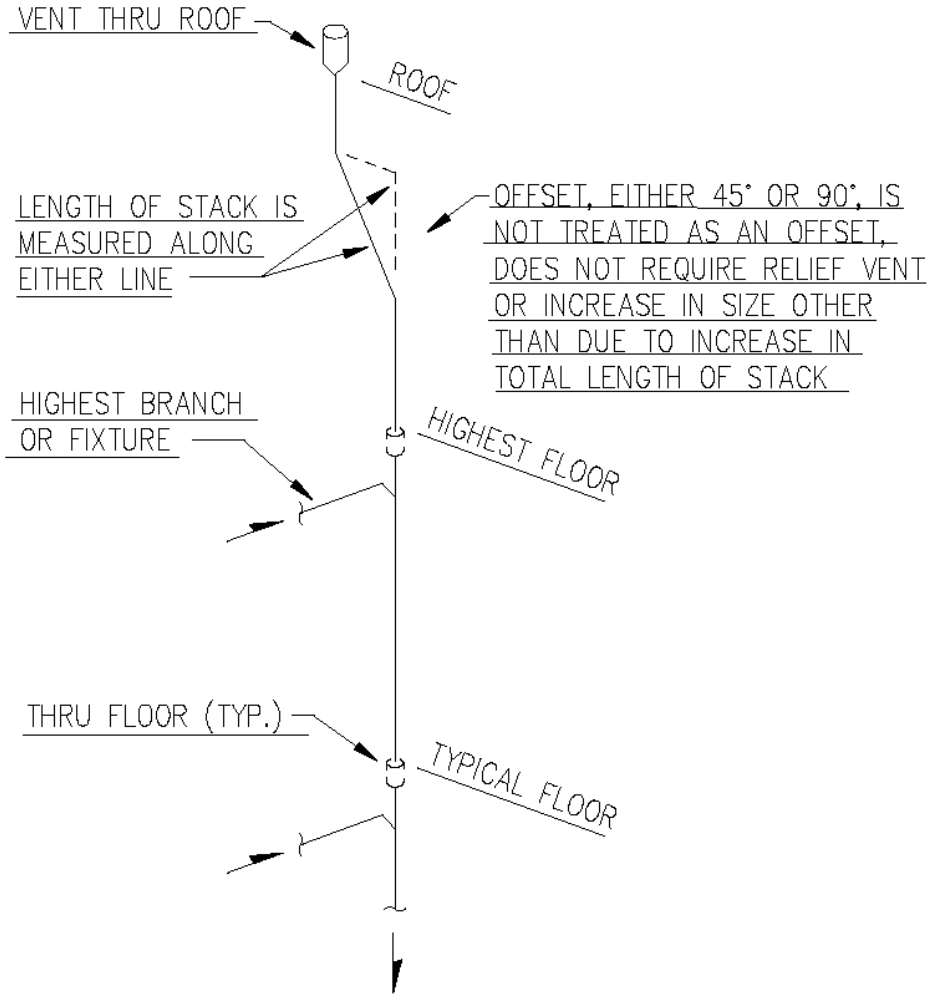
DEPARTMENT OF PUBLIC HEALTH

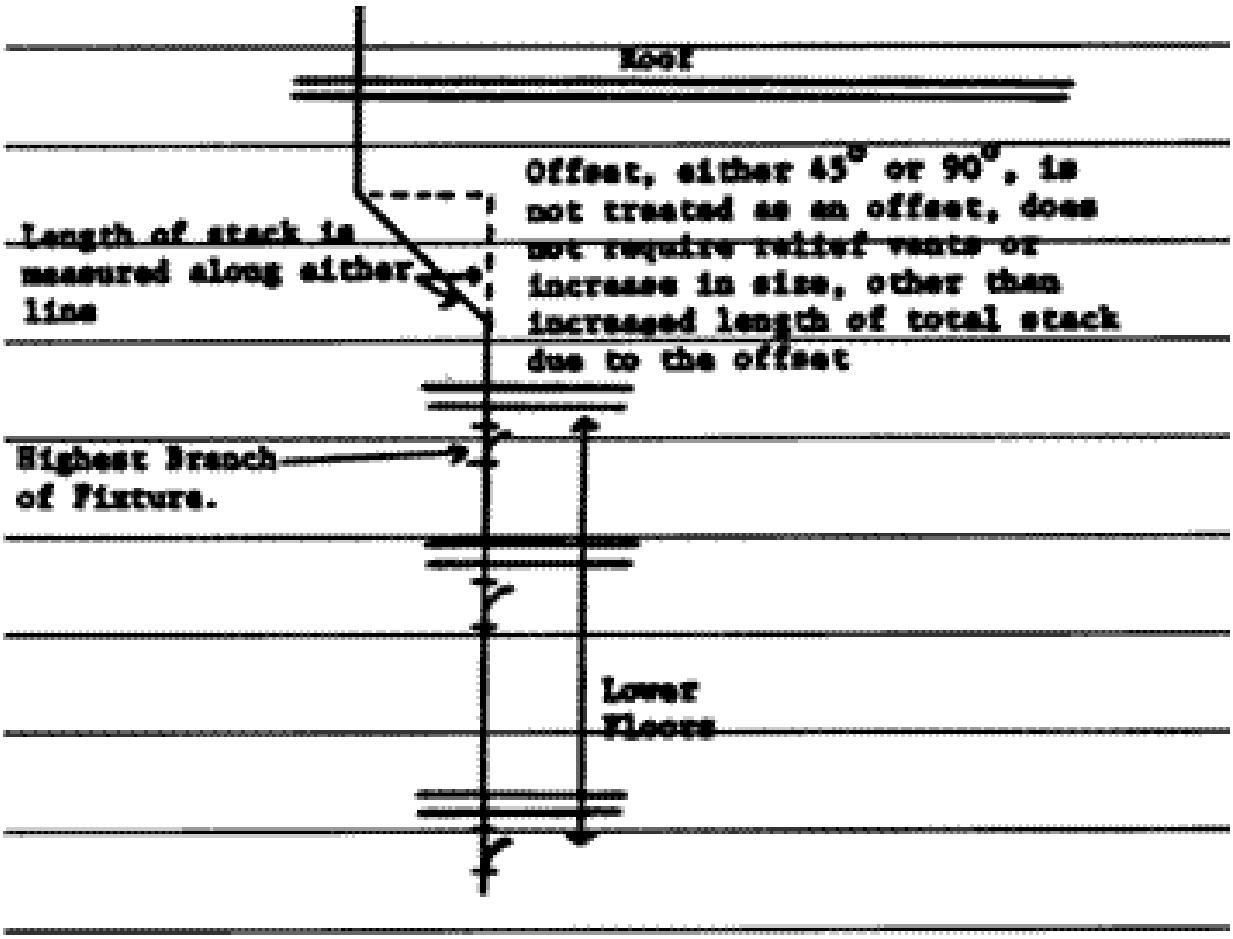
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX J Illustrations for Subpart J

Section 890.ILLUSTRATION I Above Highest Branch

(Referenced in Section 890.1350(c))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

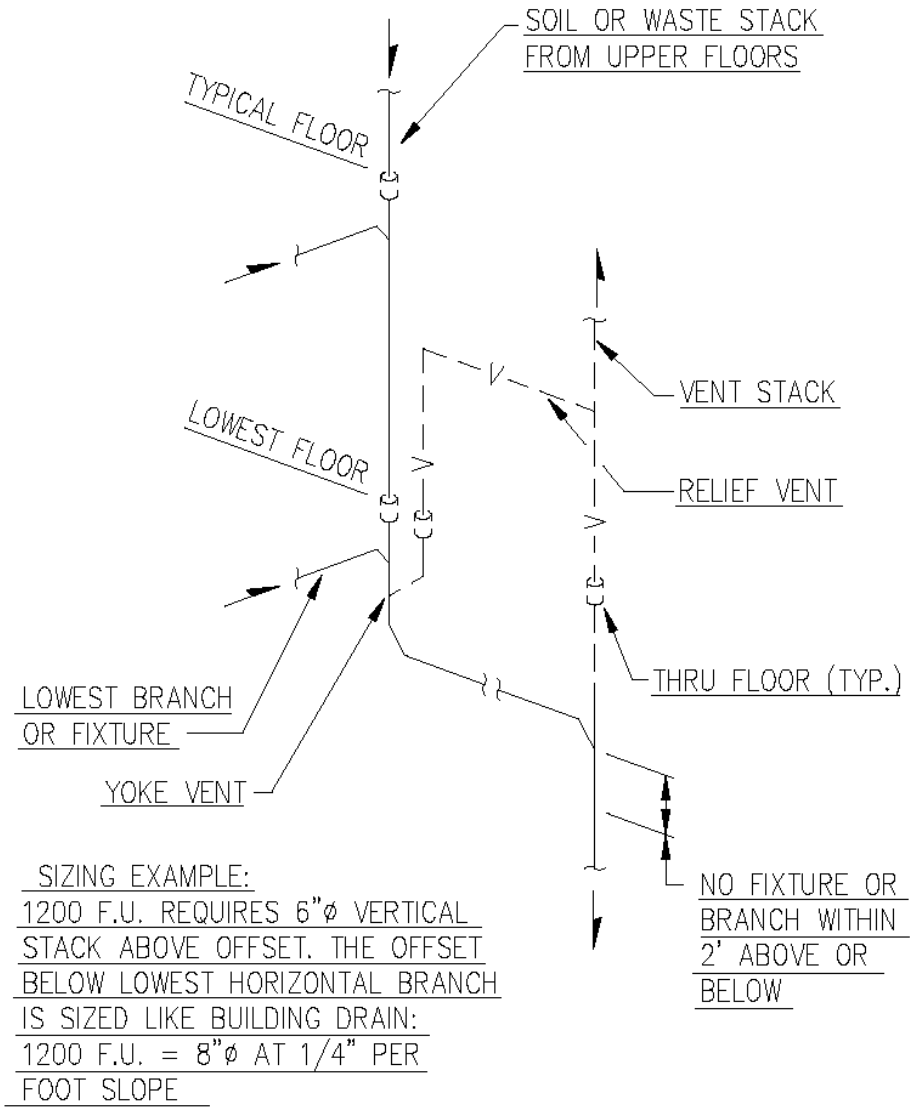
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX J Illustrations for Subpart J

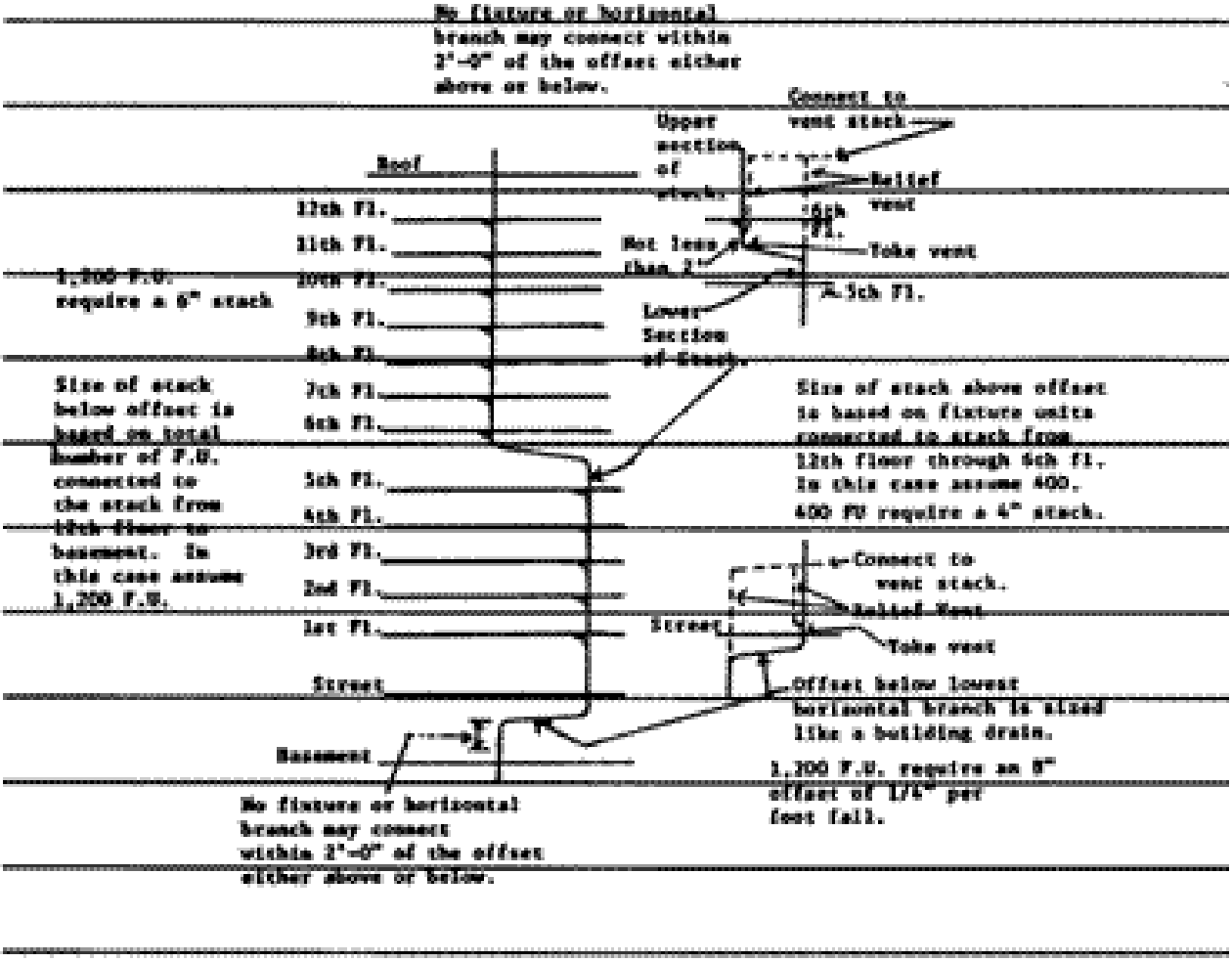
Section 890.ILLUSTRATION J Below Lowest Branch

(Referenced in Section 890.1350(d))



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

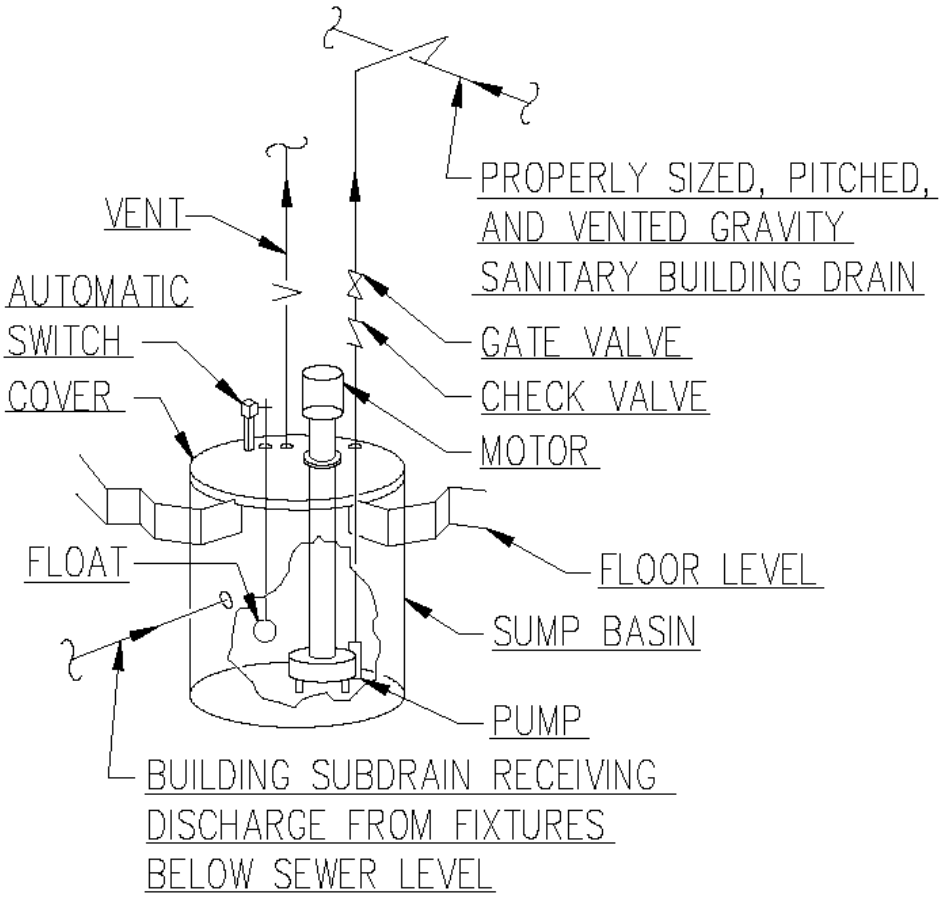
DEPARTMENT OF PUBLIC HEALTH

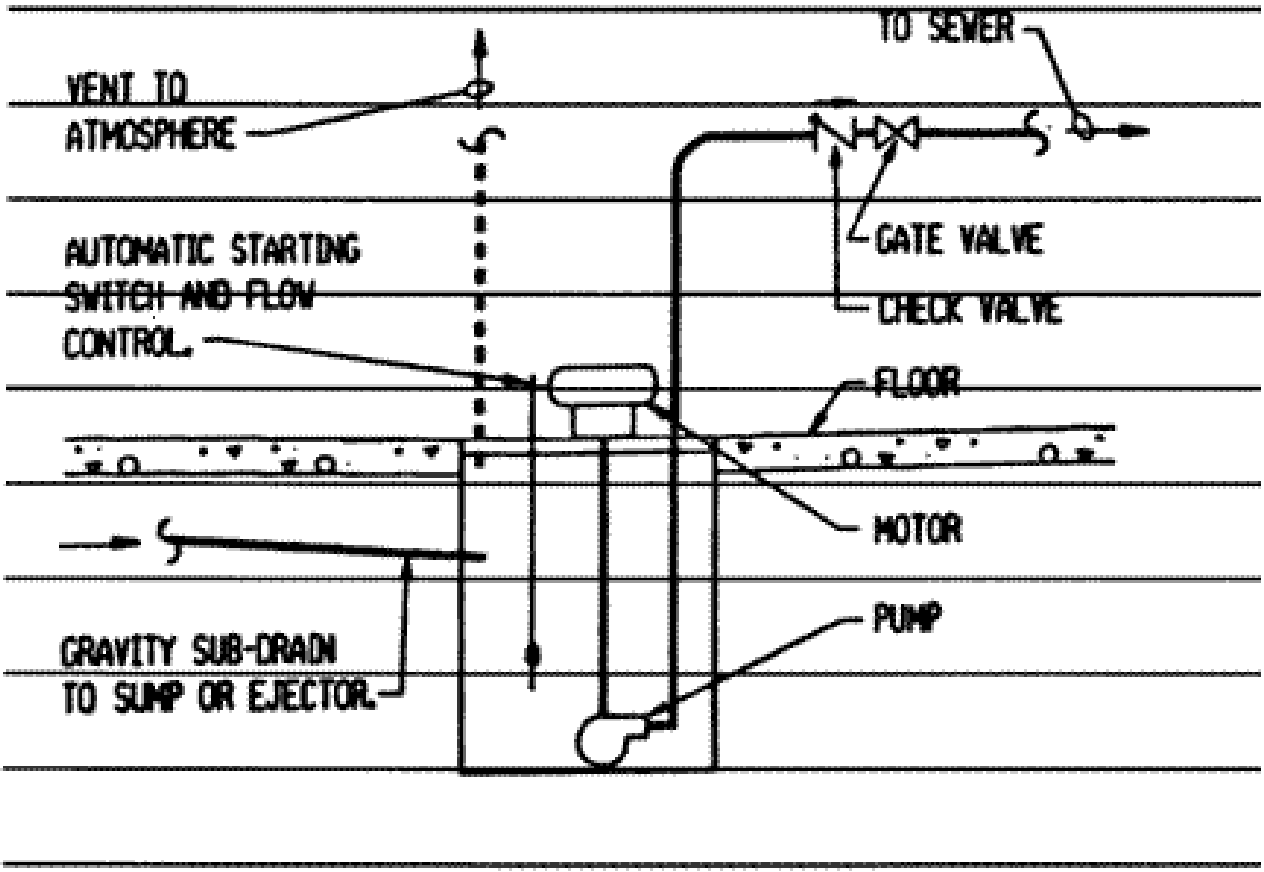
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX J Illustrations for Subpart J

Section 890.ILLUSTRATION K Drainage Below Sewer Level

(Referenced in Section 890.1360(a)(1))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

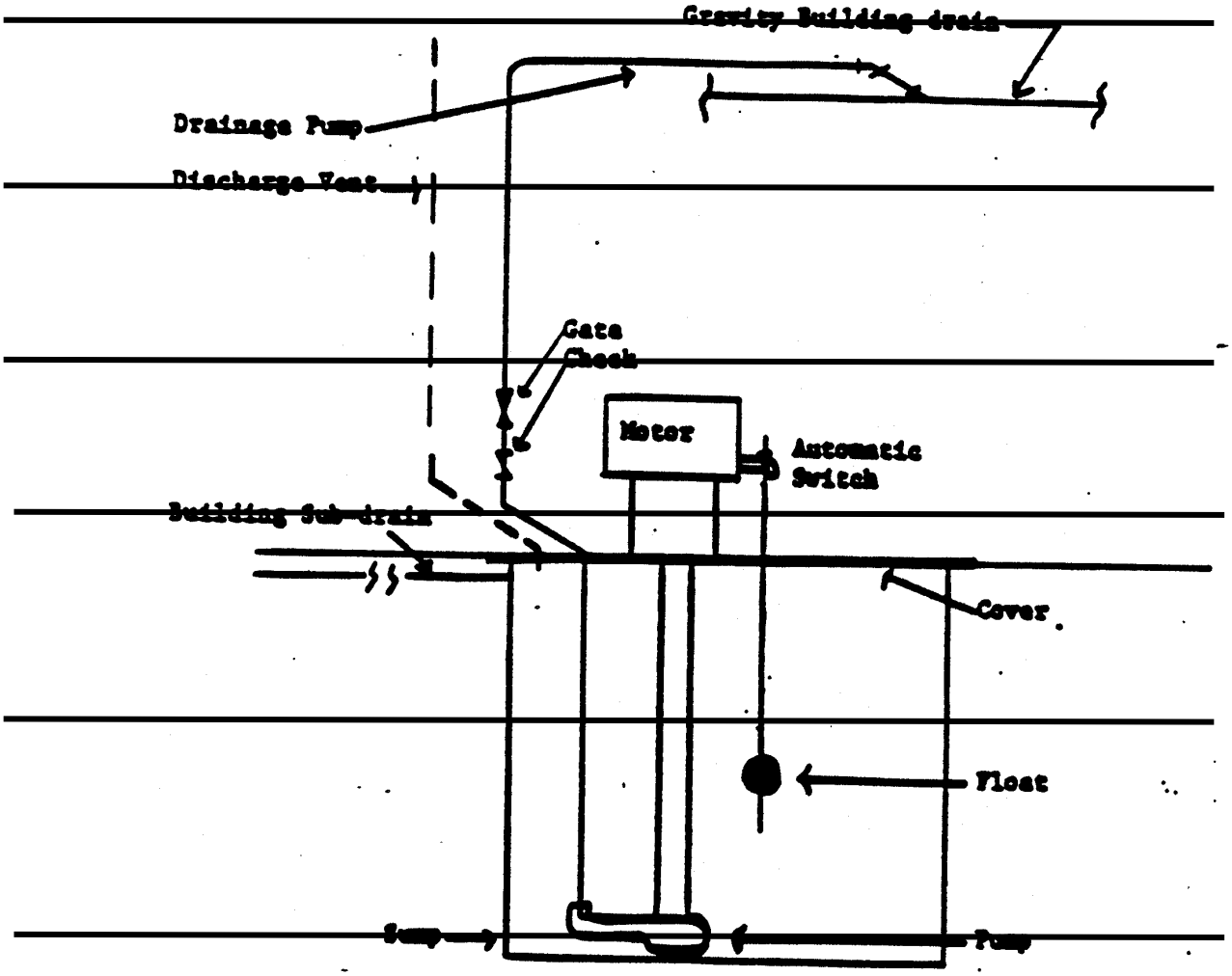
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX J Illustrations for Subpart J

Section 890.ILLUSTRATION L Sanitary Wastes Below Sewer <u>(Repealed)</u>

~~(Referenced in Section 890.1360(a)(1))~~



(Source: Repealed at 37 Ill. Reg. _____, effective _____)

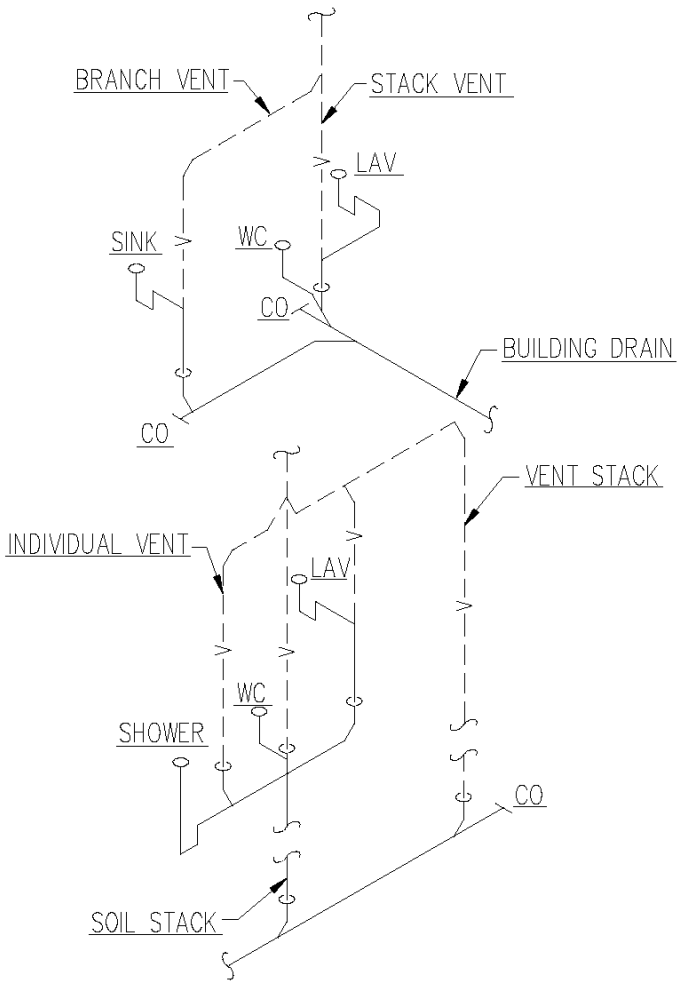
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

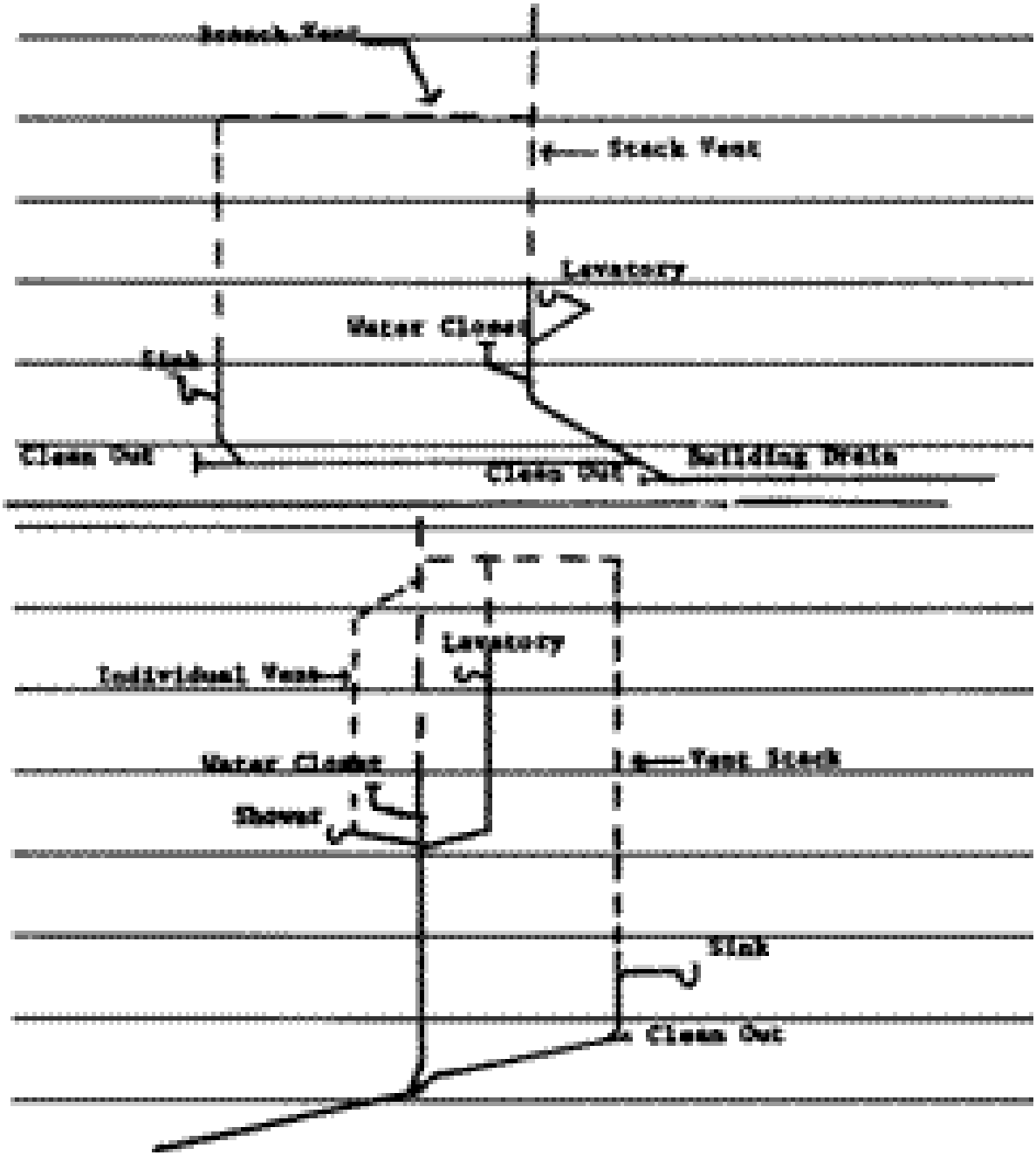
Section 890.ILLUSTRATION A Installation of Vent Stack or Main Vent

(Referenced in Section 890.1420(b))



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

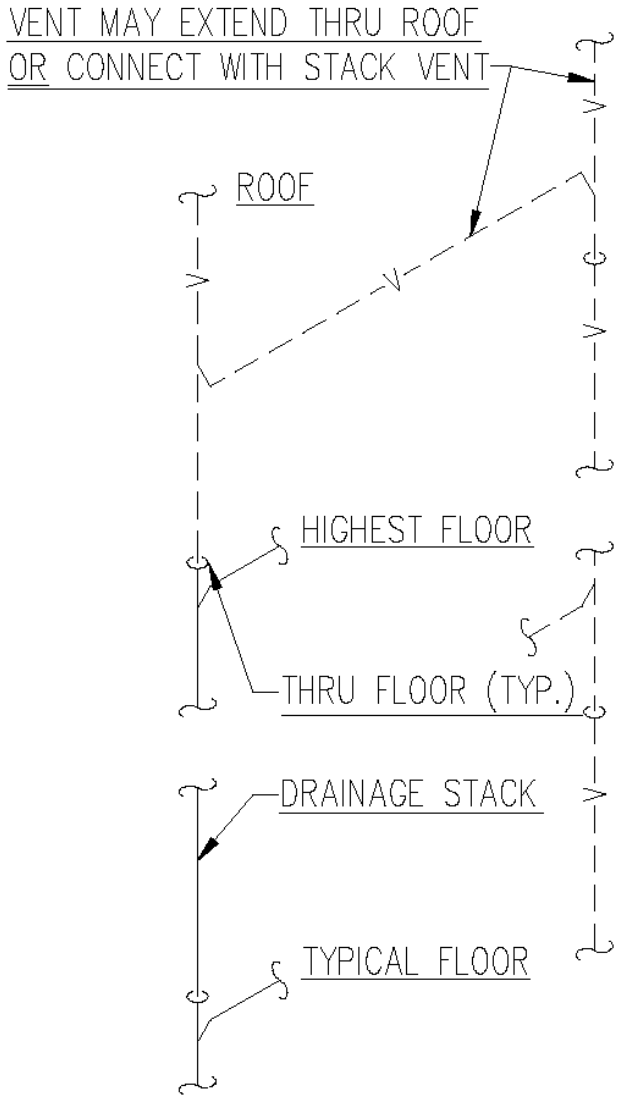
DEPARTMENT OF PUBLIC HEALTH

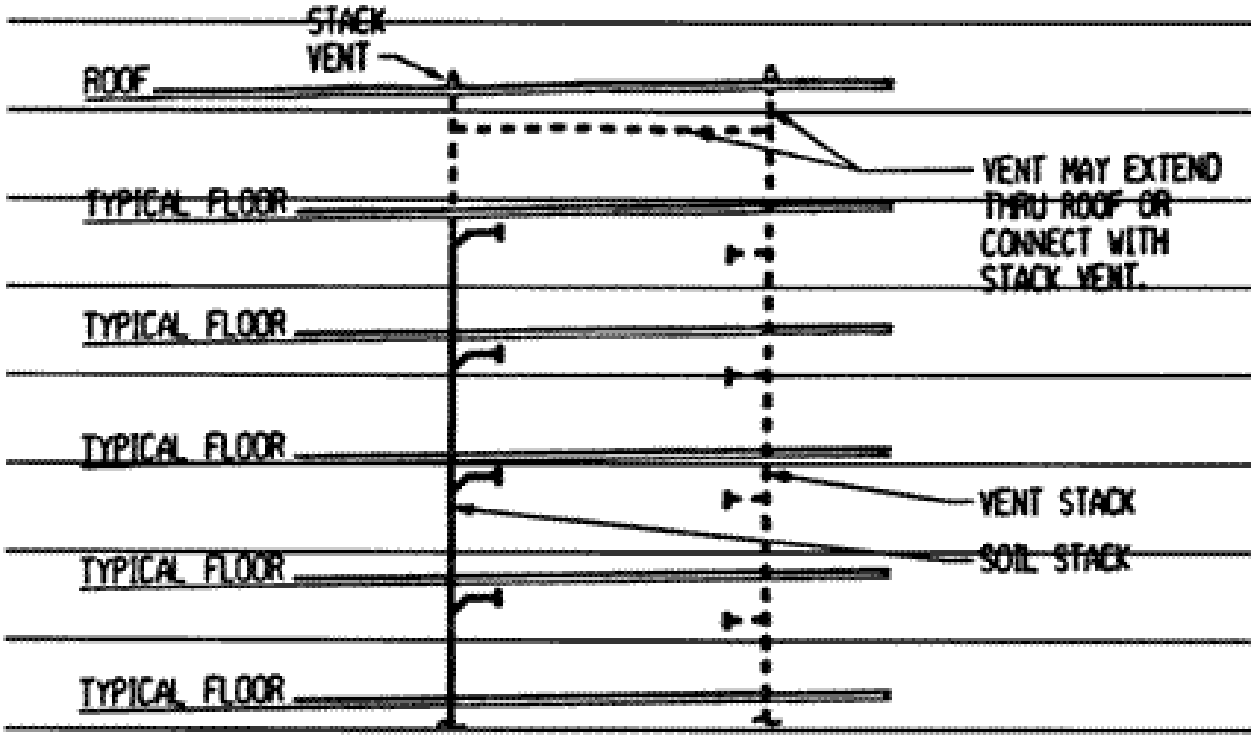
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION B Vent Terminal

(Referenced in Section 890.1430(a)) ~~890.1420(c))~~





(Source: Amended at 37 Ill. Reg. _____, effective _____)

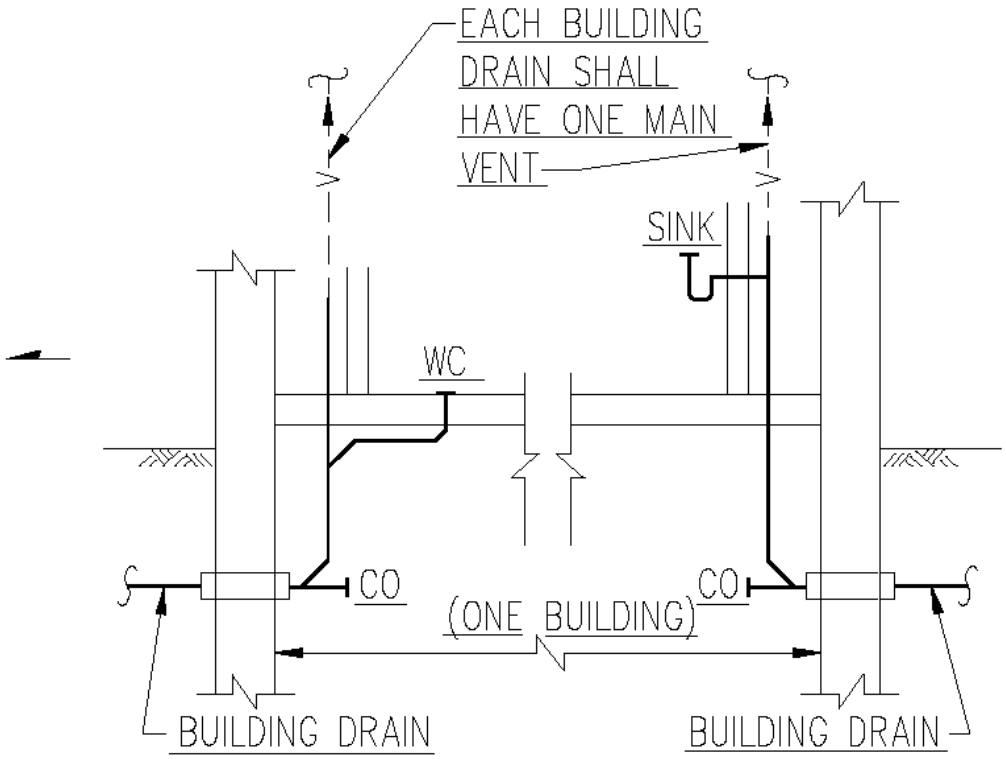
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

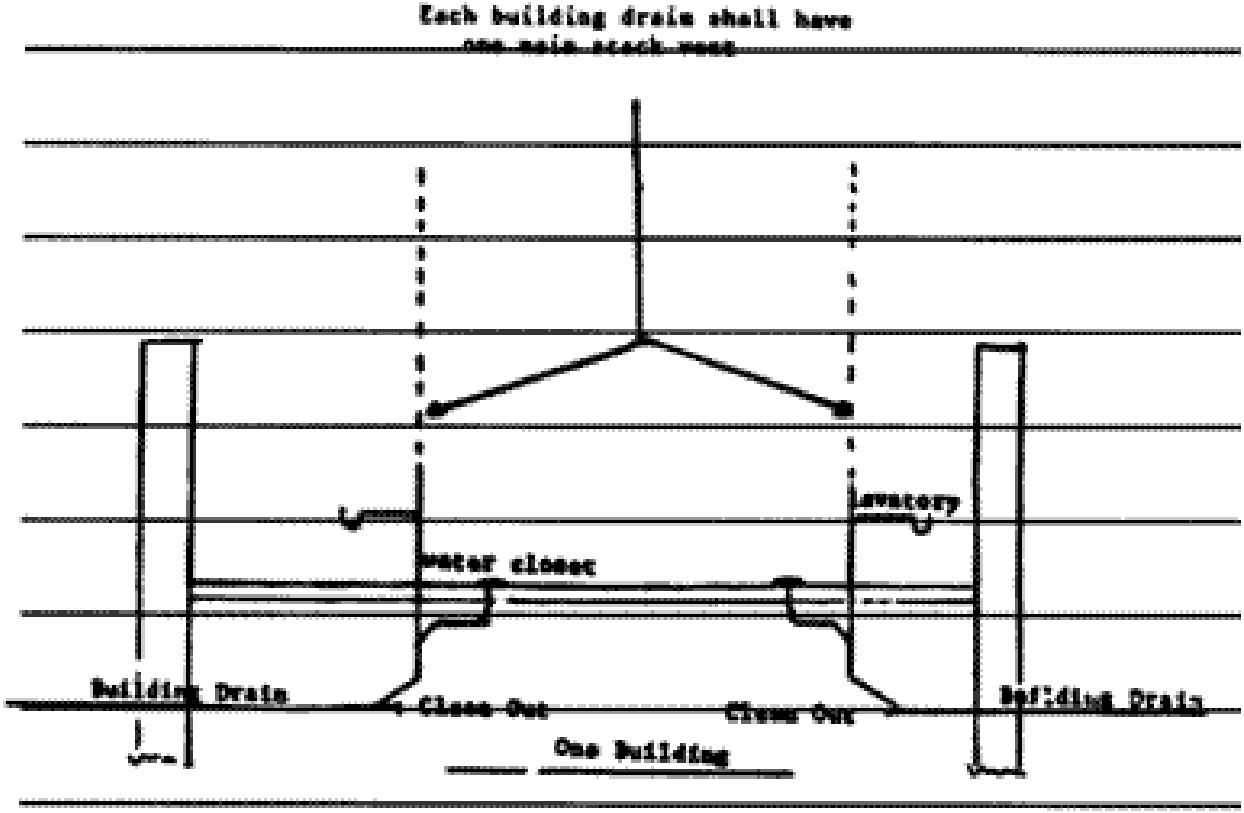
Section 890.ILLUSTRATION C Main Vent ~~Stack~~

(Referenced in Section 890.1420(c)) ~~890.1420(d))~~



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

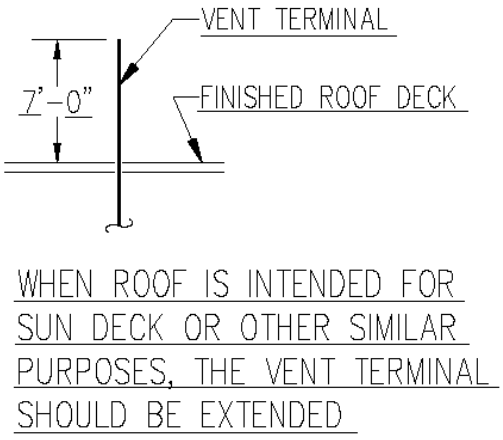
DEPARTMENT OF PUBLIC HEALTH

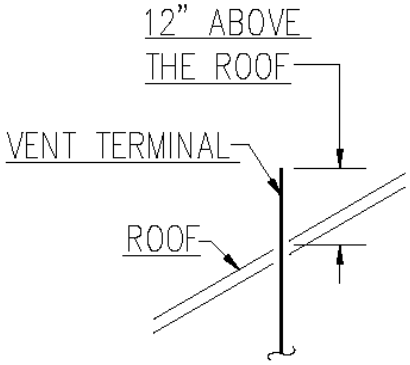
NOTICE OF PROPOSED AMENDMENTS

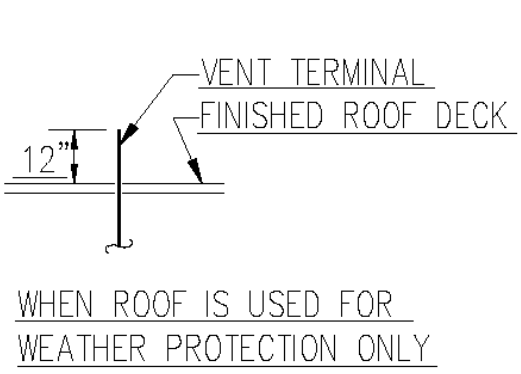
Section 890.APPENDIX K Illustrations for Subpart K

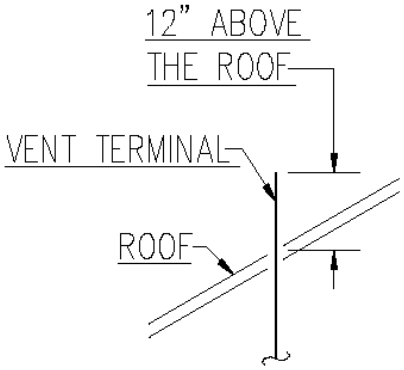
Section 890.ILLUSTRATION D Roof <u>Extensions</u> ~~Garden~~

(Referenced in Section <u>890.1430(b))</u> ~~890.1430(a))~~



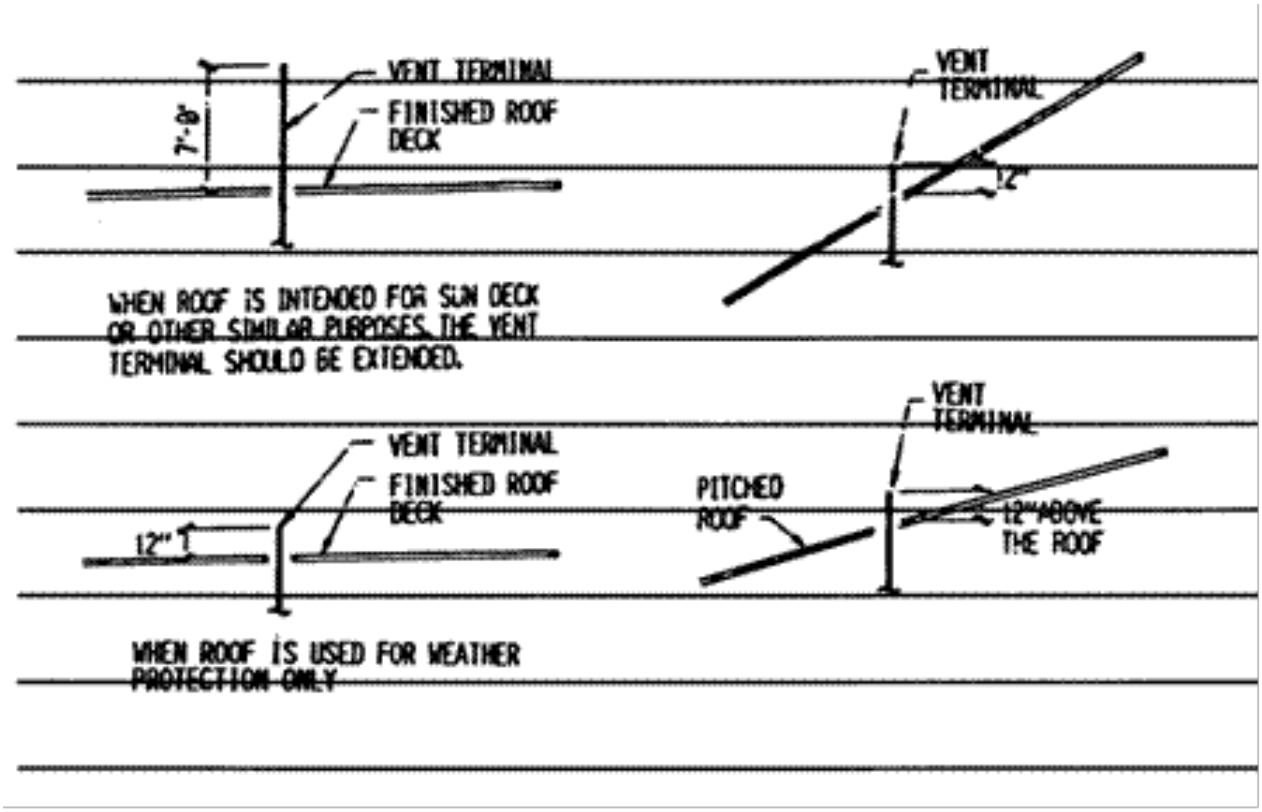






DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

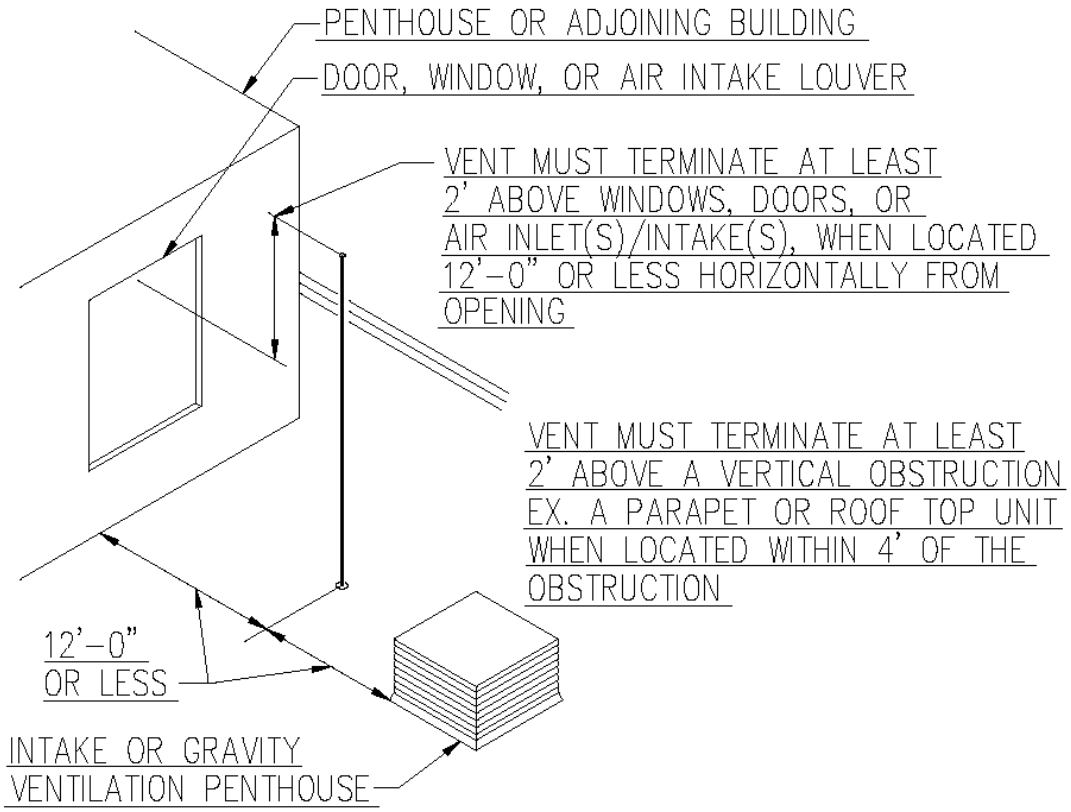
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION E Location of Vent Terminal

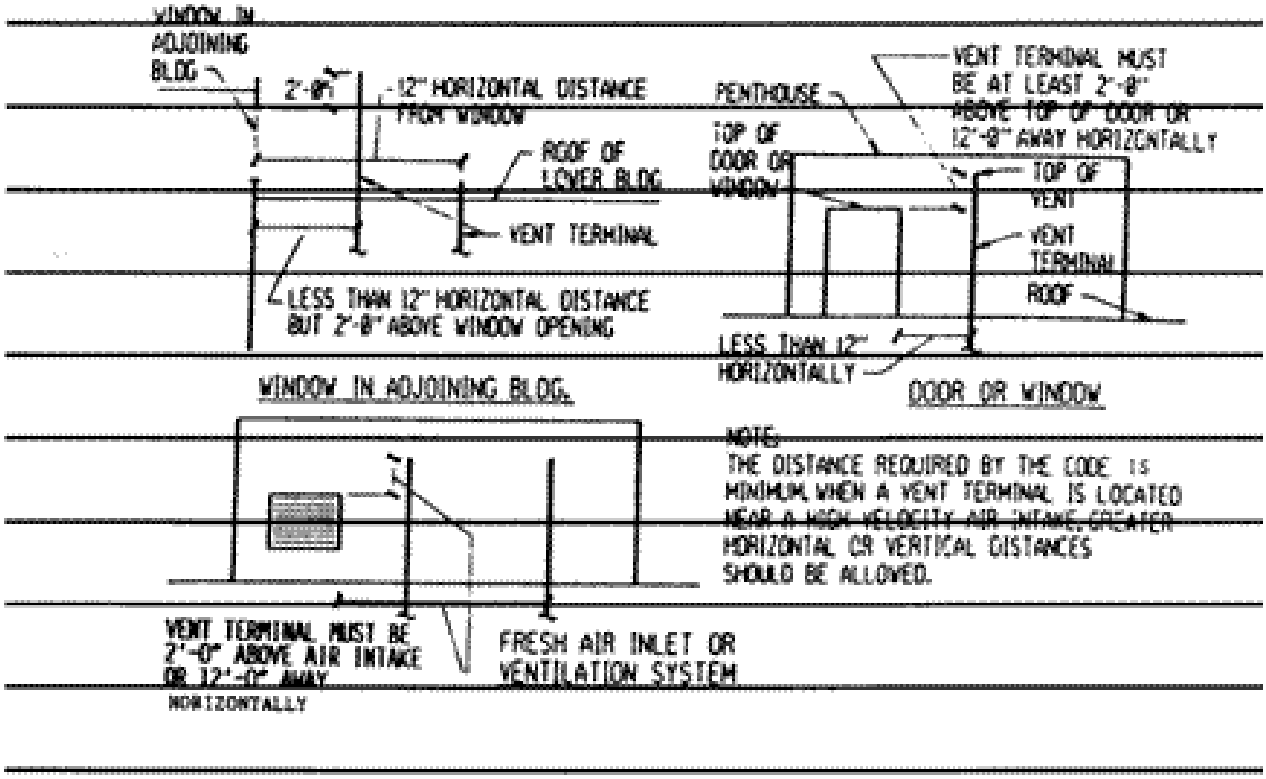
(Referenced in Section 890.1430(d)) ~~890.1430(c))~~



NOTE:
THE DISTANCE REQUIRED BY THE CODE IS THE MINIMUM. WHEN A VENT TERMINAL IS LOCATED NEAR A HIGH VELOCITY AIR INTAKE, GREATER HORIZONTAL OR VERTICAL DISTANCES SHOULD BE ALLOWED.

DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

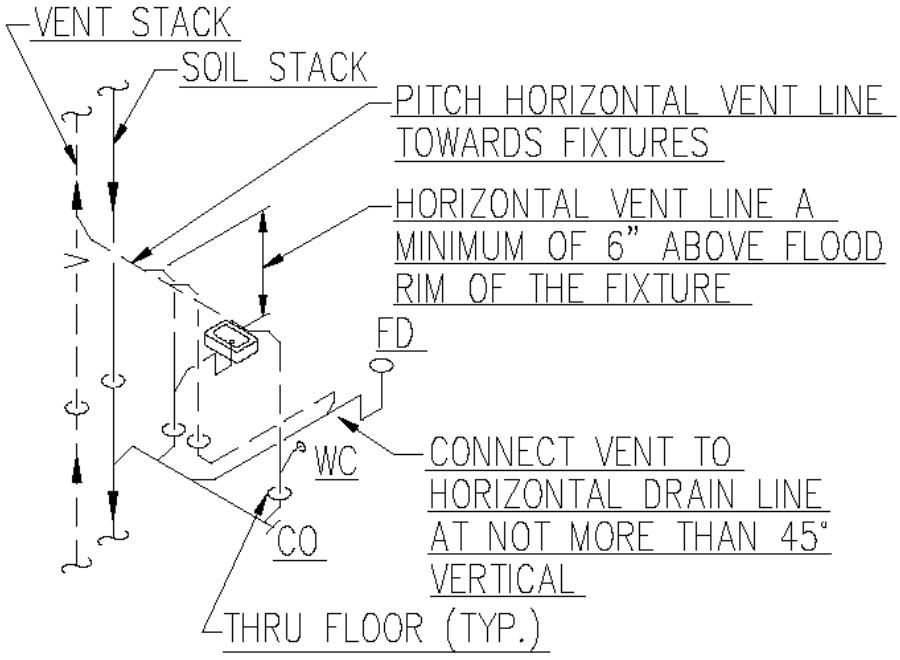
DEPARTMENT OF PUBLIC HEALTH

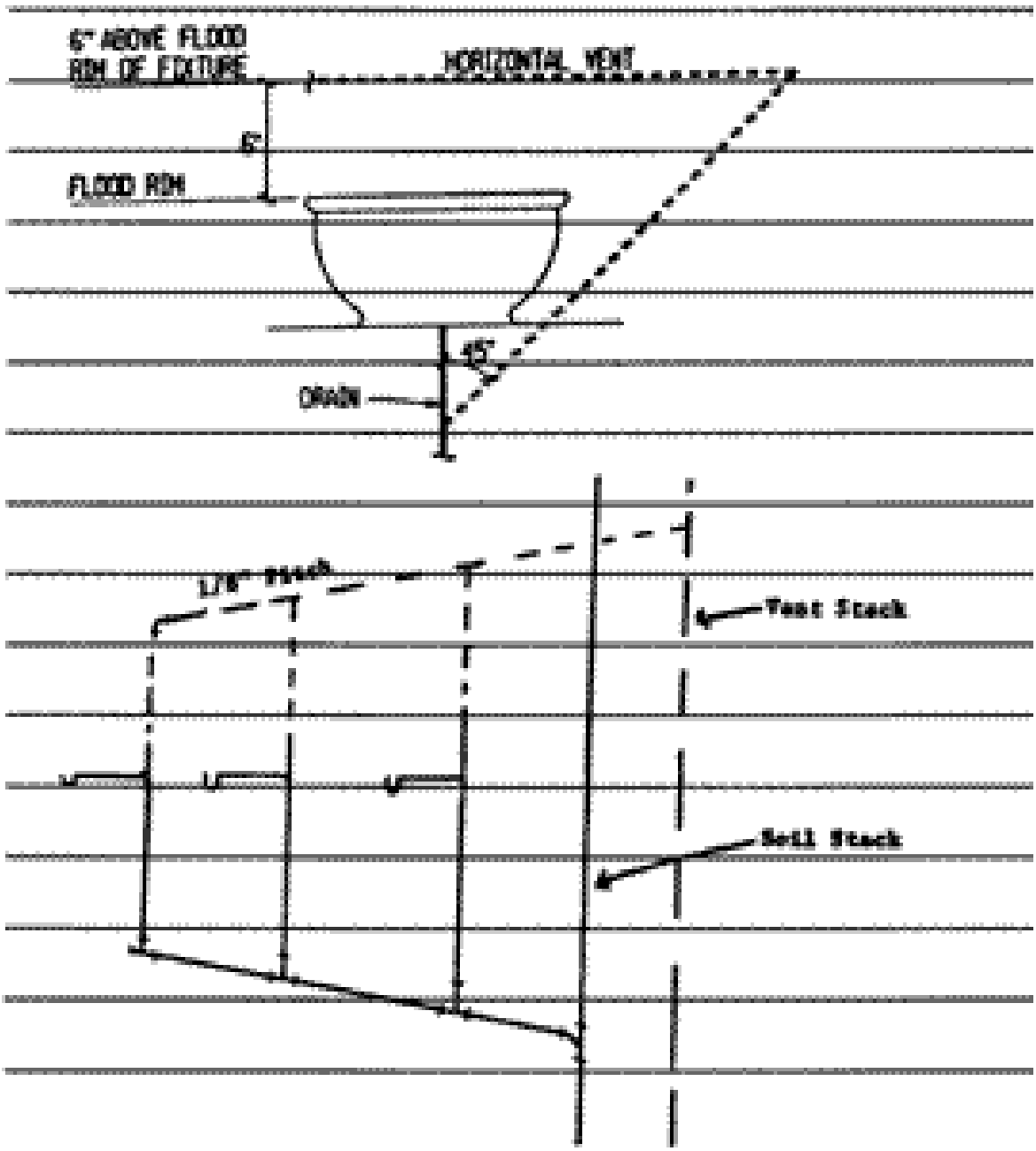
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION F Vent Grade and Vertical Rise ~~Grade~~

(Referenced in Section 890.1450(a) and (b))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

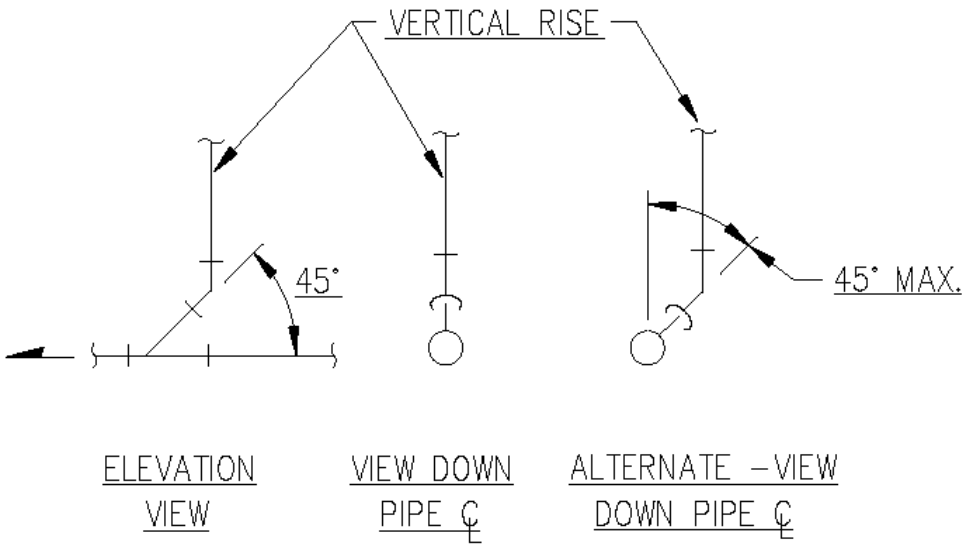
DEPARTMENT OF PUBLIC HEALTH

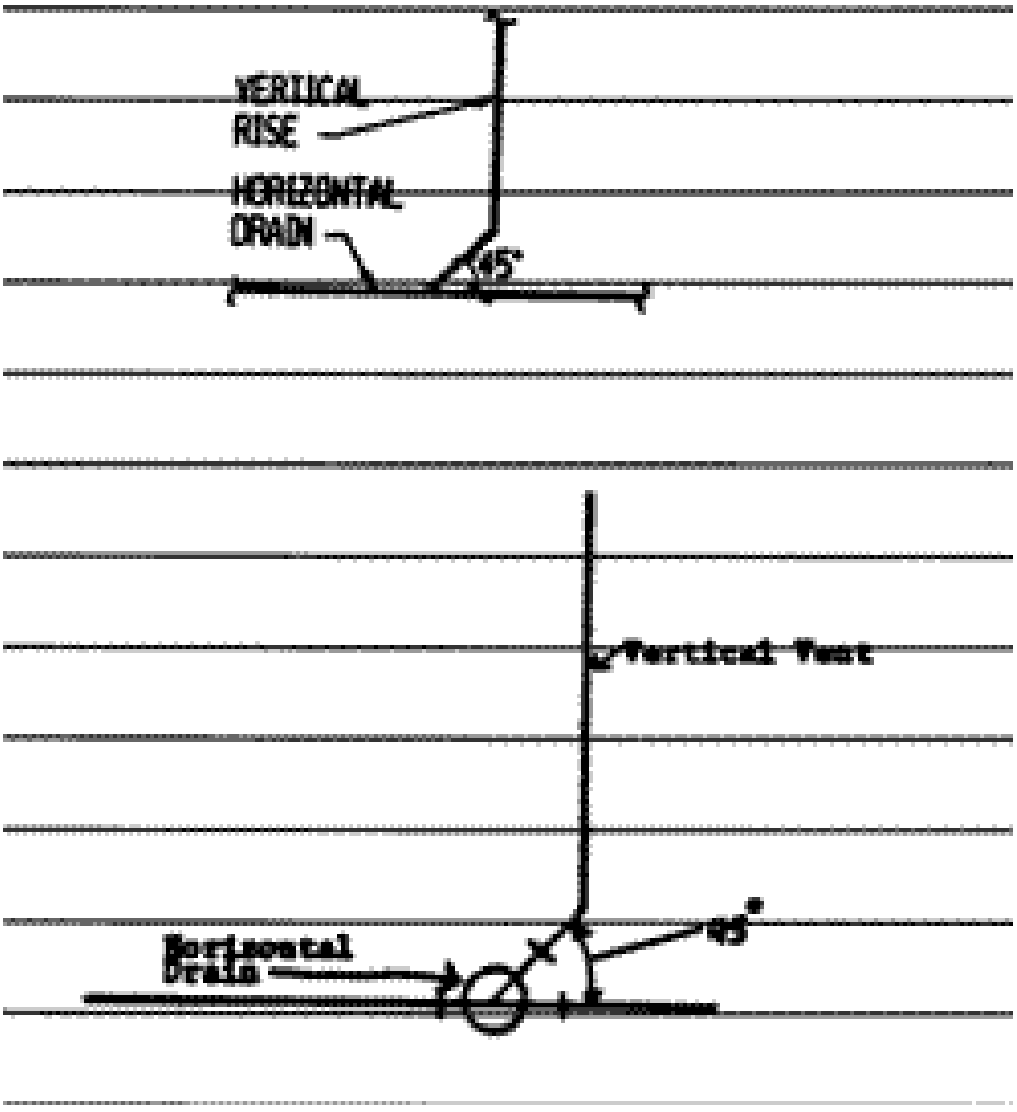
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION G Vertical Rise

(Referenced in Section 890.1450(b))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

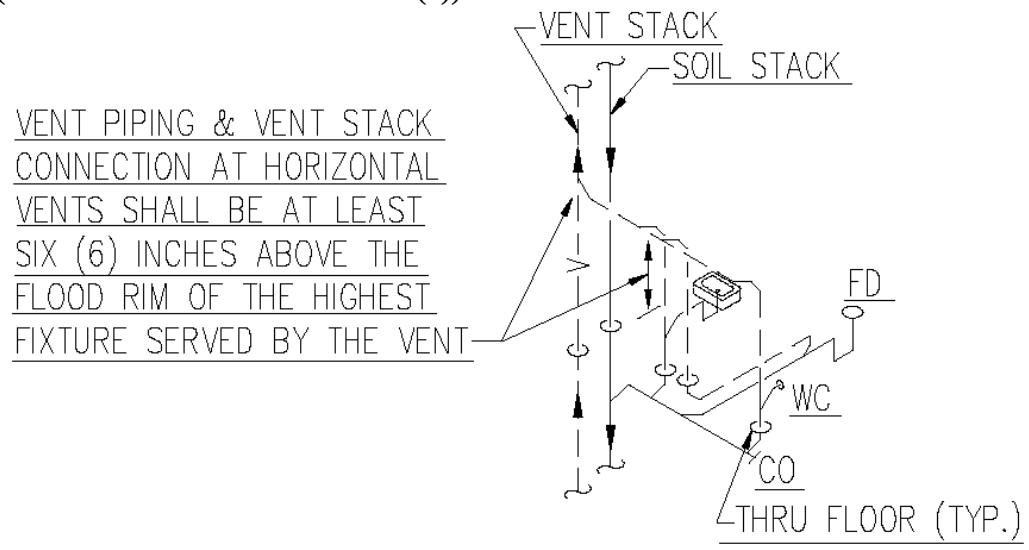
DEPARTMENT OF PUBLIC HEALTH

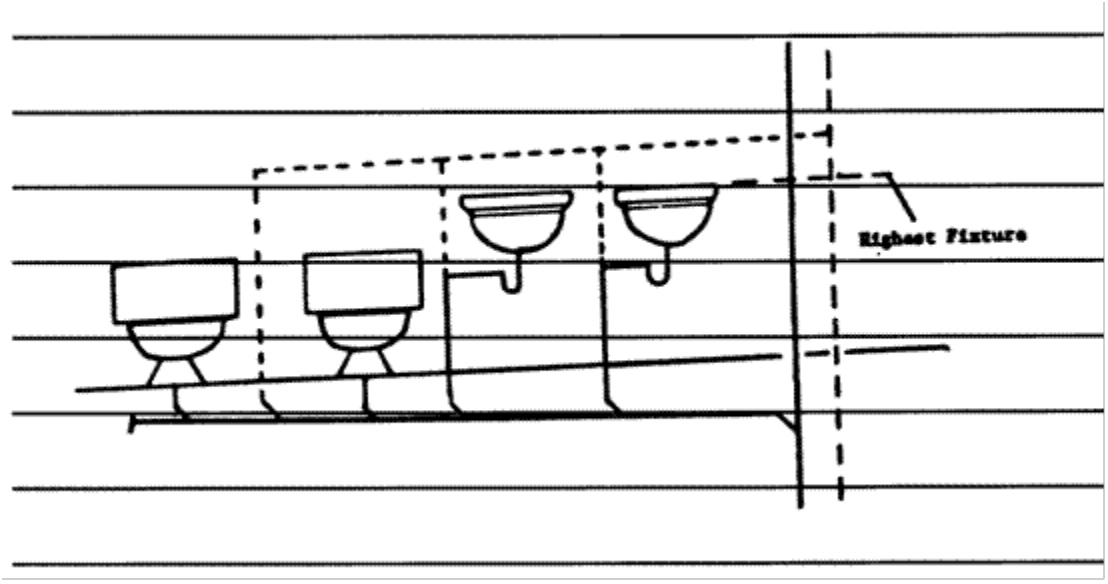
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION H Height Above Fixtures

(Referenced in Section 890.1450(c))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

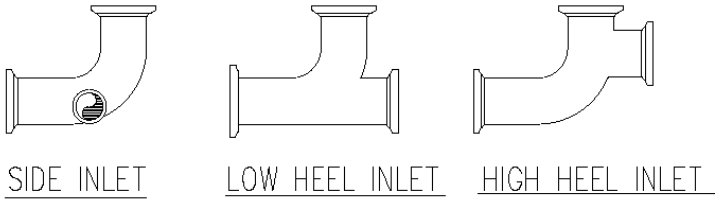
DEPARTMENT OF PUBLIC HEALTH

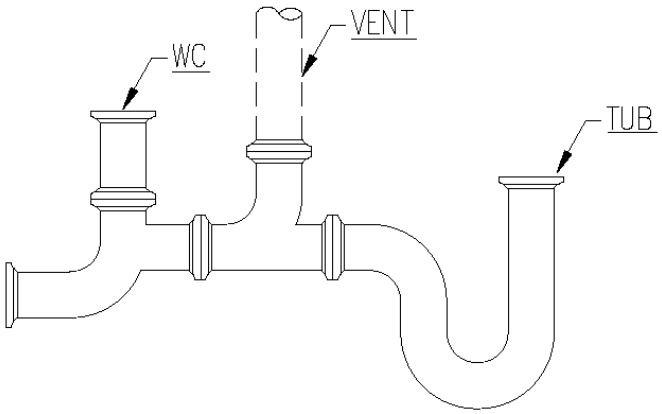
NOTICE OF PROPOSED AMENDMENTS

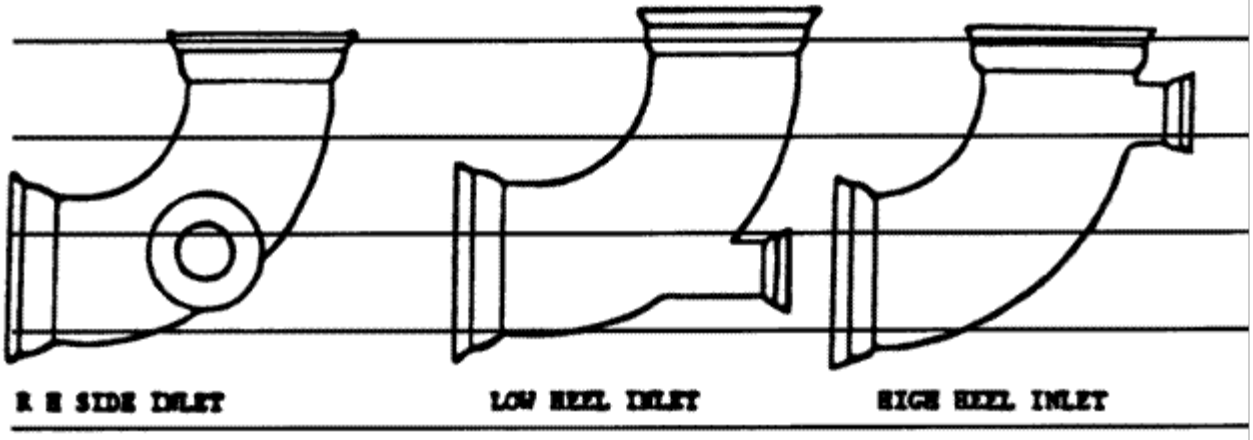
Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION I Heel or Side -Inlet ~~Quarter Bends~~

(Referenced in Section 890.1450(d)) ~~890.1450(e))~~







(Source: Amended at 37 Ill. Reg. _____, effective _____)

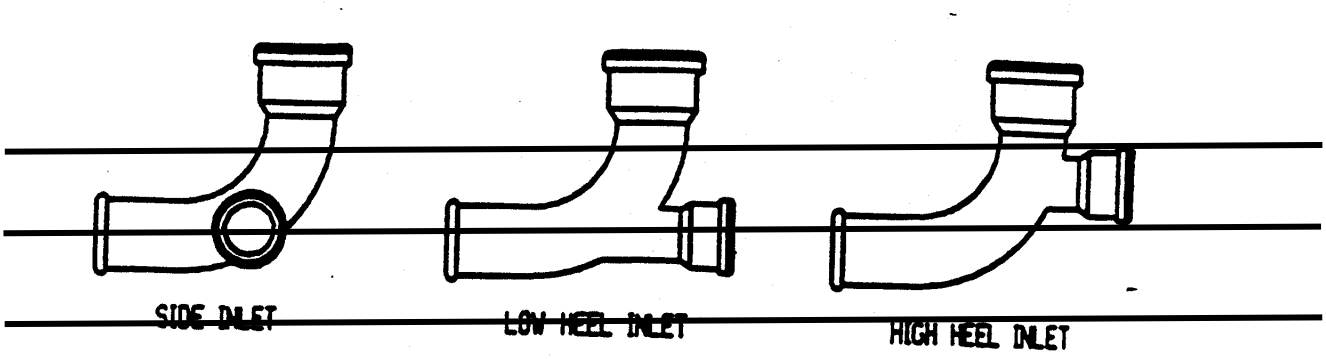
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION J Heel or Side-Inlet (Repealed)

~~(Referenced in Section 890.1450(e))~~



(Source: Repealed at 37 Ill. Reg. _____, effective _____)

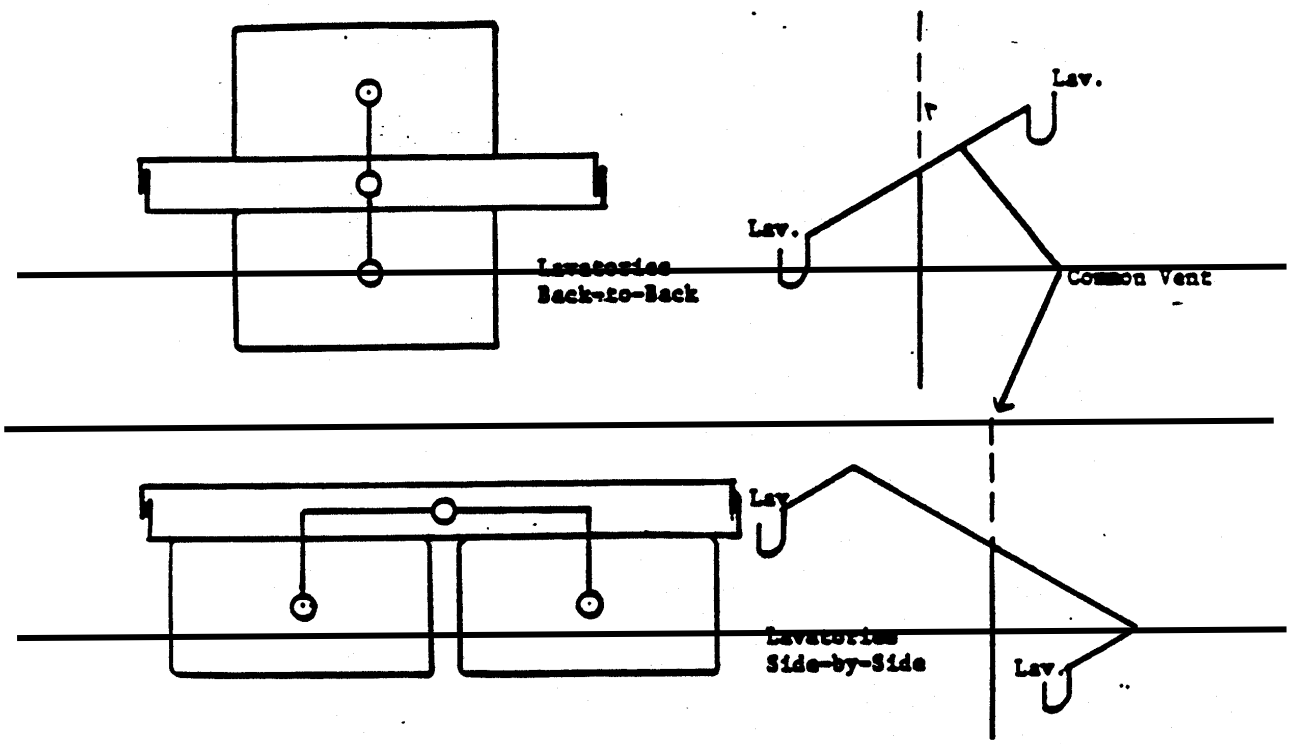
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION K Fixtures Back-to-Back and Side-by-Side <u>(Repealed)</u>

~~(Referenced in Section 890.1460)~~



(Source: Repealed at 37 Ill. Reg. _____, effective _____)

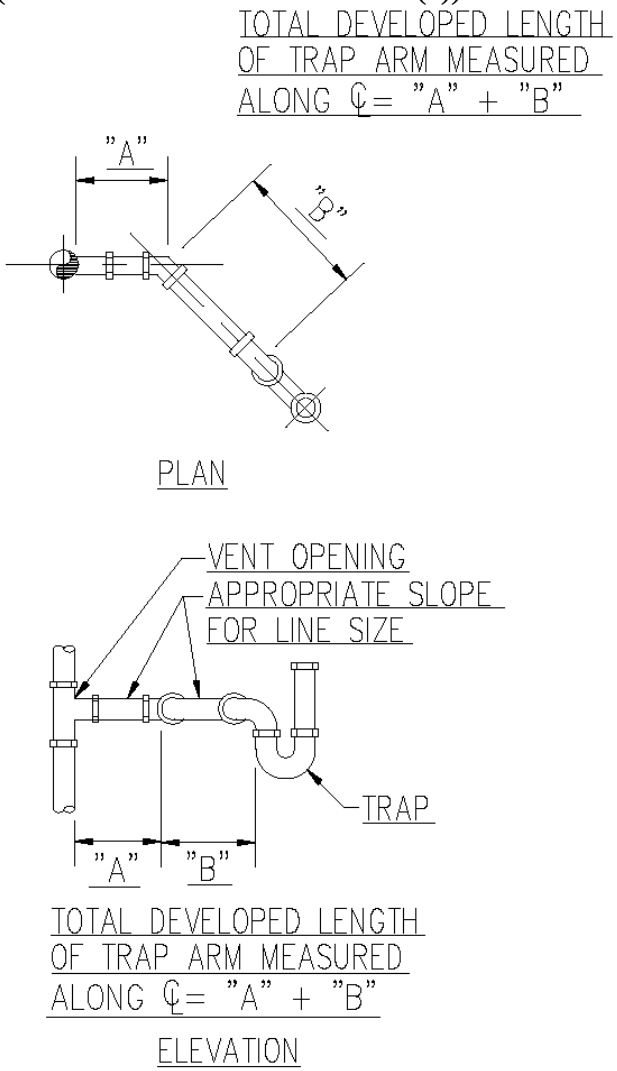
DEPARTMENT OF PUBLIC HEALTH

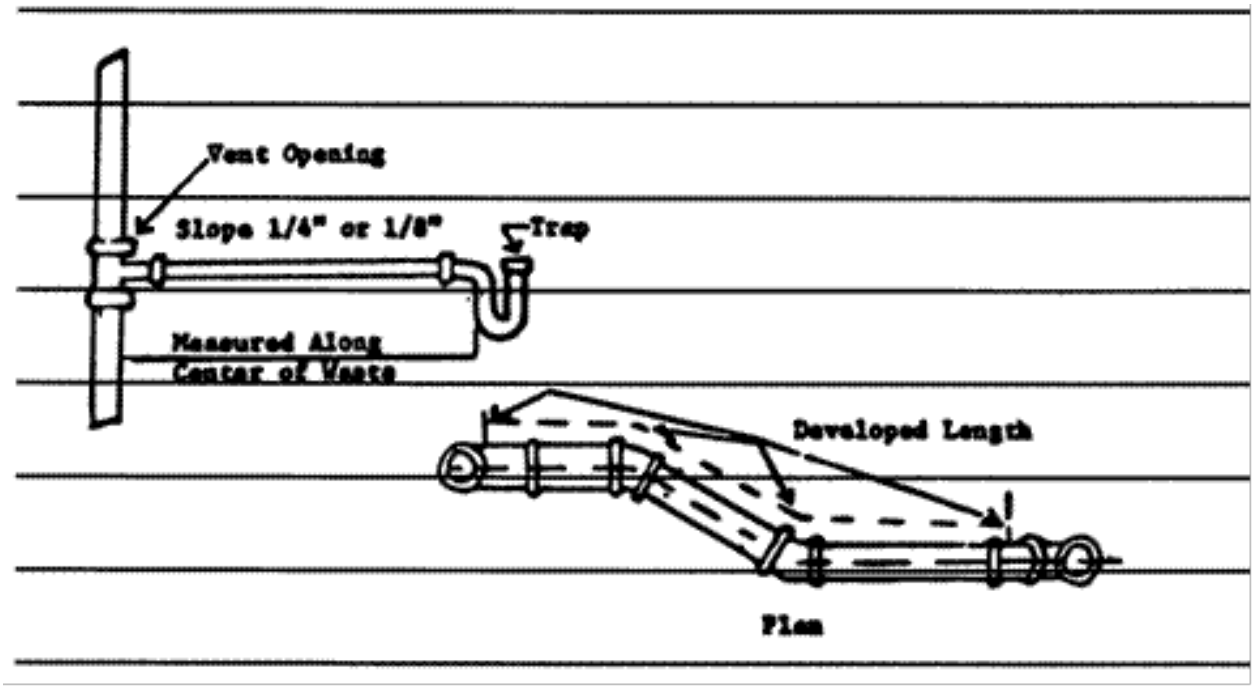
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION L Distance from Trap to Vent

(Referenced in Section 890.1470(a))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

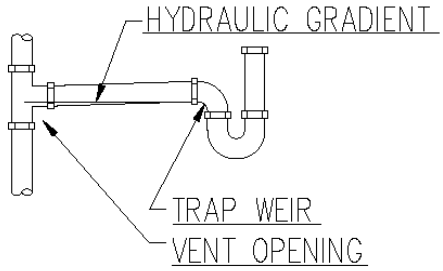
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

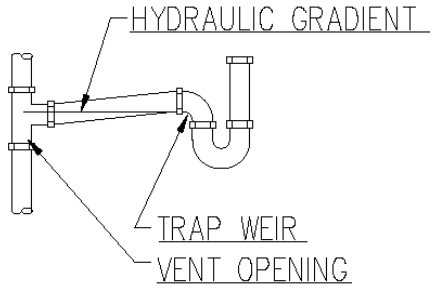
Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION M Trap Vent ~~Weir~~

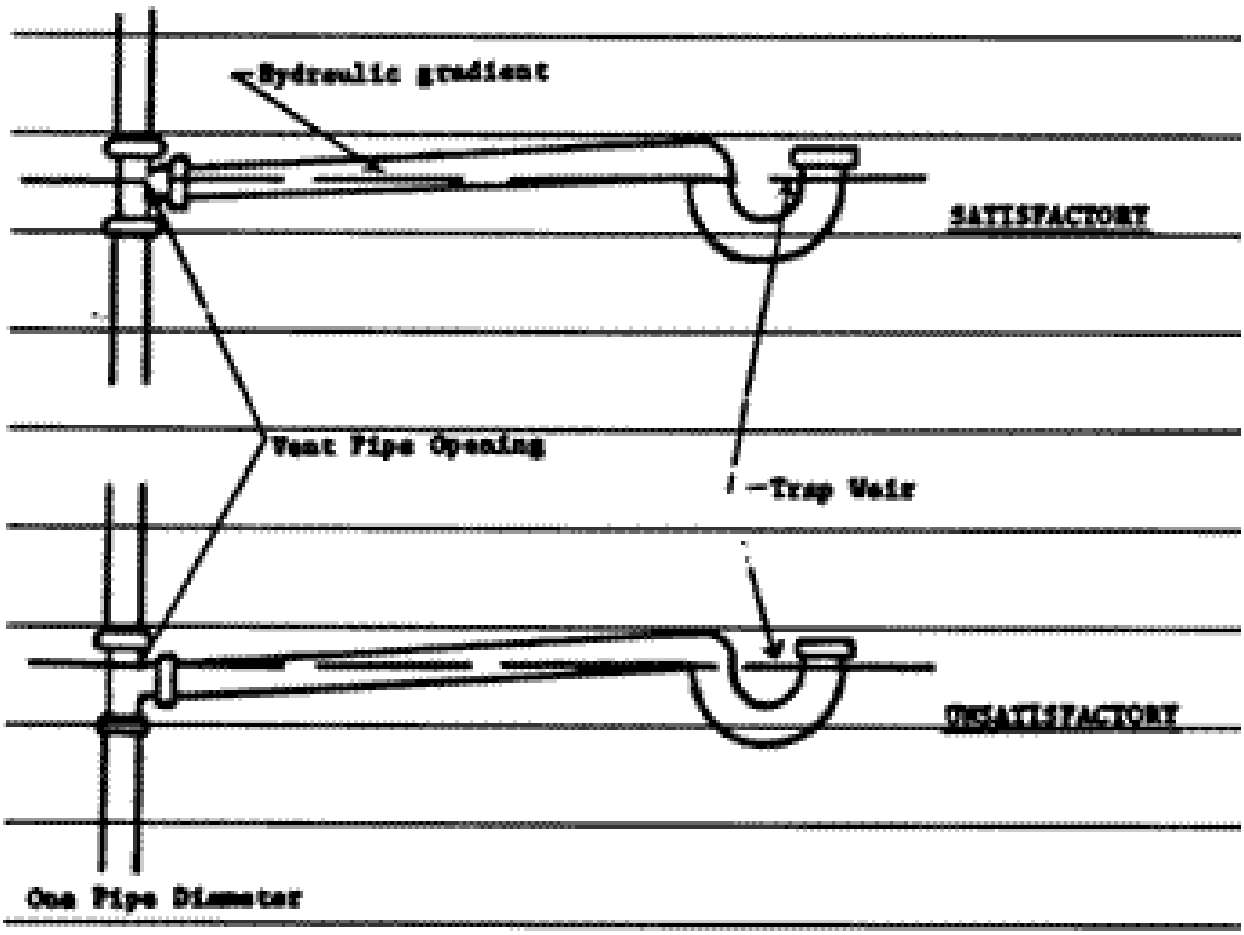
(Referenced in Section 890.1470(c)) ~~890.1470(b))~~



SATISFACTORY INSTALLATION



UNSATISFACTORY INSTALLATION



(Source: Amended at 37 Ill. Reg. _____, effective _____)

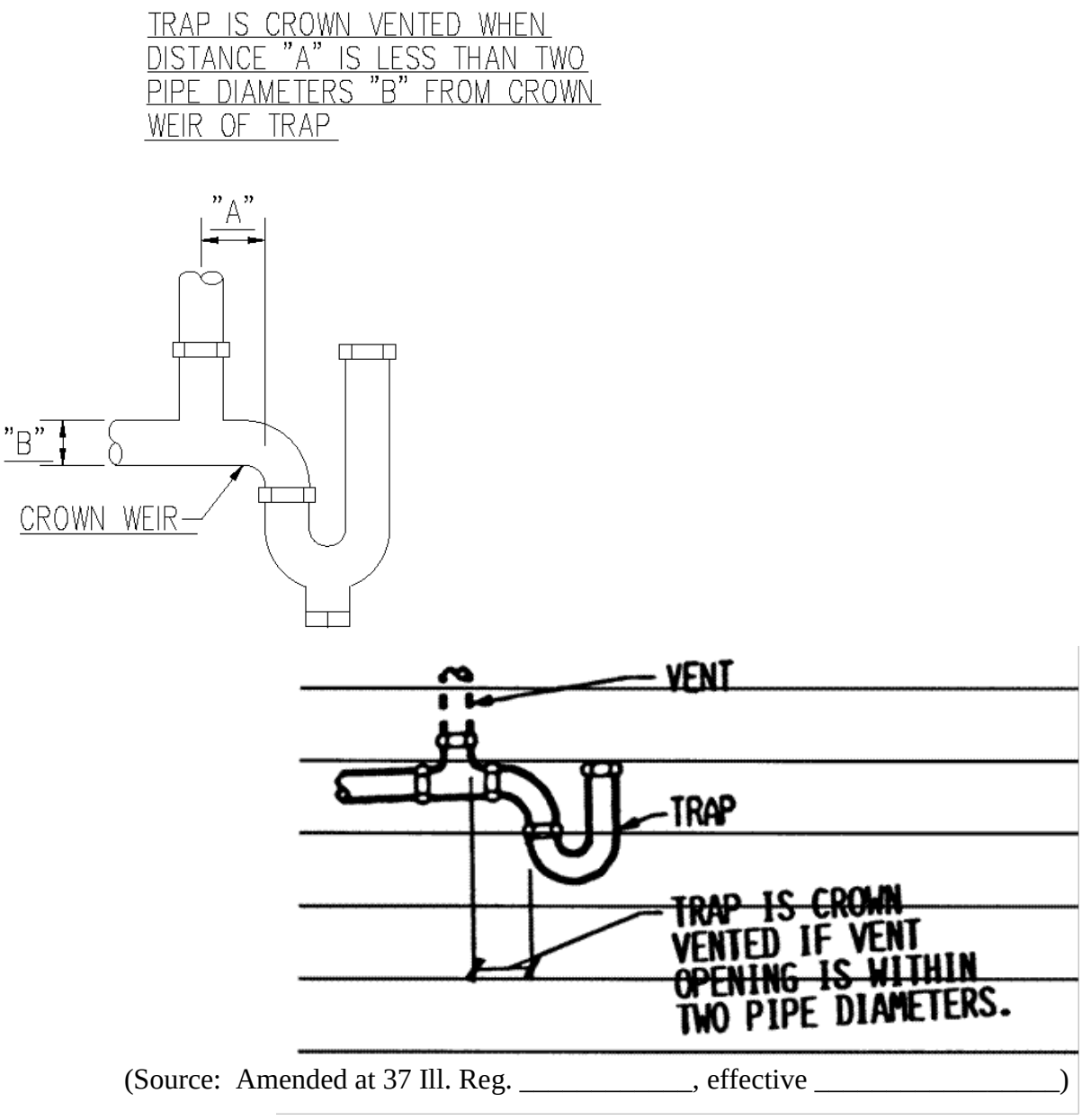
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION N Trap Weir/Hydraulic Gradient ~~Vent~~

(Referenced in Section 890.1470(b) and (d)) ~~890.1480(a))~~



(Source: Amended at 37 Ill. Reg. _____, effective _____)

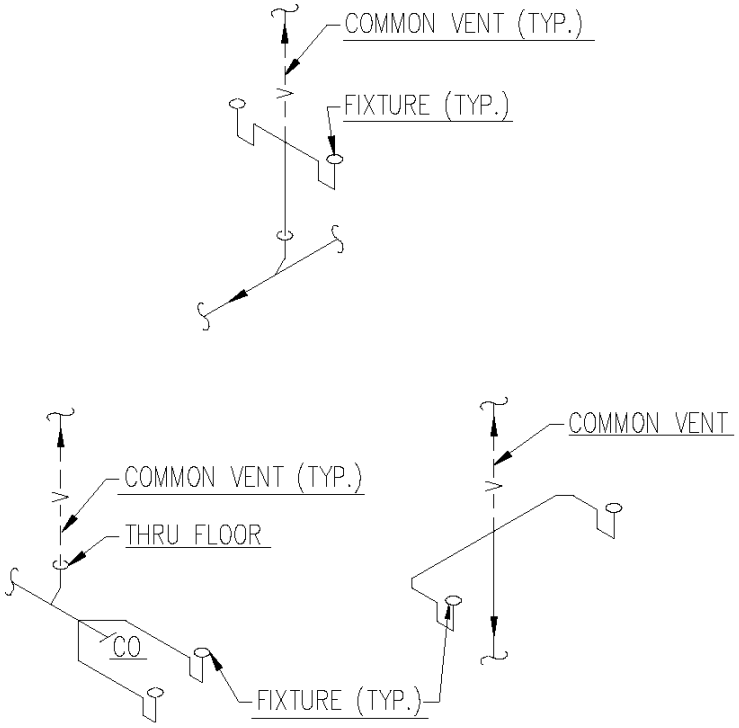
DEPARTMENT OF PUBLIC HEALTH

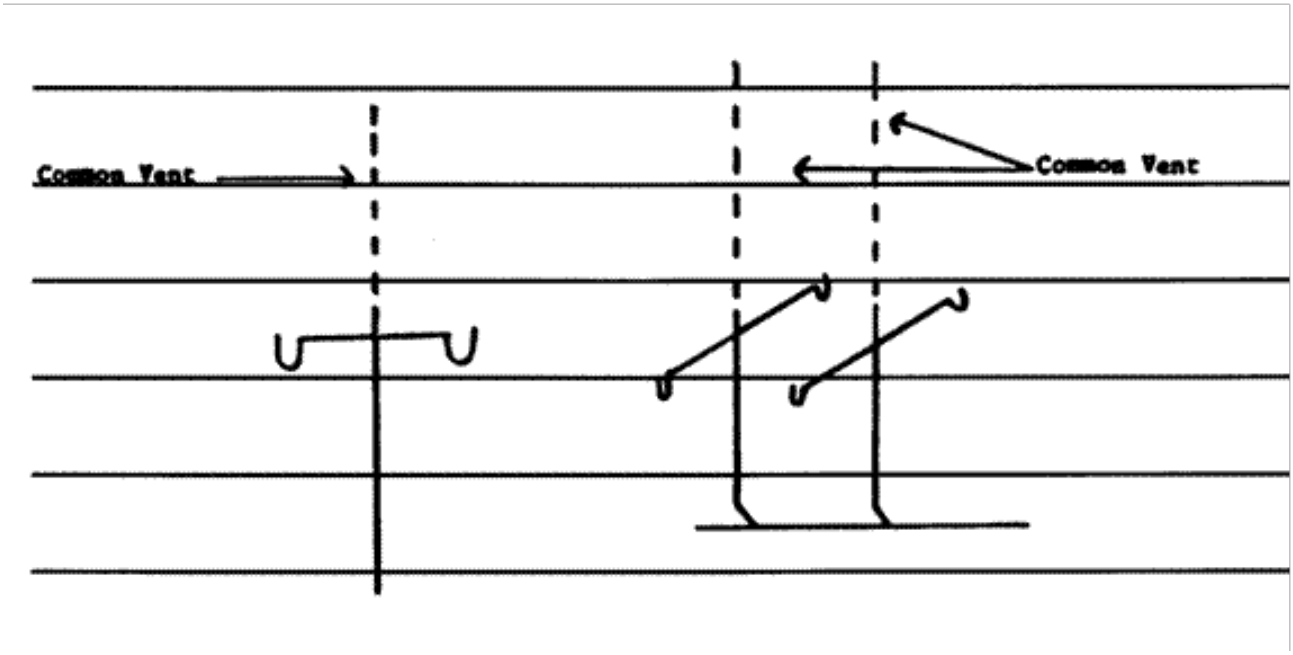
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION O Common Vent

(Referenced in Section 890.1480(b))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

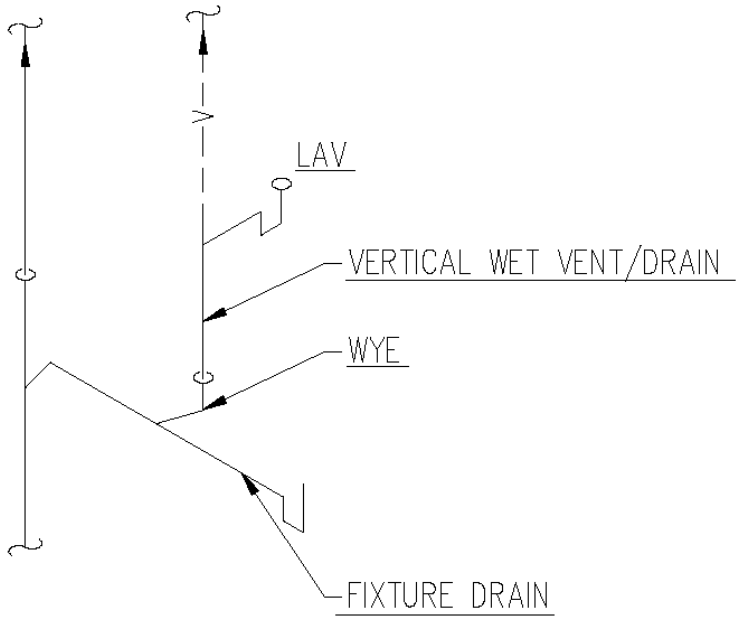
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

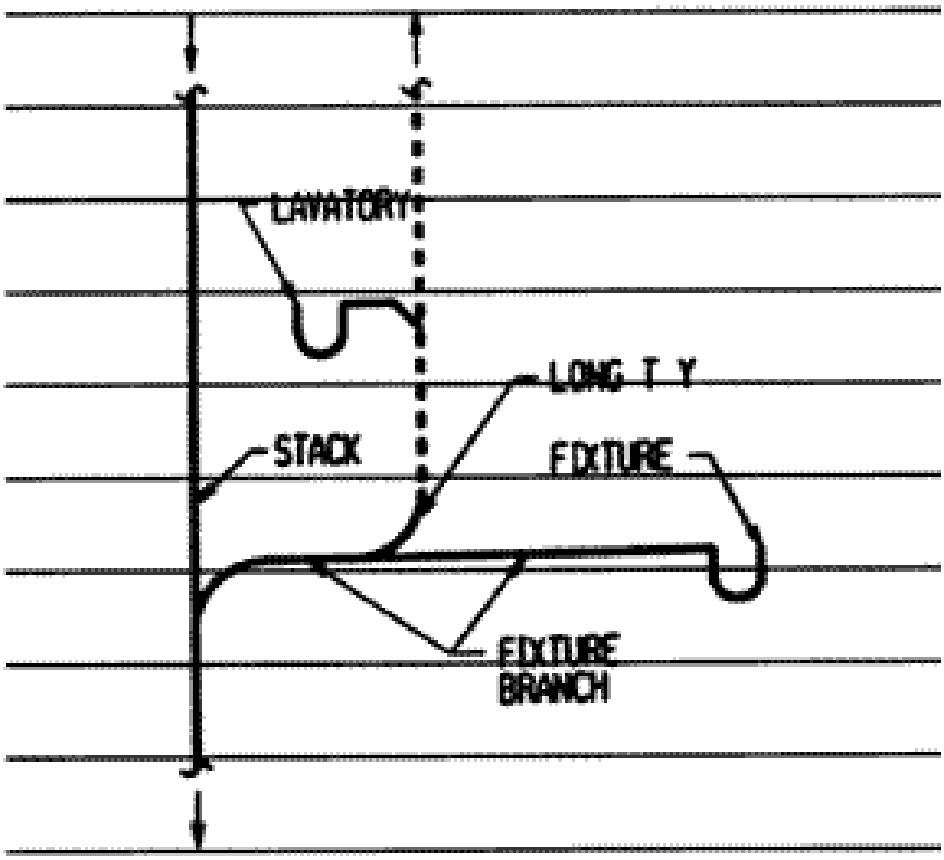
Section 890.ILLUSTRATION P <u>Vertical</u> Wet Vent

(Referenced in Section <u>890.1500(c))</u> ~~890.1480(c))~~



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

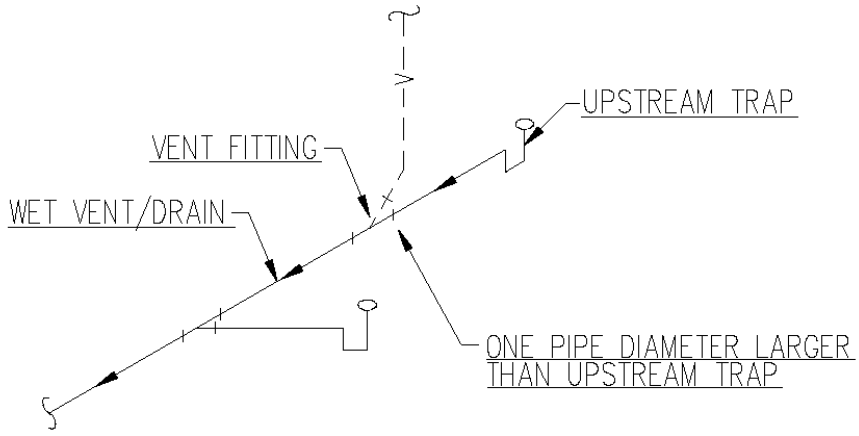
DEPARTMENT OF PUBLIC HEALTH

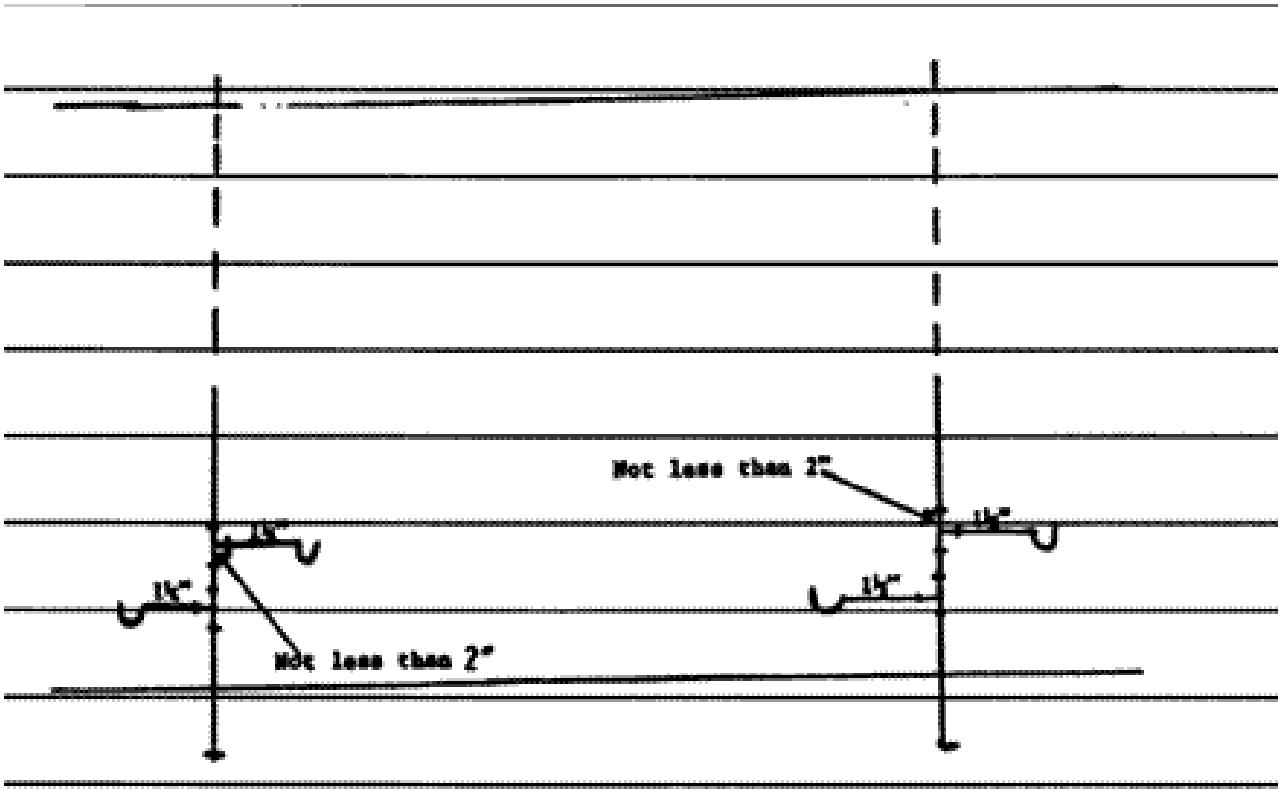
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION Q <u>Horizontal</u> ~~Vertical~~ Wet Vent

(Referenced in Section <u>890.1500(d))</u> ~~890.1480(c))~~





(Source: Amended at 37 Ill. Reg. _____, effective _____)

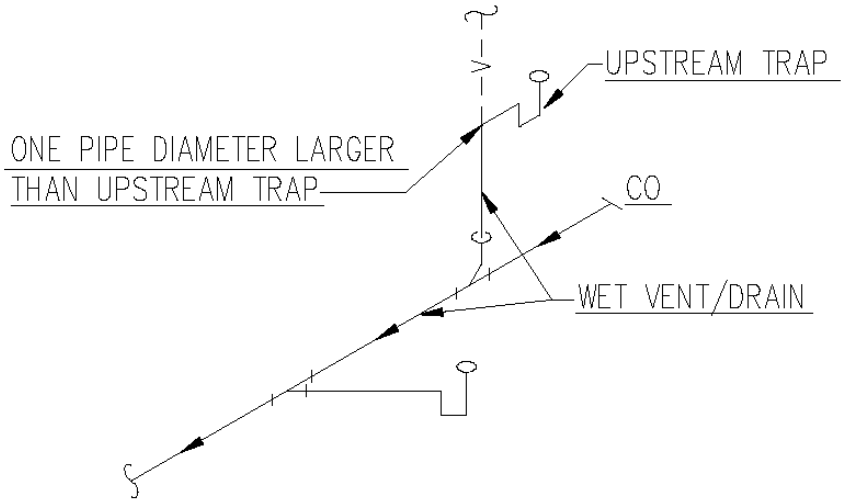
DEPARTMENT OF PUBLIC HEALTH

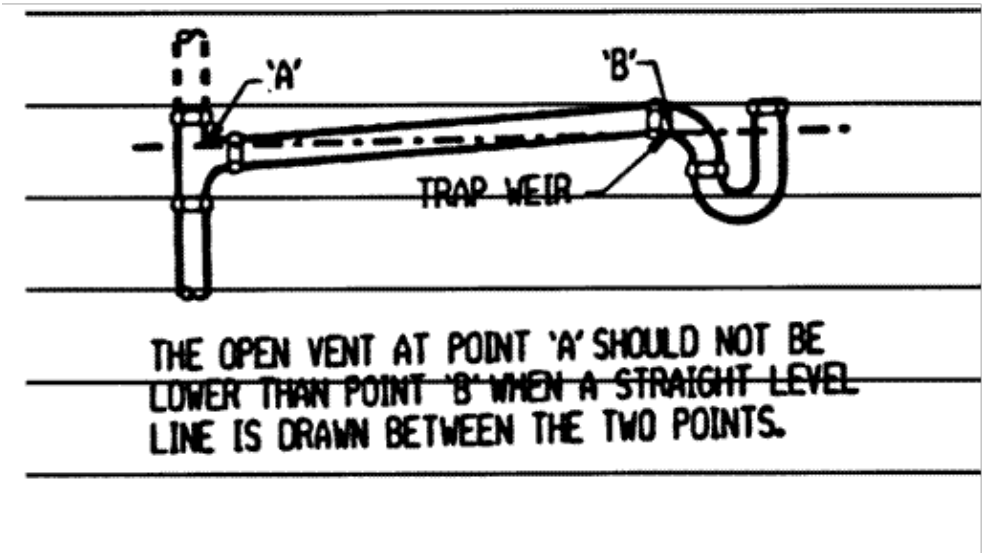
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION R Vertical/Horizontal Wet Vent ~~Hydraulic Gradient~~

(Referenced in Section 890.1500(e) ~~1490(a)~~)





(Source: Amended at 37 Ill. Reg. _____, effective _____)

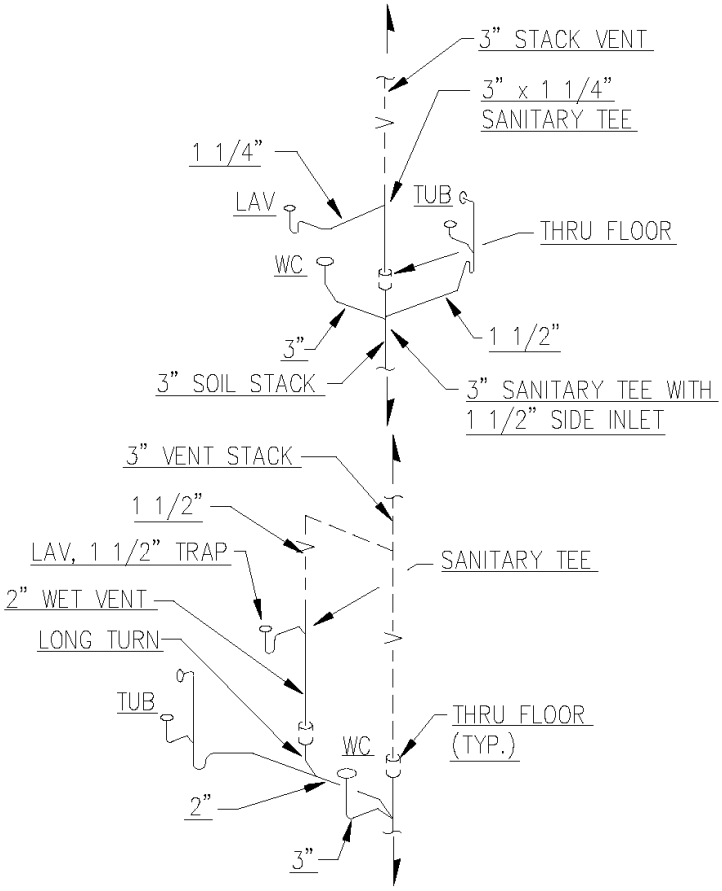
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

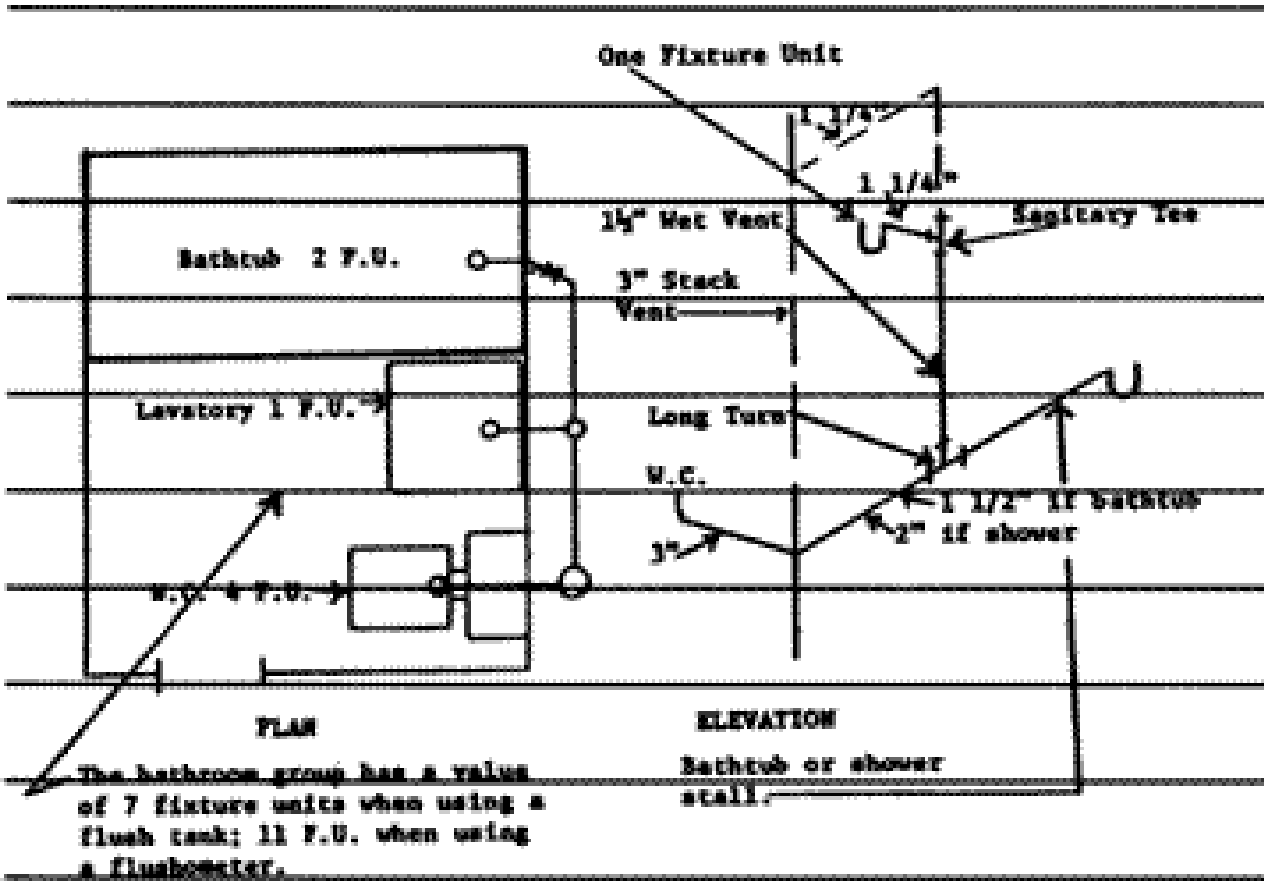
Section 890.ILLUSTRATION S Single Bathroom Group Venting ~~Groups~~

(Referenced in Section 890.1500(f)(2)) ~~890.1500(a)(2))~~



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

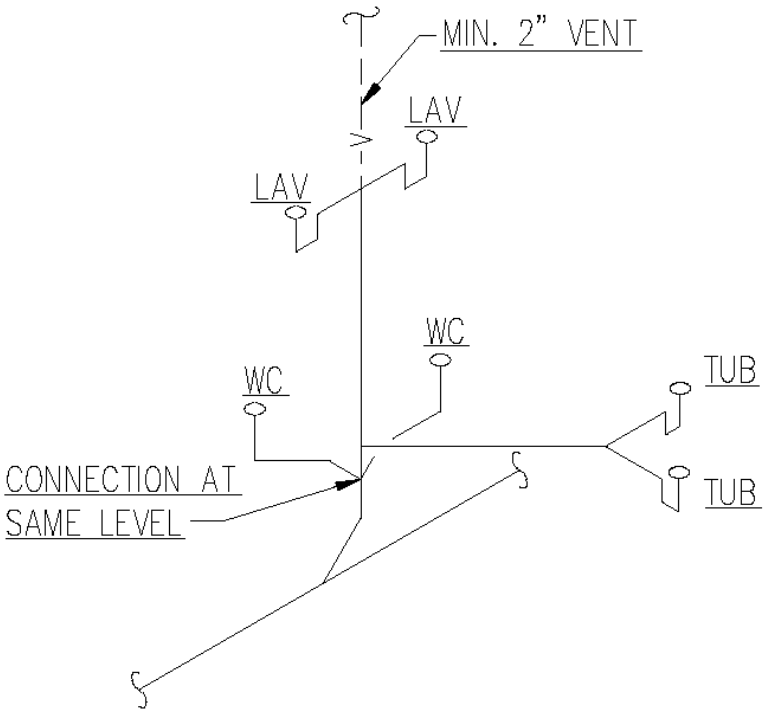
DEPARTMENT OF PUBLIC HEALTH

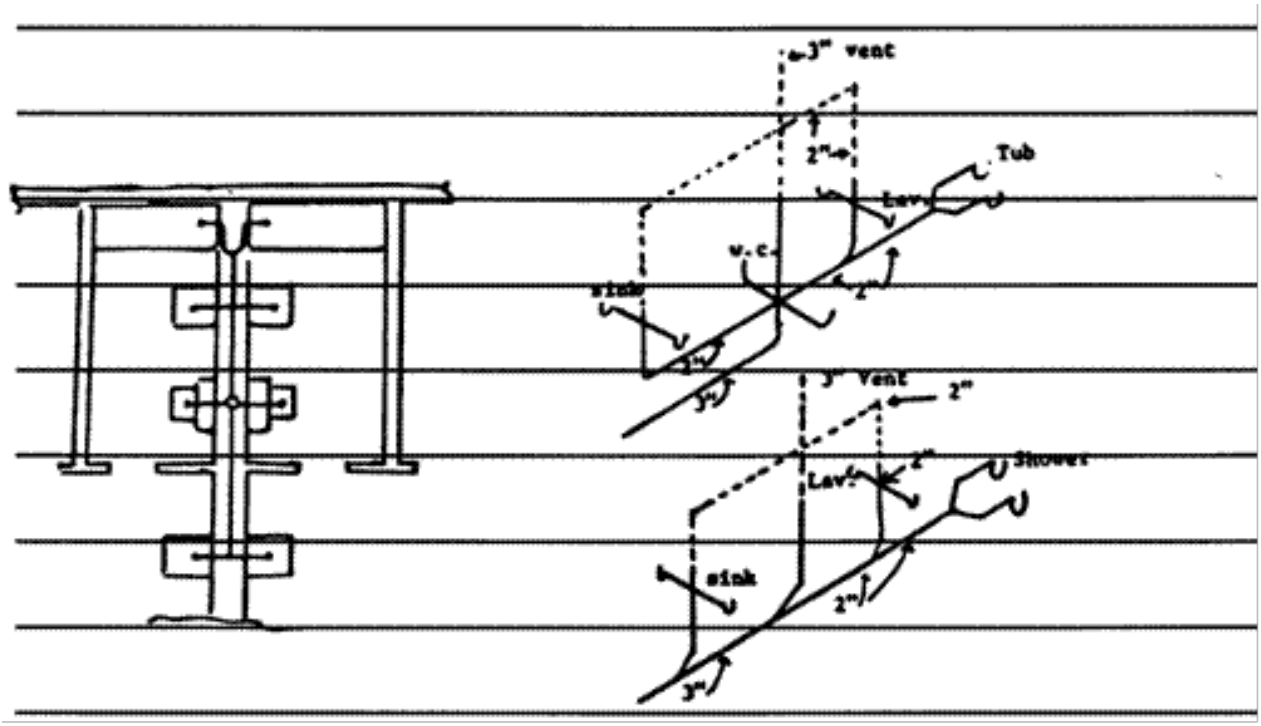
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION T <u>Bathroom Group Back to Back</u> ~~Double Bath~~

(Referenced in Section <u>890.1500(g)(4))</u> ~~890.1500(b))~~





(Source: Amended at 37 Ill. Reg. _____, effective _____)

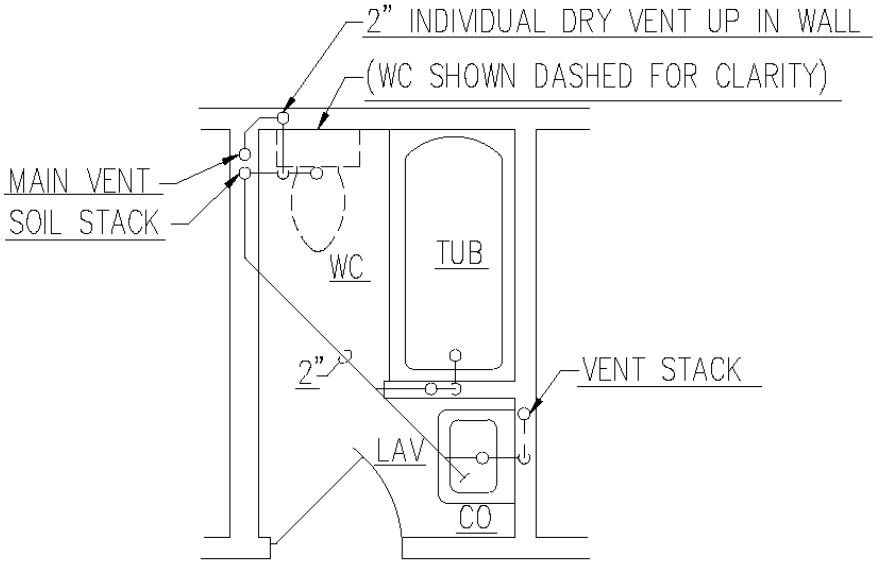
DEPARTMENT OF PUBLIC HEALTH

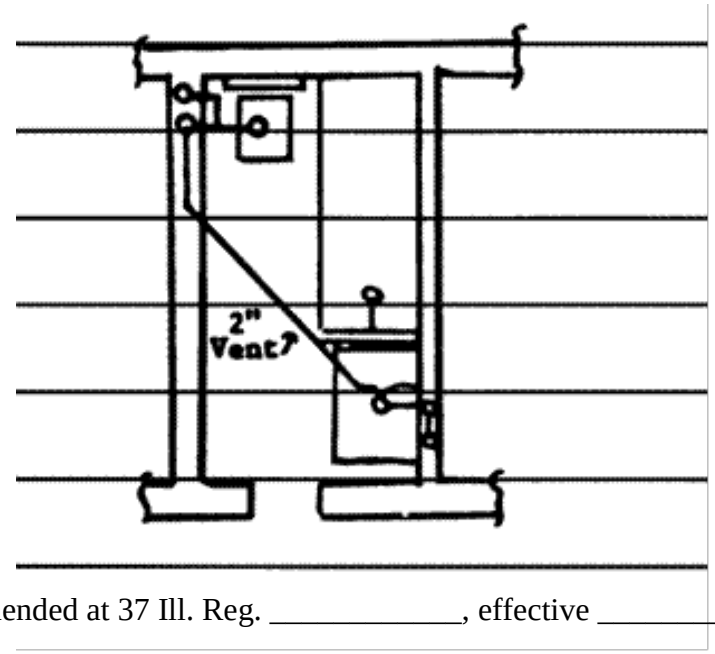
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION U ~~Multistory~~ Bathroom Groups – Plan

(Referenced in Section 890.1500(h)(3)) ~~890.1500(c))~~



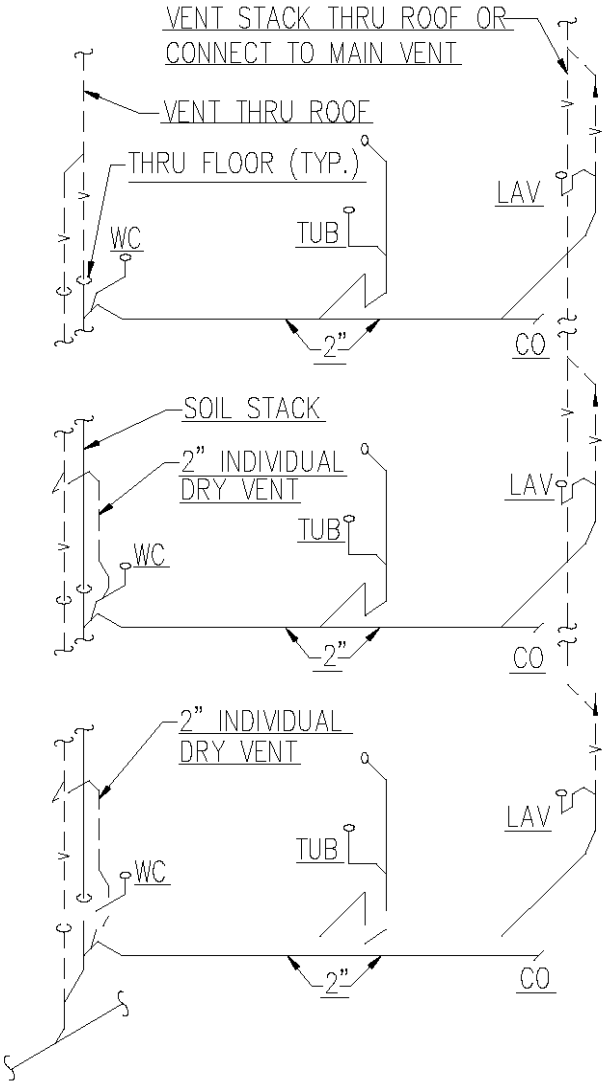


(Source: Amended at 37 Ill. Reg. _____, effective _____)

Section 890.APPENDIX K Illustrations for Subpart K

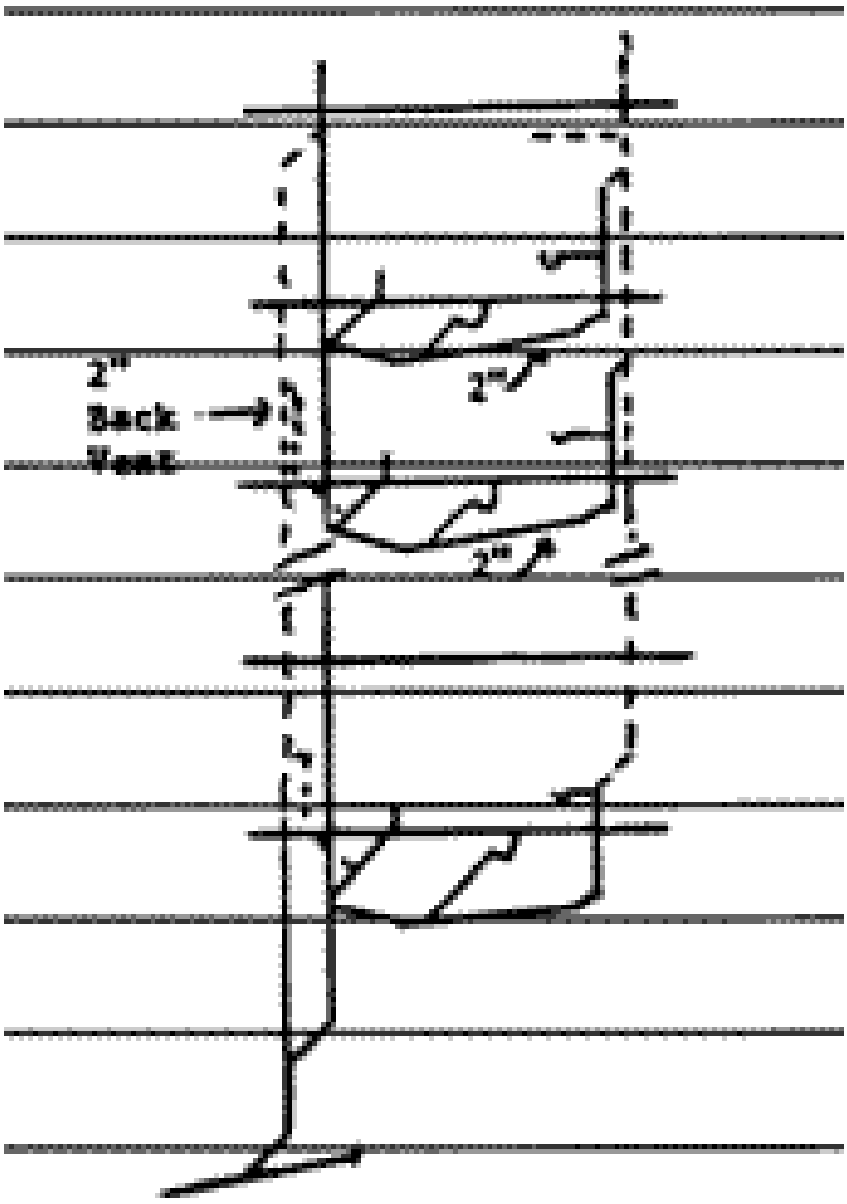
Section 890.ILLUSTRATION V ~~Multistory~~ Bathroom Groups – Elevation

(Referenced in Section 890.1500(h)(3)) ~~890.1500(c))~~



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

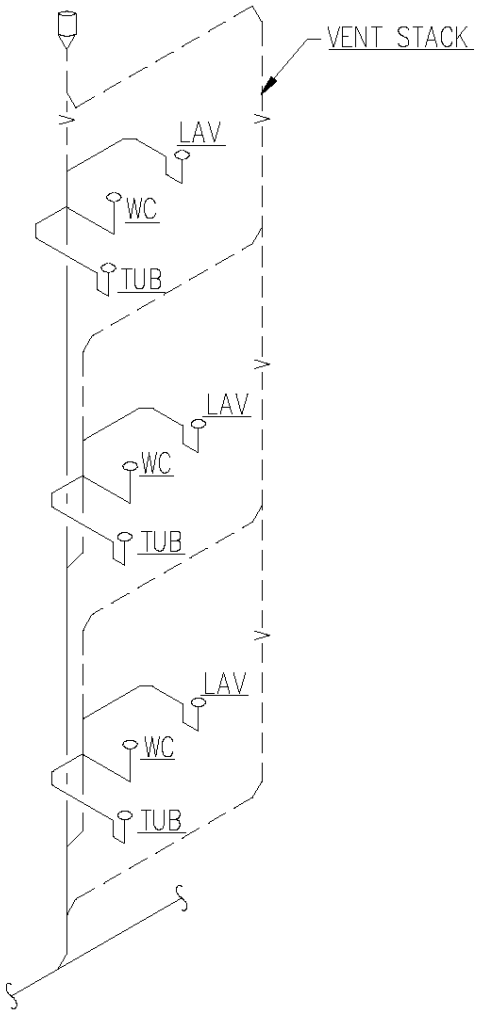
DEPARTMENT OF PUBLIC HEALTH

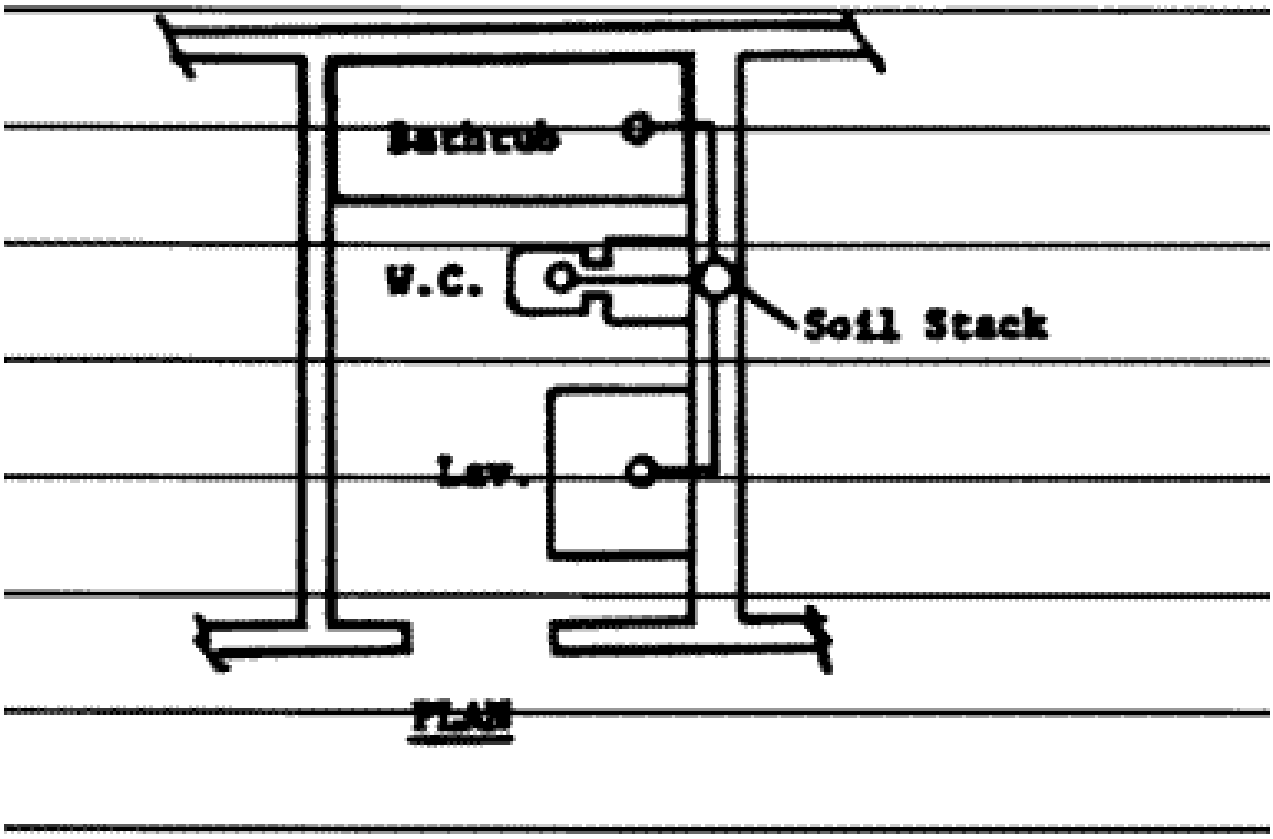
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION W One Bathroom Group – Plan

(Referenced in Section 890.1500(j)(3)) ~~890.1510)~~





(Source: Amended at 37 Ill. Reg. _____, effective _____)

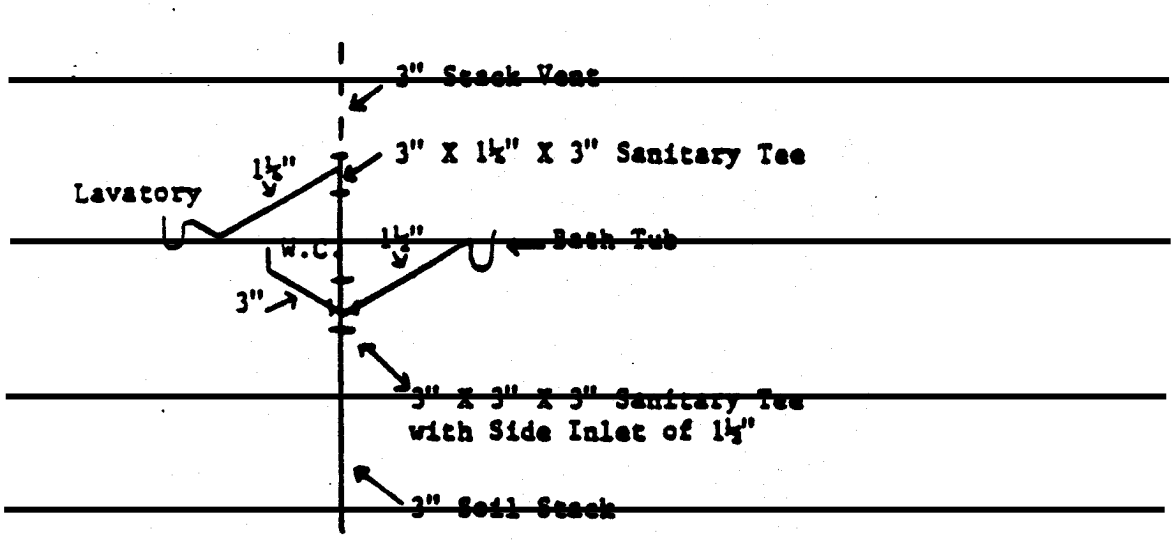
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION X One Bathroom Group – Elevation <u>(Repealed)</u>

~~(Referenced in Section 890.1510)~~



(Source: Repealed at 37 Ill. Reg. _____, effective _____)

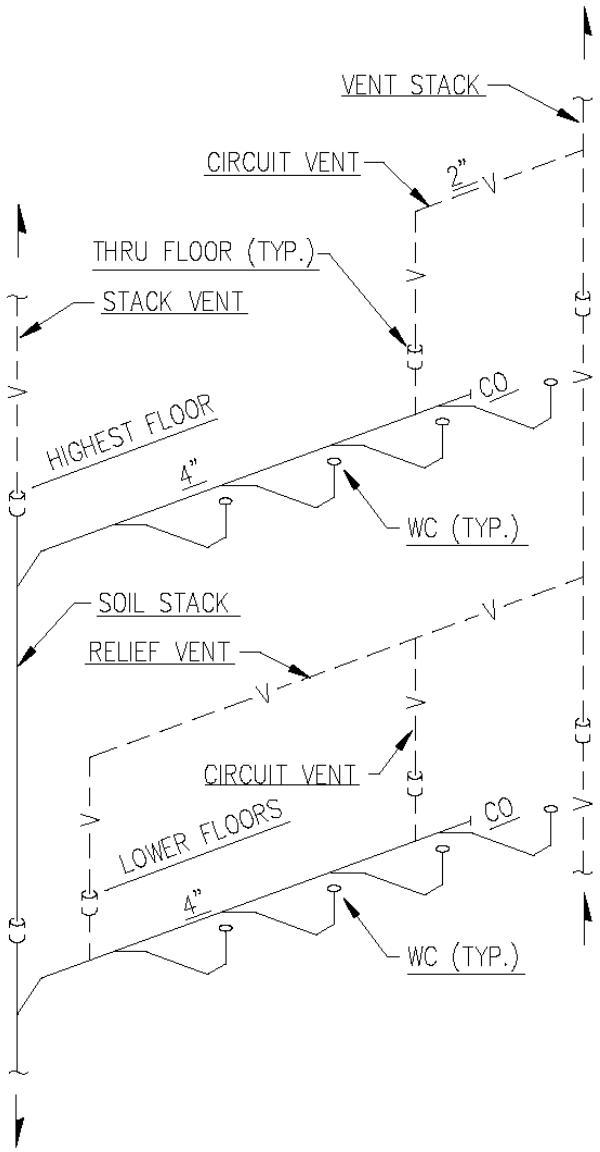
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

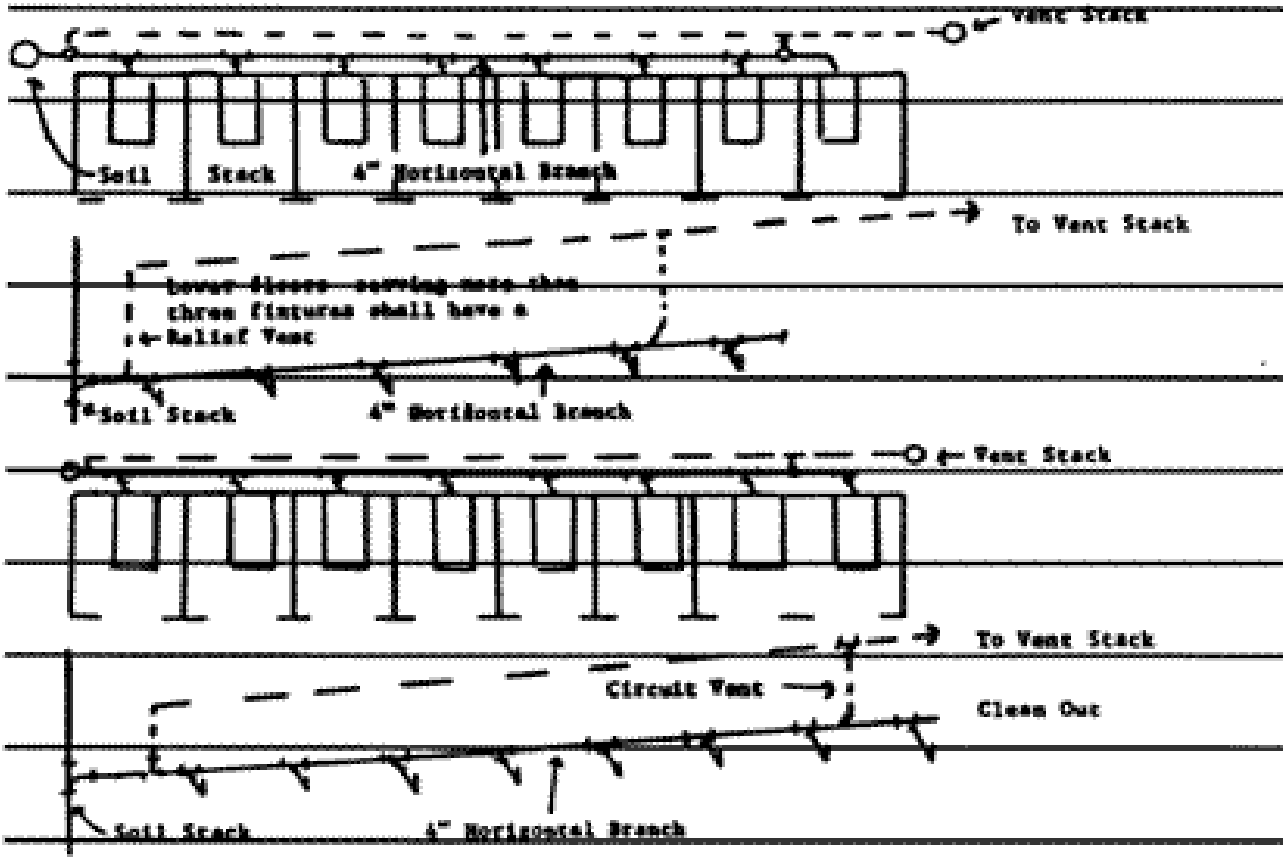
Section 890.ILLUSTRATION Y Battery Venting

(Referenced in Section 890.1520(a) and (e))



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

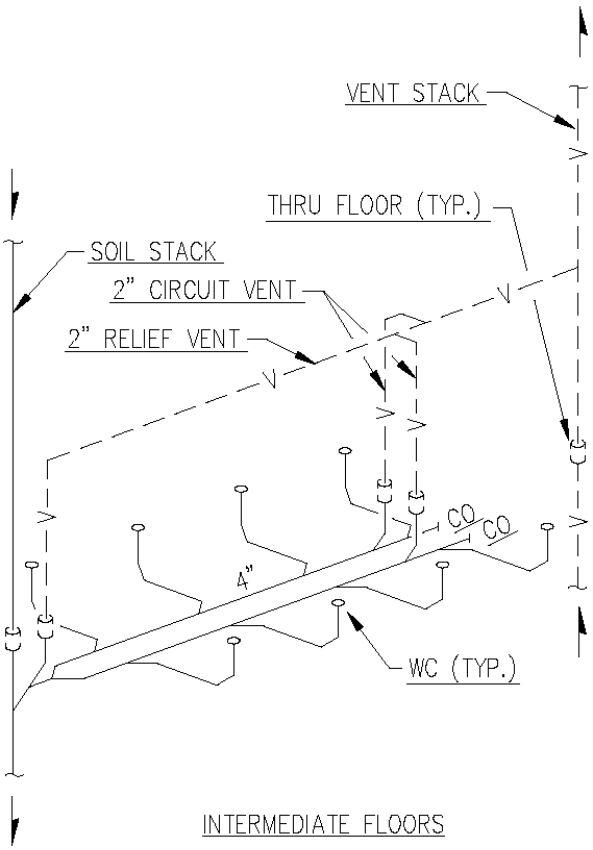
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

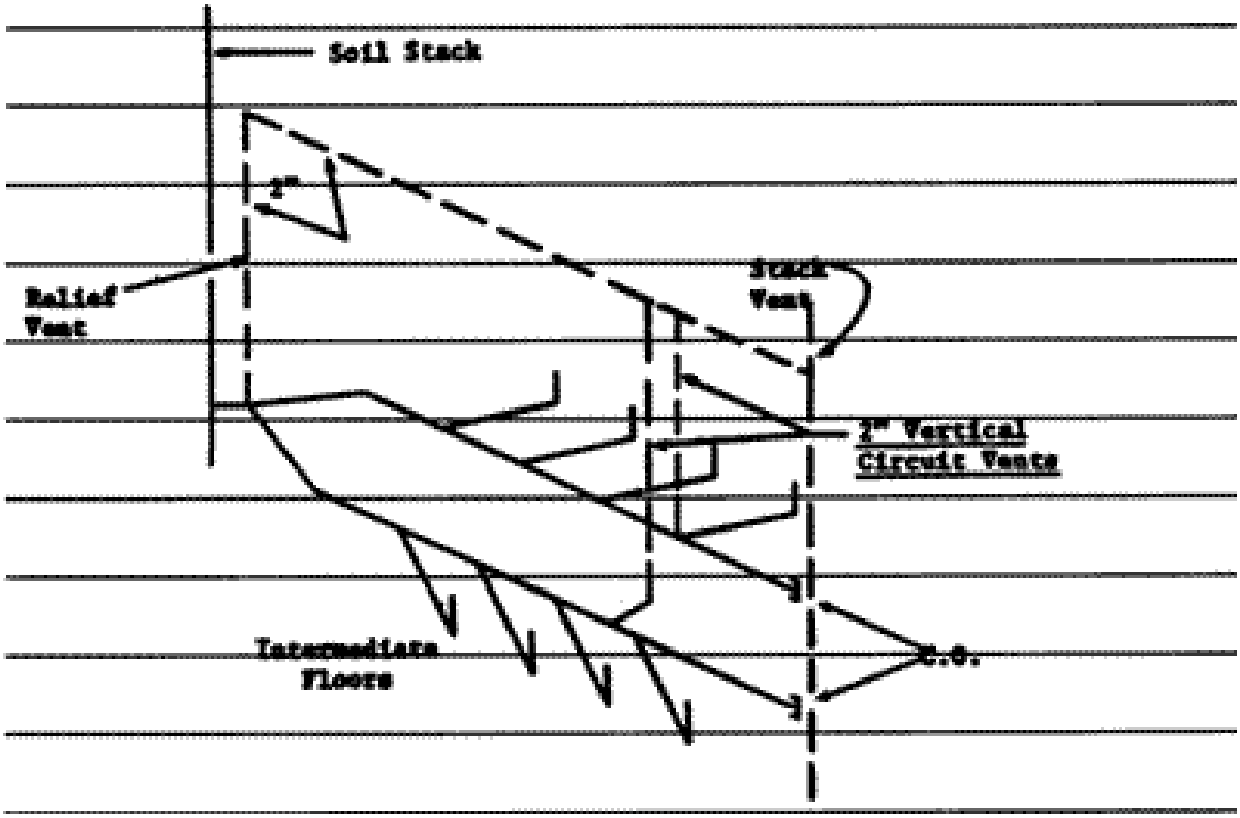
Section 890.ILLUSTRATION Z Dual Branches

(Referenced in Section 890.1520(b))



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

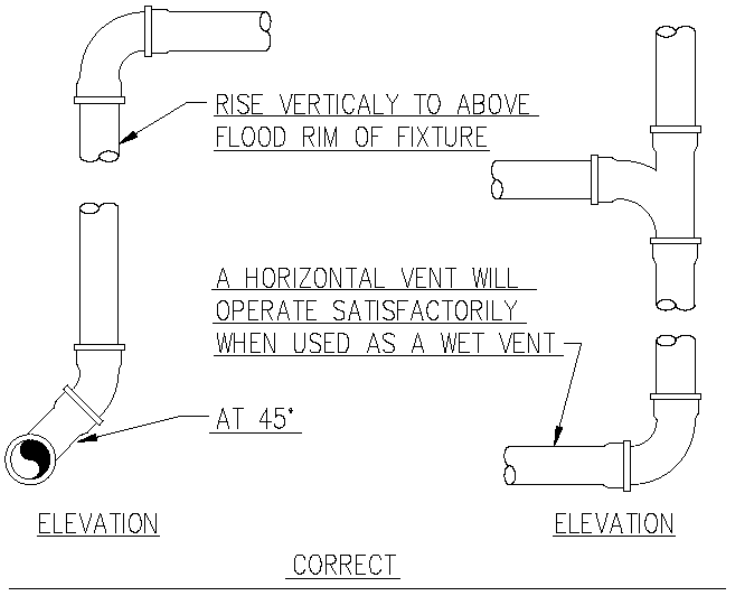
DEPARTMENT OF PUBLIC HEALTH

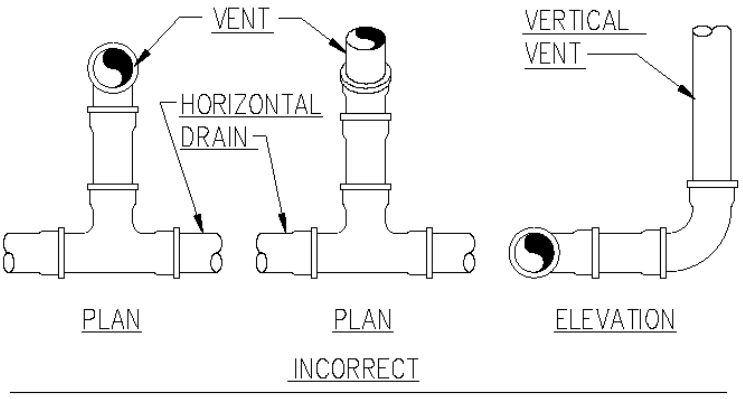
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION AA Right and Wrong Vent Connections

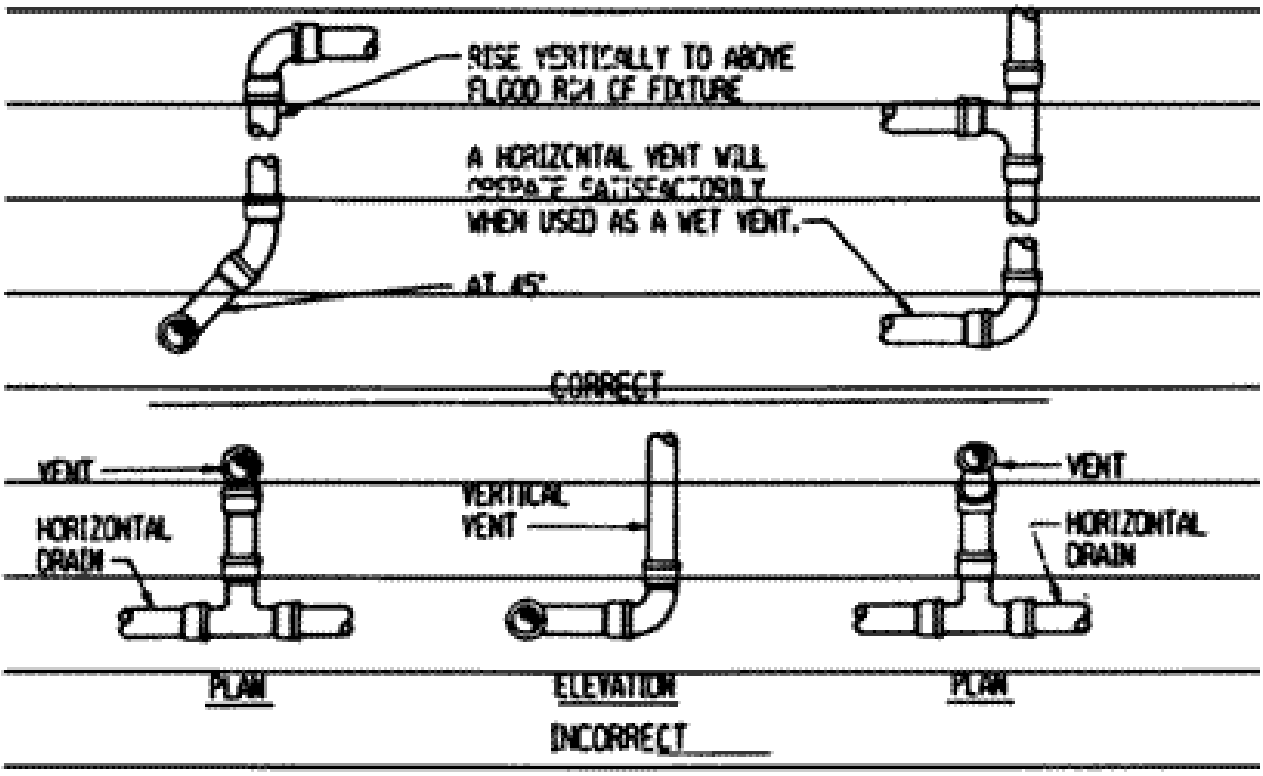
(Referenced in Section 890.1450(b) and 890.1520(c))





DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

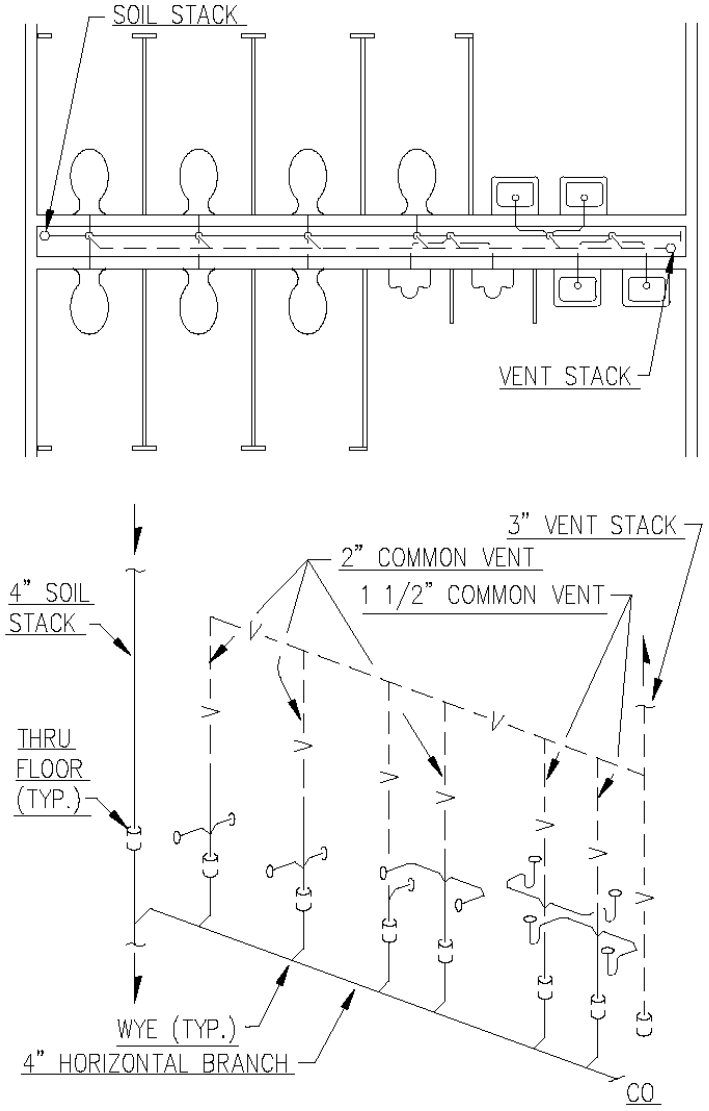
DEPARTMENT OF PUBLIC HEALTH

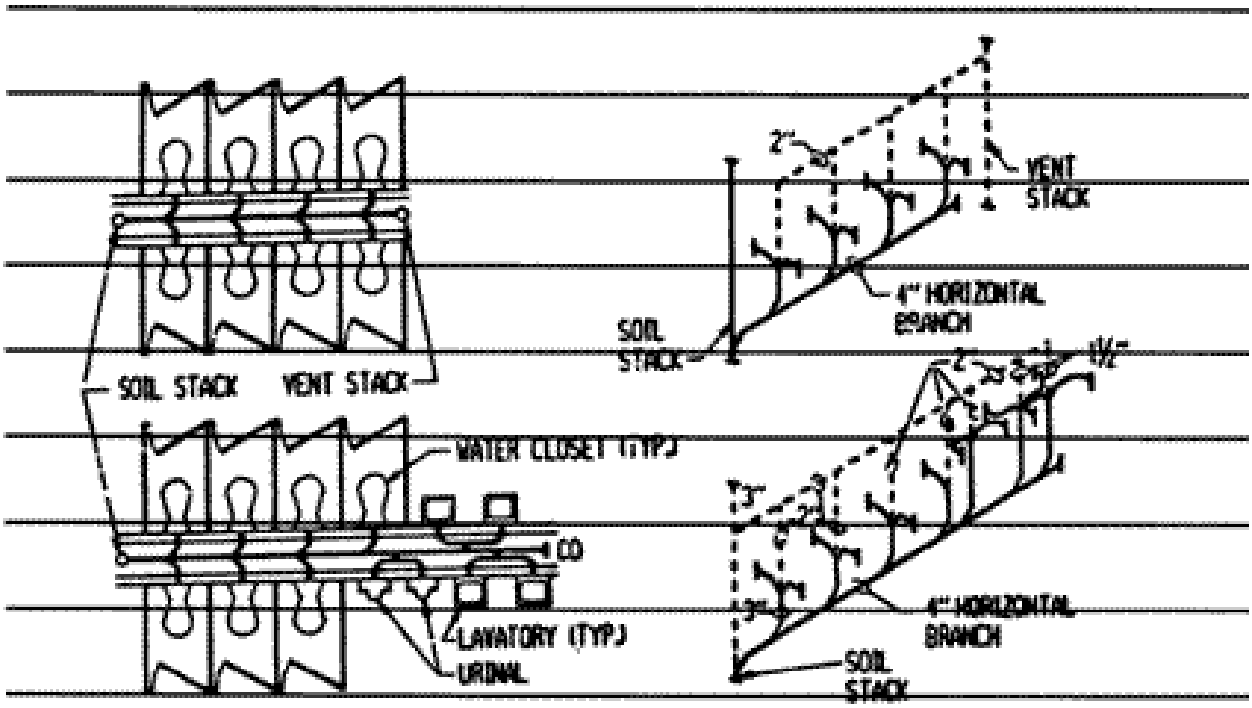
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION BB Fixtures Back-to-Back in Battery

(Referenced in Section 890.1520(d))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

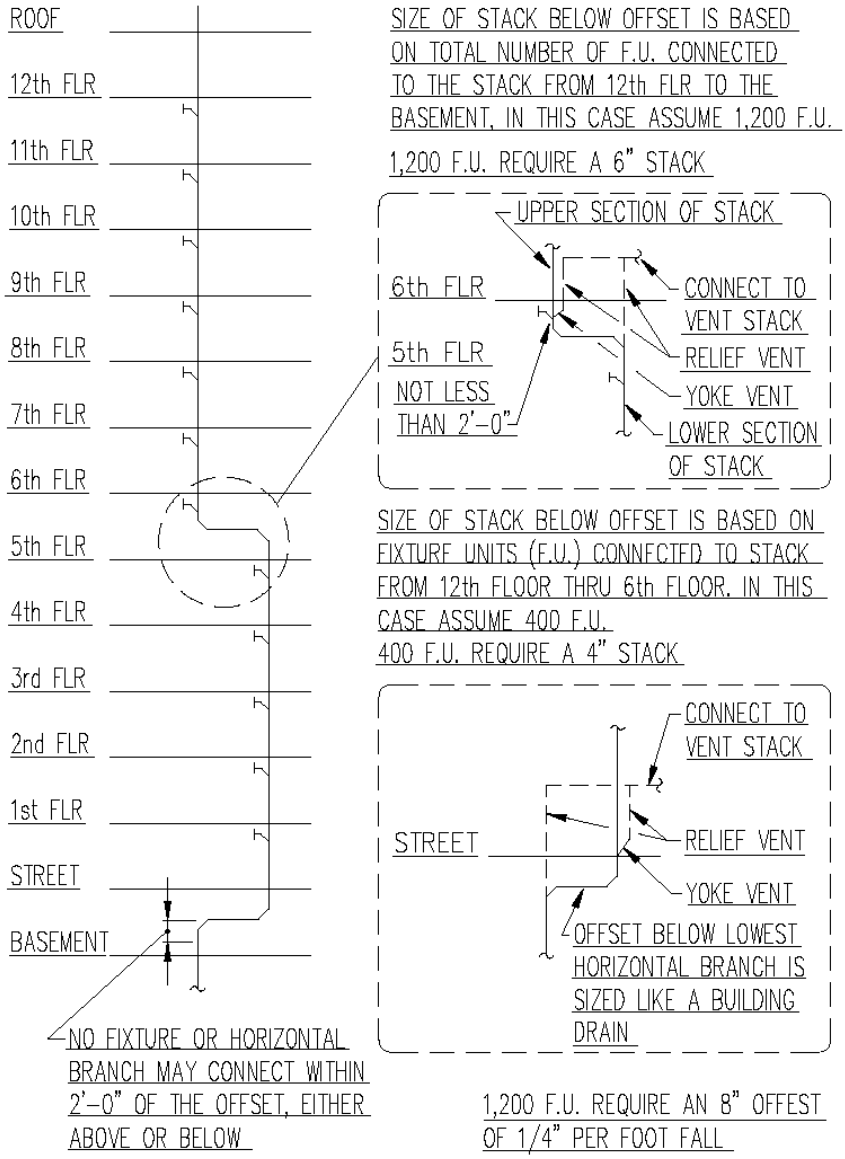
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

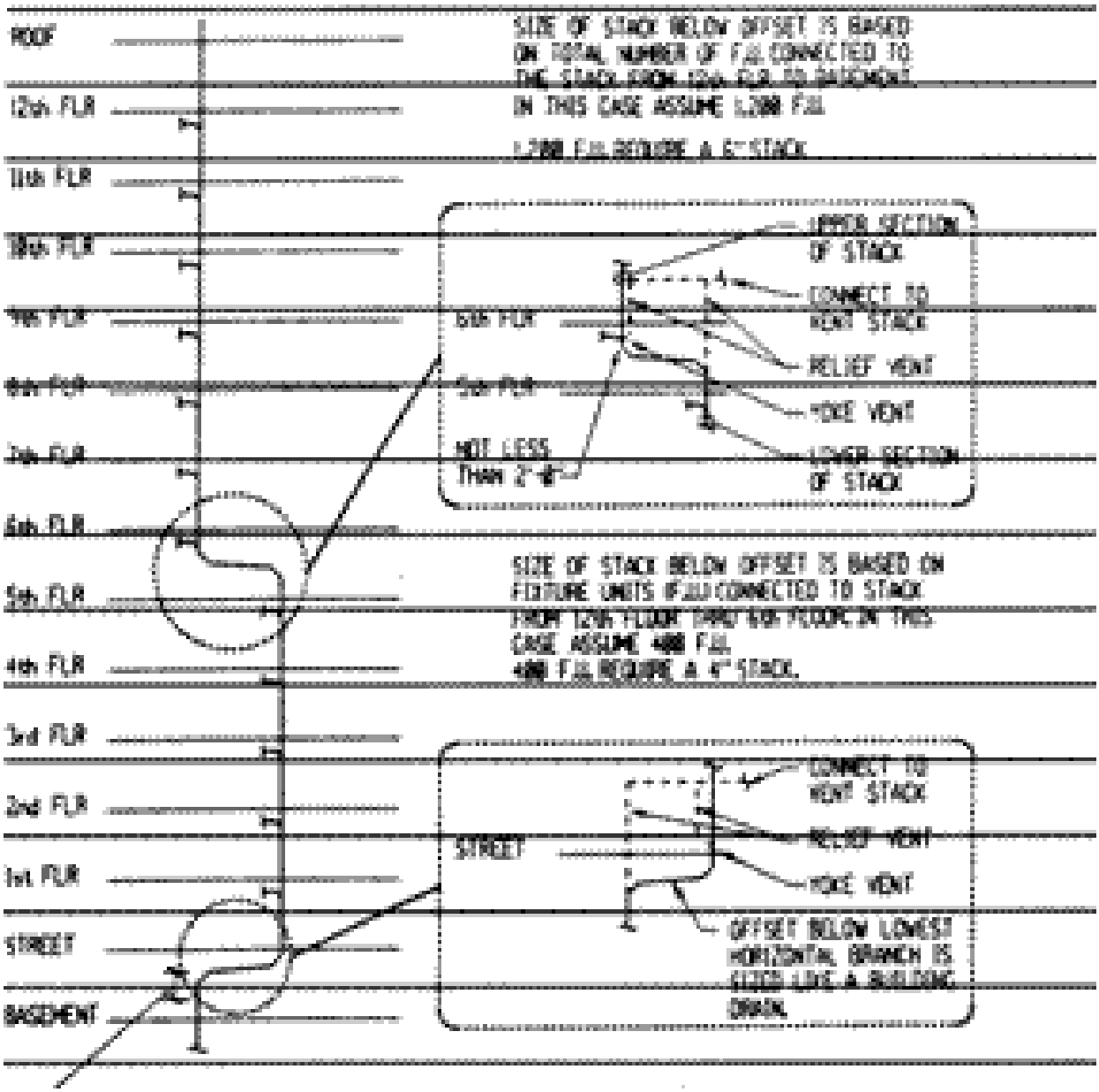
Section 890.ILLUSTRATION CC Fixture Connections-Offset Vents

(Referenced in Sections 890.1520(e) & 890.1550(a))



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS



(Source: Amended at 37 Ill. Reg. _____, effective _____)

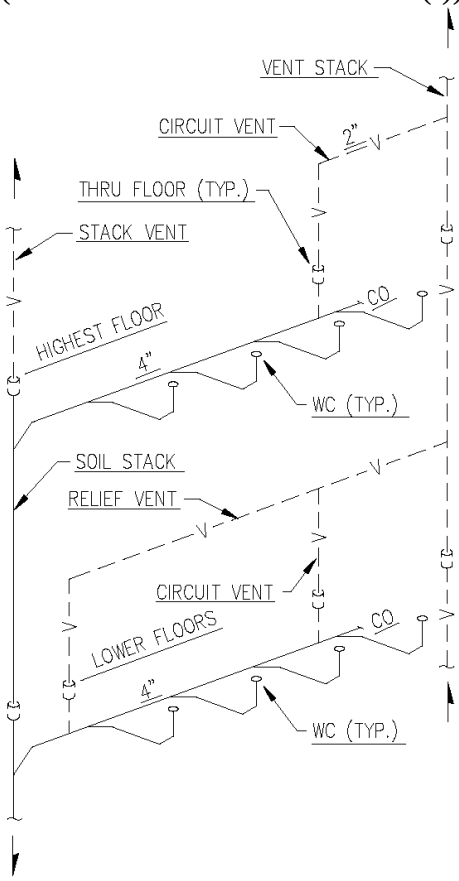
DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

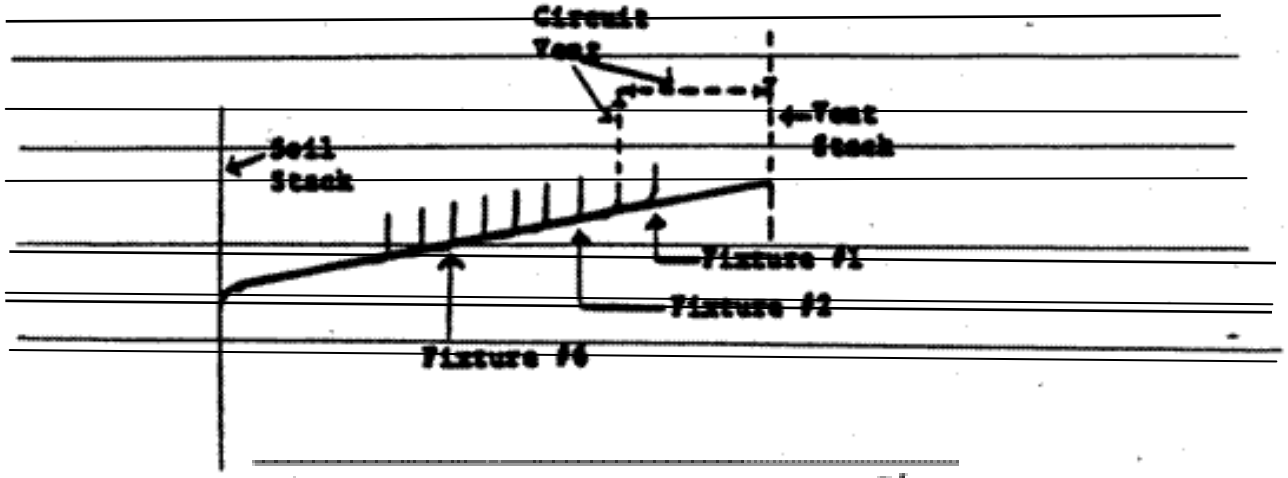
Section 890.ILLUSTRATION DD Circuit Vented Fixtures

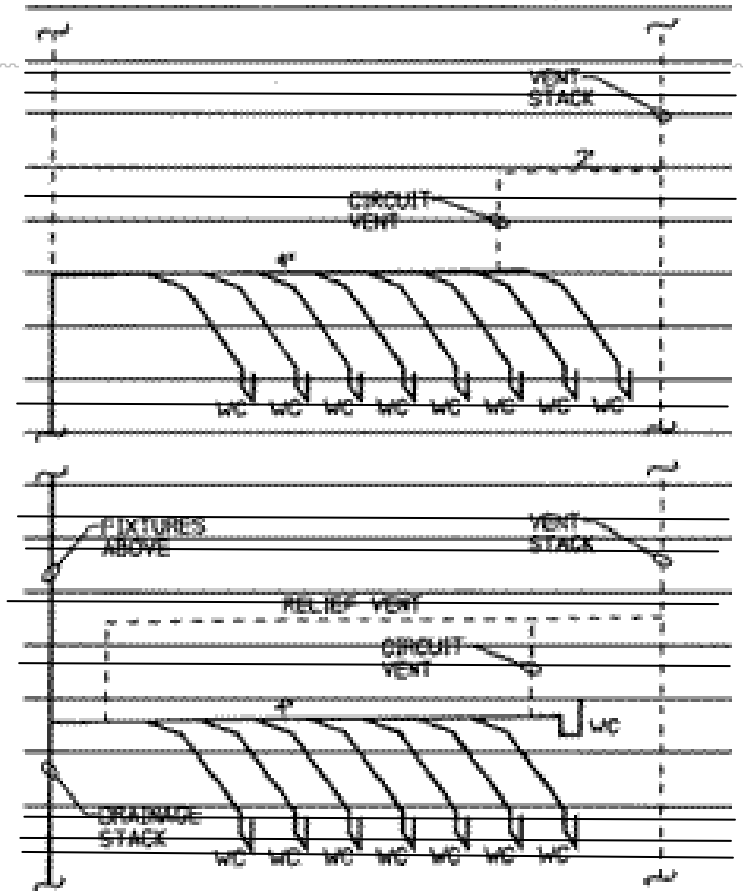
(Referenced in Section 890.1520(f))



DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS





(Source: Amended at 37 Ill. Reg. _____, effective _____)

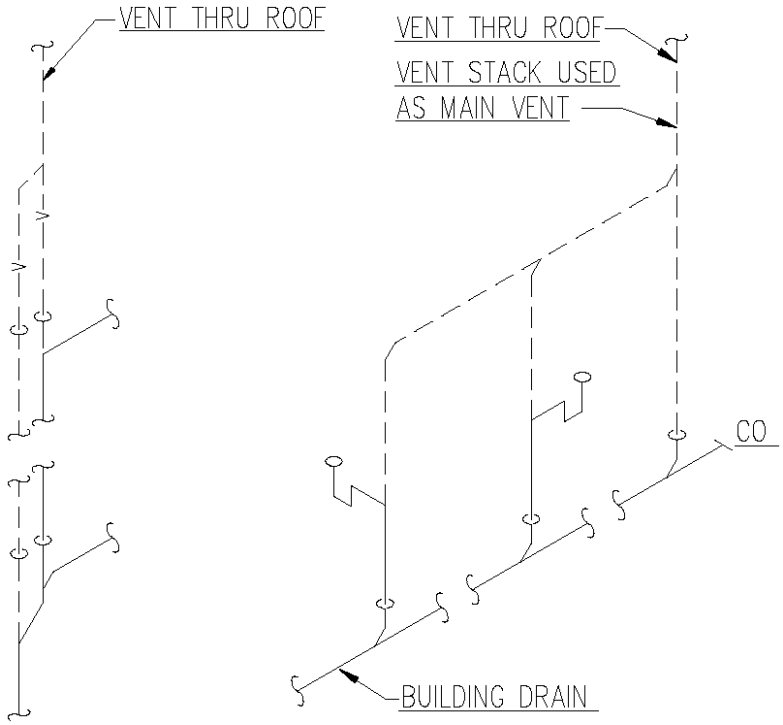
DEPARTMENT OF PUBLIC HEALTH

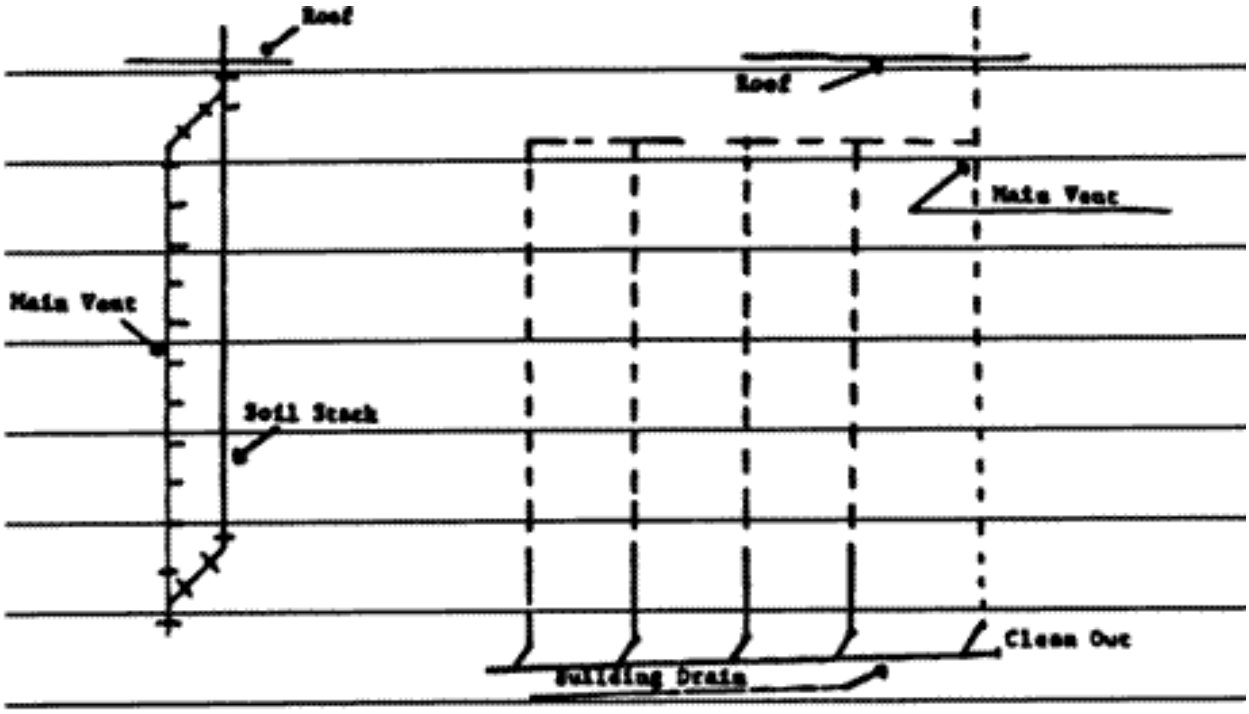
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION EE Vent Stacks ~~Main Vents~~

(Referenced in Section 890.1450(e))~~890.1560)~~





(Source: Amended at 37 Ill. Reg. _____, effective _____)

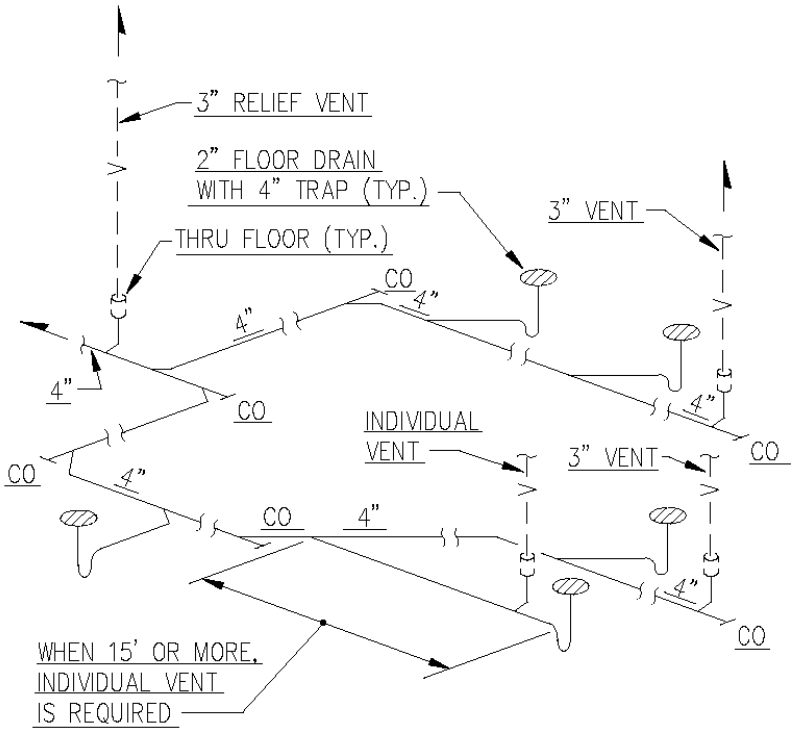
DEPARTMENT OF PUBLIC HEALTH

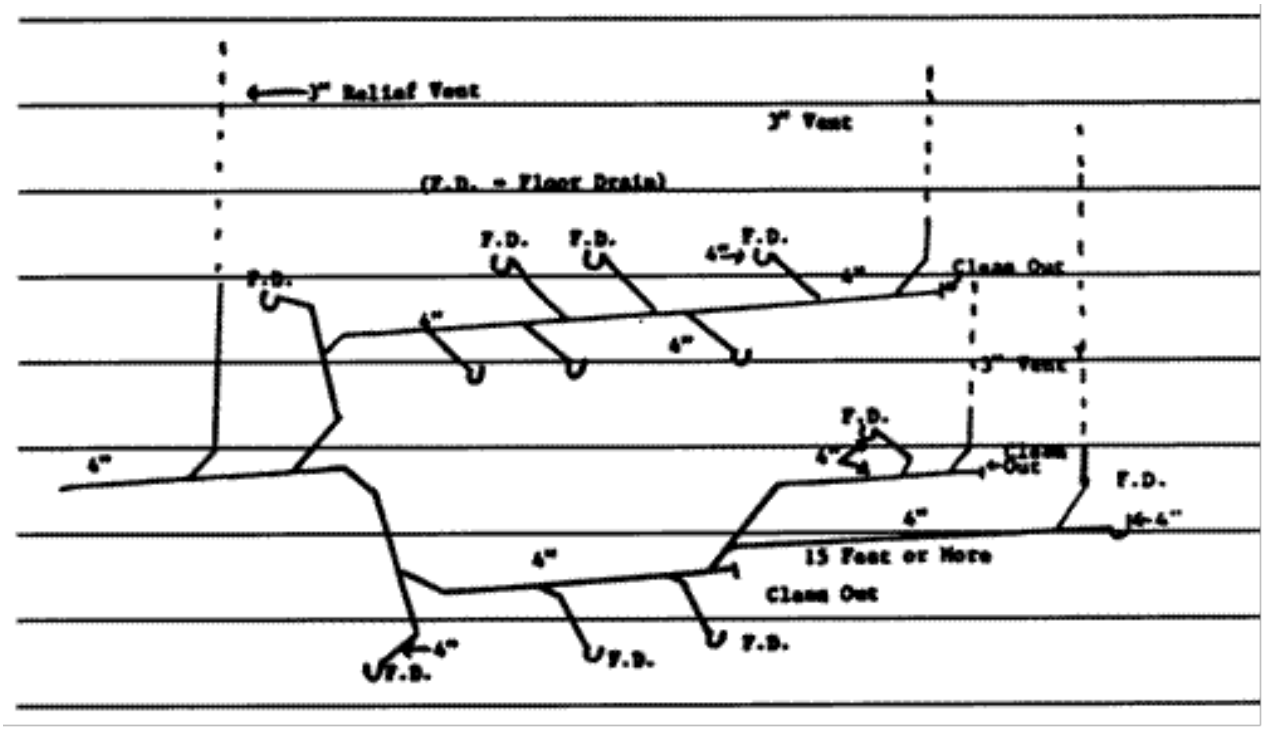
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION FF Combination Waste and Vent

(Referenced in Section 890.1590(d)) ~~890.1590(a))~~





(Source: Amended at 37 Ill. Reg. _____, effective _____)

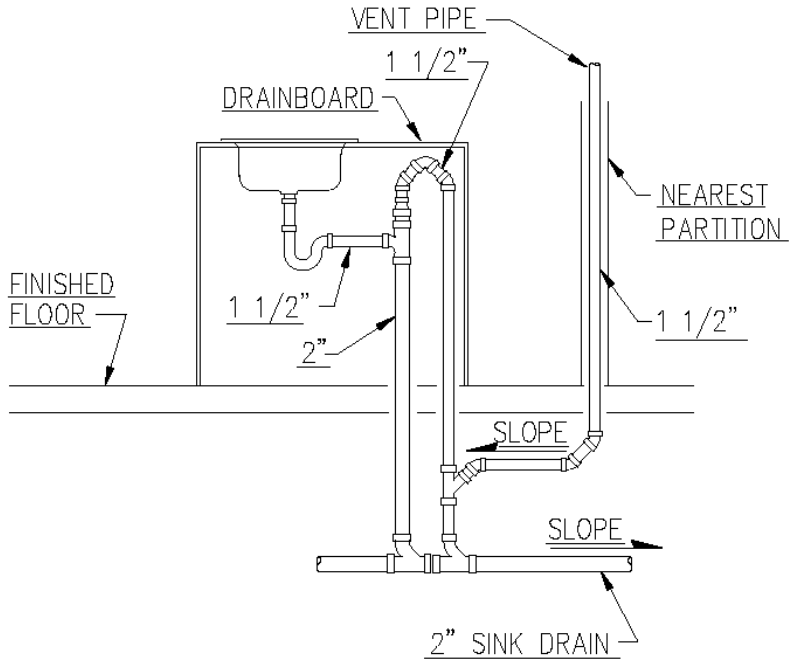
DEPARTMENT OF PUBLIC HEALTH

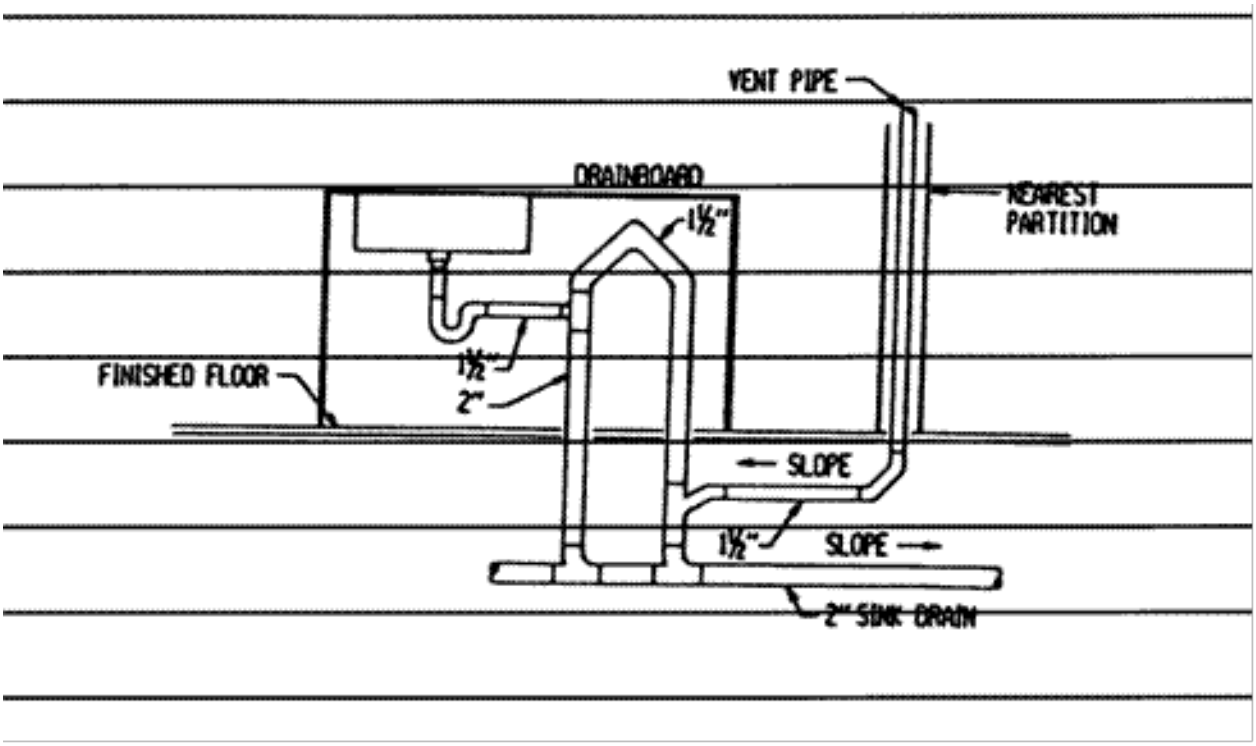
NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX K Illustrations for Subpart K

Section 890.ILLUSTRATION GG Special Venting for Island Fixtures

(Referenced in Section 890.1600(b))





(Source: Amended at 37 Ill. Reg. _____, effective _____)

DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 890.APPENDIX L Illustrations for Subpart N

Section 890.ILLUSTRATION A Symbol for Hose Bibbs

(Referenced in Section 890.2140(h)(2))

(Source: Added at 37 Ill. Reg._____, effective_____)