ANSWER SHEET • 2015 UPC Definitions • Idaho

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** See instructions on the inside of the cover to submit your exam.

1.	A	B	C	D	26.	A	B	C	D	51.	A	B	C	D	76.	A	B	C	D
2.	A	B	C	D	27.	A	B	C	D	52.	A	B	C	D	77.	A	B	C	D
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5.	A	B	C	D	30.	A	B	C	D	55.	A	B	C	D	80.	A	B	C	D
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7.	A	B	C	D	32.	A	B	C	D	57.	A	B	C	D	82.	A	B	C	D
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14.	A	B	C	D	39.	A	B	C	D	64.	A	B	C	D	89.	A	B	C	D
15.	A	B	C	D	40.	A	B	C	D	65.	A	B	C	D	90.	A	B	C	D
16.	A	B	C	D	41.	A	B	C	D	66.	A	B	C	D	91.	A	B	C	D
17.	A	B	C	D	42.	A	B	C	D	67.	A	B	C	D	92.	A	B	C	D
18.	A	B	C	D	43.	A	B	C	D	68.	A	B	C	D	93.	A	B	C	D
19.	A	B	C	D	44.	A	B	C	D	69.	A	B	C	D	94.	A	B	C	D
20.	A	B	C	D	45.	A	B	C	D	70.	A	B	C	D	95.	A	B	C	D
21.	A	B	C	D	46.	A	B	C	D	71.	A	B	C	D	96.	A	B	C	D
22.	A	B	C	D	47.	A	B	C	D	72.	A	B	C	D	97.	A	B	C	D
23.	A	B	C	D	48.	A	B	C	D	73.	A	B	C	D	98.	A	B	C	D
24.	A	B	C	D	49.	A	B	C	D	74.	A	B	C	D	99.	A	B	C	D
25.	A	B	C	D	50.	A	B	C	D	75.	A	B	C	D	100.	A	B	C	D

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2015 UPC Definitions • 4 hours

DISCLAIMER NOTE: This course is APPROVED by the Idaho Division of Building Safety for continuing education to renew your plumbing license and is not intended to replace or supersede any state or local adopted codes.

2015 UPC Definitions

2015 UPC Definitions:

(New) Bed Pan Steamer: A fixture that is used to sterilize bedpans by way of steam.

(New) Category 3: Facility systems in which failure of such equipment is not likely to cause injury to patients or caregivers, but can cause patient discomfort.

(New) Exam Room Sink: A Sink used in the patient exam room of a medical or dental office with a primary purpose for the washing of hands.

(New) Dry Vent: A Vent that does not receive the discharge of any sewage or waste.

(New) Fixture Fitting: A device that controls and guides the flow of water.

(New) Grounding Electrode: A conducting object through which a direct connection to earth is established.

(New) Governing Body: The person or persons who have the overall legal responsibility for the operation of a health care facility.

(New) Joint, Flanged: One made by bolting together a pair of flanged ends.

(New) Scavenging: Evacuation of exhaled mixtures of oxygen and nitrous oxide.

(New) Sterilizer: A piece of equipment that disinfects instruments and equipment by way of heat.

ABS. Acrylonitrile-butadiene-styrene.

Aspirator. A fitting or device supplied with water or other fluid under positive pressure that passes through an integral orifice or constriction, causing a vacuum.

Authority Having Jurisdiction. The organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, installations, or procedures. The Authority Having Jurisdiction shall be a federal, state, local, or other regional department or an individual such as a plumbing official, mechanical official, labor department official, health department official, building official, or others having statutory authority. In the absence of a statutory authority, the Authority Having Jurisdiction may be some other responsible party. This definition shall include the Authority Having Jurisdiction's duly authorized representative.

Exam Questions:

1. **The organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, installations, or procedures would be best defined as?**
   A. The Department
   B. State Board
   C. Authority Having Jurisdiction
   D. Testing Laboratory

2. **How does a bed pan steamer sterilize bed pans?**
   A. Uses High Temperature Steam
   B. Uses High Temperature Water jets
   C. Uses pulsating high speed plastic pellets
   D. Uses Liquid nitrogen and air pulses

3. **What category can cause patient discomfort if the facility's equipment were to fail?**
   A. III
   B. II
   C. I
   D. IV

4. **What is the primary purpose of an exam room sink?**
   A. Washing of hands
   B. Washing of instruments
   C. Water for the Patient
   D. All listed answers

5. **What does "ABS" stand for?**
   A. Alonitrile-butadiene-styrene
   B. Acrylonitrile-butane-styrene
   C. Acrylonitrile-butadiene-styrene
   D. Acrylontile-butadiee-styrene

6. **What best defines a vent that does not receive the discharge of any sewage or waste?**
   A. Dry Vent
   B. Wet Vent
   C. Branch Vent
   D. Main Vent

7. **What controls and guides the flow of water?**
   A. Fixture Fitting
   B. Nozzle
   C. Fixture
   D. Spigot

8. **A conducting object through which a direct connection to the earth is established is best defined as a?**
   A. Grounding Electrode
   B. Grounding Electrode Conductor
   C. Equipment Grounding Conductor
   D. Grounded Conductor

9. **What is a fitting or device supplied with water or other fluid under positive pressure that passes through an integral orifice or constriction, causing a vacuum?**
   A. Aspirator
   B. Backflow Preventer
   C. Backflow Connector
   D. Appliance Fuel Connector

10. **Who has the overall legal responsibility for the operation of a he1alth care facility?**
    A. Governing Body
    B. Hospital Board
    C. Maintenance Department
    D. City Council

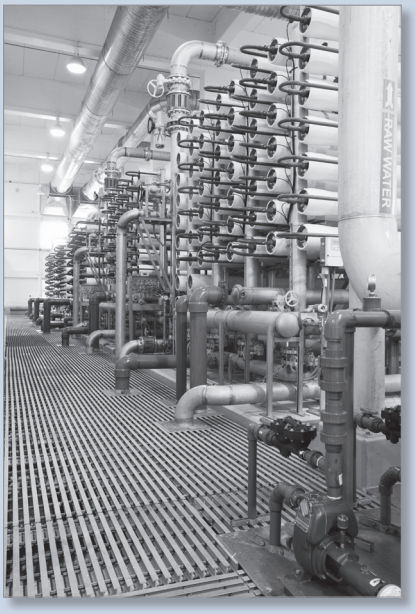
11. **What is considered bolting together a pair of flanged ends?**
    A. Joint, Flanged
    B. Flanged, Joint
    C. Joint, Flared
    D. Joint, Mechanical

12. **What is known as the evacuation of exhaled mixtures of oxygen and nitrous oxide?**
    A. Scavenging
    B. Expelling
    C. Expel
    D. Arterial gas embolism

13. **How does a Sterilizer disinfect instruments and equipment?**
    A. Uses High Temperature Steam
    B. Uses High Temperature Heat
    C. Uses pulsating high speed plastic pellets
    D. Uses Liquid nitrogen and air pulses

Backflow. The flow of water or other liquids, mixtures, or substances into the distributing pipes of a potable supply of water from sources other than its intended source. See Backsiphonage, Backpressure Backflow.

Backflow Connection. An arrangement whereby backflow can occur.



Backflow Preventer. A backflow prevention device, an assembly, or other method to prevent backflow into the potable water system.

Backpressure Backflow. Backflow due to an increased pressure above the supply pressure, which may be due to pumps, boilers, gravity, or other sources of pressure.

Backsiphonage. The flowing back of used, contaminated, or polluted water from a plumbing fixture or vessel into a water supply pipe due to a pressure less than atmospheric in such pipe. See Backflow.

Backwater Valve. A device installed in a drainage system to prevent reverse flow.

(Revised) Bathroom Group. Any combination of fixtures not to exceed one water closet, two lavatories, either one bathtub, or one combination bath/shower, and one shower, and may include a bidet and an emergency floor drain.

Bathroom, Half. A room equipped with only a water closet and lavatory.

Battery of Fixtures. A group of two or more similar, adjacent fixtures that discharge into a common horizontal waste or soil branch.

Boiler Blowoff. An outlet on a boiler to permit emptying or discharge of sediment.

Bonding Jumper. A reliable conductor to ensure the required electrical conductivity between metal parts required to be electrically connected.

Branch Vent. A vent connecting one or more individual vents with a vent stack or stack vent.

Building. A structure built, erected, and framed of component structural parts designed for the housing, shelter, enclosure, or support of persons, animals, or property of any kind.

Building Drain. That part of the lowest piping of a drainage system that receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it to the building sewer beginning 2 feet (610 mm) outside the building wall.

Building Drain (Sanitary). A building drain that conveys sewage only.

Building Drain (Storm). A building drain that conveys storm water or other drainage, but no sewage.

Building Sewer. That part of the horizontal piping of a drainage system that extends from the end of the building drain and that receives the discharge of the building drain and conveys it to a public sewer, private sewer, private sewage disposal system, or other point of disposal.

Branch. A part of the piping system other than a main, riser, or stack.

Building Sewer (Combined). A building sewer that conveys both sewage and storm water or other drainage.

Building Sewer (Sanitary). A building sewer that conveys sewage only.

Exam Questions:

14. A part of the piping system other than a main, riser, or stack is defined as a?
A. Vent
B. Fixture Branch
C. Branch
D. Branch, Fixture

15. A building sewer that conveys sewage only is known as?
A. Building Sewer (Dedicated)
B. Building Sewer (Storm)
C. Building Sewer (Combined)
D. Building Sewer (Sanitary)

16. The backflow due to an increased pressure above the supply pressure, which may be due to pumps, boilers, gravity, or other sources of pressure is best defined as?
A. Backflow
B. Backflow Connection
C. Backpressure Backflow
D. Backflow Preventer

17. What is defined as the flow of water or other liquids, mixtures, or substances into the distributing pipes of a potable supply of water from sources other than its intended source?
A. Backflow
B. Backflow Connection
C. Backpressure Backflow
D. Backflow Preventer

18. An outlet on a boiler to permit emptying or discharge of sediment is defined as?
A. Blowoff Valve
B. Boiler Blowoff
C. Emergency Blowoff Valve
D. Boiler Butterfly Blowoff Valve

19. What best defines a backflow prevention device, an assembly, or other method to prevent backflow into the potable water system?
A. Backflow
B. Backflow Connection
C. Backpressure Backflow
D. Backflow Preventer

20. What is the flowing back of used, contaminated, or polluted water from a plumbing fixture or vessel into a water supply pipe due to a pressure less than atmospheric in such pipe?
A. Backpressure Backflow
B. Backflow Connection
C. Backsiphonage
D. Backflow Preventer

21. A group of fixtures consisting of a water closet, one or two lavatories, and either a bathtub, a combination bath/shower, or a shower and may include a urinal or bidet and an emergency floor drain is defined as?
A. Restroom
B. Water Closet
C. Powder Room
D. Bathroom Group

22. A building drain that conveys sewage only is known as?
A. Building Sewer (Combined)
B. Building Drain
C. Building Drain (Storm)
D. Building Drain (Sanitary)

23. A room equipped with only a water closet and lavatory is known as a?
A. Bathroom Group
B. Water Closet
C. Bathroom, Half
D. Restroom

24. A building sewer that conveys both sewage and storm water or other drainage is known as?
A. Building Sewer (Storm)
B. Building Sewer (Sanitary)
C. Building Sewer (Combined)
D. Building Sewer

25. What best defines a group of two or more similar, adjacent fixtures that discharge into a common horizontal waste or soil branch?
A. Battery of Fixtures
B. Bathroom, Half
C. Bathroom Group
D. Water Closet

26. An electrical term where a reliable conductor is required to ensure the electrical conductivity between metal parts required to be electrically connected is known as a?

A. Main Bond Jumper
B. Grounded Conductor
C. Equipment Grounding Conductor
D. Bonding Jumper

27. What best defines a device installed in a drainage system to prevent reverse flow?

A. Backwater Valve
B. Backflow Preventer
C. Backflow Connection Valve
D. Backpressure Backflow Valve

28. What best defines a building drain that conveys storm water or other drainage, but no sewage?

A. Building Drain (Sanitary)
B. Building Drain (Storm)
C. Building Drain
D. Building Drain (Combined)

29. What best defines a vent connecting one or more individual vents with a vent stack or stack vent?

A. Branch Vent
B. Primary Vent Line
C. Vent Branch
D. Vent System

30. An arrangement whereby backflow can occur is defined as?

A. Backflow
B. Backflow Connection
C. Backpressure Backflow
D. Backflow Preventer

31. What is that part of the lowest piping of a drainage system that receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it to the building sewer beginning 2 feet (610 mm) outside the building wall?

A. Building Drain
B. Building Drain (Sanitary
C. Building Drain (Storm).
D. Building Sewer (Combined).

32. What best defines that part of the horizontal piping of a drainage system that extends from the end of the building drain and that receives the discharge of the building drain and conveys it to a public sewer, private sewer, private sewage disposal system, or other point of disposal?

A. Building Sewer (Sanitary)
B. Building Sewer (Combined)
C. Building Sewer
D. Building Sewer (Storm)

33. A structure built, erected, and framed of component structural parts designed for the housing, shelter, enclosure, or support of persons, animals, or property of any kind is known as a?

A. Single Family Dwelling
B. Farm
C. Multi Family Dwelling
D. Building

Building Sewer (Storm). A building sewer that conveys storm water or other drainage, but no sewage.

Building Subdrain. That portion of a drainage system that does not drain by gravity into the building sewer.

Building Supply. The pipe carrying potable water from the water meter or other source of water supply to a building or other point of use or distribution on the lot.

Cesspool. A lined excavation in the ground that receives the discharge of a drainage system or part thereof, so designed as to retain the organic matter and solids discharging therein, but permitting the liquids to seep through the bottom and sides.

Chemical Waste. See Special Wastes.

Clarifier. See Interceptor.

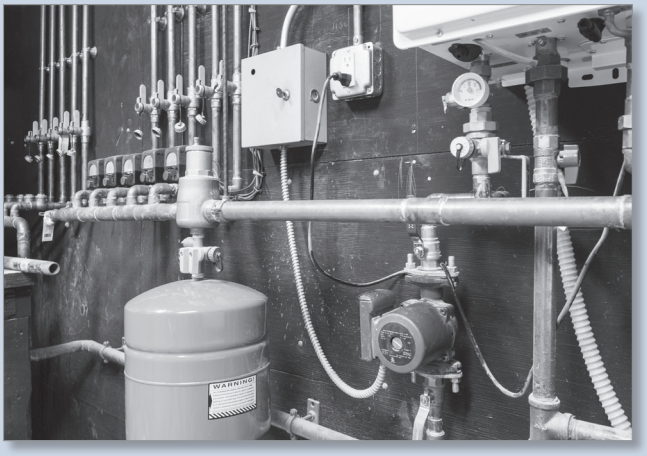
Clear Water Waste. Cooling water and condensate drainage from refrigeration and air-conditioning equipment; cooled condensate from steam heating systems; and cooled boiler blowdown water.

(Revised) Clinic Sink. A fixture that has the same flushing and cleansing characteristics of a water closet that is used to receive the wastes from a bedpan. Also known as a bed pan washer.

Code. A standard that is an extensive compilation of provisions covering broad subject matter or that is suitable for adoption into law independently of other codes and standards.

Combination Thermostatic/Pressure Balancing Valve. A mixing valve that senses outlet temperature and incoming hot and cold water pressure and compensates for fluctuations in incoming hot and cold water temperatures, pressures, or both to stabilize outlet temperatures.

Combination Waste and Vent System. A specially designed system of waste piping embodying the horizontal wet venting of one or more sinks or 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.



Exam Questions:

34. What best defines a specially designed system of waste piping embodying the horizontal wet venting of one or more sinks or 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?

A. Combination Waste and Vent System
B. Waste and Vent System
C. Vent System, Main
D. Vent Waste Combination System

35. What is the pipe carrying potable water from the water meter or other source of water supply to a building or other point of use or distribution on the lot?

A. Building Main
B. Building Supply
C. Water Main
D. All listed answers

36. A lined excavation designed as to retain the organic matter and solids discharging therein, but permitting the liquids to seep through the bottom and sides is known as?

A. Culvert
B. Drainage ditch
C. Cesspool
D. Drainage field

37. What term best defines a bed pan washer?

A. Clinic Sink
B. Sanitary sink
C. Closet, Portable
D. Water less Water Closet, Portable

38. Where does the UPC direct you to look if you wanted the definition of a clarifier?

A. Clarifiers
B. Hydromechanical Interceptors
C. Interceptors
D. Mechanical Clarifiers

39. The cooling water and condensate drainage from refrigeration and air-conditioning equipment; cooled condensate from steam heating systems; and cooled boiler blowdown water would best be defined as?

A. Combined Building
B. Combination Thermostatic Waste
C. Water Waste
D. Clear Water Waste

40. What best defines a standard that is an extensive compilation of provisions covering broad subject matter or that is suitable for adoption into law independently of other codes and standards?

A. Compilation, Code
B. Standards
C. State Specific Rules and Standards
D. Code

41. A mixing valve that senses outlet temperature and incoming hot and cold water pressure and compensates for fluctuations in incoming hot and cold water temperatures, pressures, or both to stabilize outlet temperatures is known as?

A. Pressure Balancing Valve, Combination
B. Combination Pressure Balancing Valve
C. Combination Thermostatic/Pressure Balancing Valve
D. Combination Valve

42. What best defines a building sewer that conveys storm water or other drainage, but no sewage.

A. Building Sewer (Combined)
B. Building Sewer
C. Building Sewer (Storm)
D. Building Sewer (Dedicated)

43. Where does the UPC direct one to look regarding chemical wastes?

A. Detrimental Wastes
B. Special Wastes
C. Hazardous Wastes
D. MSDS

44. What best defines that portion of a drainage system that does not drain by gravity into the building sewer?

A. Building Subdrain
B. Building Sewer
C. Building Sewer (Combined)
D. Building Sewer (Dedicated)

Common. That part of a plumbing system that is so designed and installed as to serve more than one appliance, fixture, building, or system.

Conductor. A pipe inside the building that conveys storm water from the roof to a storm drain, combined building sewer, or other approved point of disposal.

Contamination. An impairment of the quality of the potable water that creates an actual hazard to the public health through poisoning or through the spread of disease by sewage, industrial fluids, or waste. Also defined as High Hazard.

Continuous Vent. A vertical vent that is a continuation of the drain to which it connects.

Continuous Waste. A drain connecting the compartments of a set of fixtures to a trap or connecting other permitted fixtures to a common trap.

CPVC. Chlorinated Poly (Vinyl Chloride).

(Revised) Critical Care Area. See Patient Care Room.

Critical Level. The critical level (C-L or C/L) marking on a backflow prevention device or vacuum breaker is a point conforming to approved standards and established by the testing laboratory (usually stamped on the device by the manufacturer) that determines the minimum elevation above the floodlevel rim of the fixture or receptor served at which the device may be installed. Where a backflow prevention device does not bear a critical level marking, the bottom of the vacuum breaker, combination valve, or the bottom of such approved device shall constitute the critical level.

Cross-Connection. A connection or arrangement, physical or otherwise, between a potable water supply system and a plumbing fixture or a tank, receptor, equipment, or device, through which it may be possible for nonpotable,

used, unclean, polluted, and contaminated water, or other substances to enter into a part of such potable water system under any condition.

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 Having Jurisdiction. The Authority Having Jurisdiction, including any other law enforcement agency affected by a provision of this code, whether such agency is specifically named or not.

Design Flood Elevation. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the design flood elevation is the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number is taken as being equal to 2 feet (610 mm).

Developed Length. The length along the center line of a pipe and fittings.

Diameter. Unless specifically stated, "diameter" is the nominal diameter as designated commercially.

Exam Questions:

45. What is considered an impairment of the quality of the potable water that creates an actual hazard to the public health through poisoning or through the spread of disease by sewage, industrial fluids, or waste?

A. Continuous Waste
B. Hazard
C. High Hazard
D. Contamination

46. What does CPVC stand for?

A. Chlorinate Post (Vinyl Chloride)
B. Chlorinated Poly (Vinyl Chloride)
C. Chlorinated Porous (Vinyl Chloride)
D. Chloride Poly (Vinyl Chlorinate)

47. That part of a plumbing system that is so designed and installed as to serve more than one appliance, fixture, building, or system is known as?

A. System, Main
B. Combined
C. Common
D. Multiple

48. What best defines the minimum elevation above the floodlevel rim of the fixture or receptor served at which the device may be installed?

A. Emergency Room
B. Critical Care Area
C. Critical Care Level
D. Critical Level

49. What is considered a drain connecting the compartments of a set of fixtures to a trap or connecting other permitted fixtures to a common trap?

A. Continuous Waste
B. Continuous Drain
C. Commercial Drain
D. Combined Drain

50. Would it be considered Acceptable or a Violation of this code to cross connect a fixture tank to the potable water system?

A. Violation
B. Acceptable

51. A vertical vent that is a continuation of the drain to which it connects is best defined as?
A. Combined Vent
B. Continuous Vent
C. Conductor
D. Continuous Waste Vent

52. What best defines a device installed on the rainwater catchment conveyance system to prevent the accumulation of leaves, needles, or other debris in the system?
A. Excluder
B. Shredder
C. Debris Excluder
D. Debris Mulcher

53. What best defines a pipe inside the building that conveys storm water from the roof to a storm drain, combined building sewer, or other approved point of disposal?
A. Conductor
B. Storm Drain
C. Waste Pipe, Storm
D. Combined Sewer System

54. The Authority Having Jurisdiction, including any other law enforcement agency affected by a provision of this code, whether such agency is specifically named or not is defined as?
A. Chief Plumbing Inspector
B. Authority Having Jurisdiction
C. Plumbing Inspector
D. Department Having Jurisdiction

55. Patient Care Room meets the definition of what listed term?
A. Emergency Room
B. Critical Care Level
C. Critical Care Area
D. Critical Level (C/L)

56. What does the UPC define as the length along the center line of a pipe and fittings?
A. Adjacent
B. Total Length
C. Center to Center
D. Developed Length

57. What zone designator is for areas where the design flood elevation is the elevation of the highest existing grade of the building's perimeter plus the depth number in feet as listed on the flood hazard map?
A. C/L
B. A
C. O
D. AO

Downspout. The rain leader from the roof to the building storm drain, combined building sewer, or other means of disposal located outside of the building. See Conductor and Leader.

Drain. A pipe that carries waste or waterborne wastes in a building drainage system.

(Revised) Drainage System. Includes all the piping within public or private premises that conveys sewage, storm water, or other liquid wastes to a legal point of disposal, but does not include the mains of a public sewer system or a public sewage treatment or disposal plant.

Durham System. A soil or waste system in which all piping is threaded pipe, tubing, or other such rigid construction, using recessed drainage fittings to correspond to the types of piping.

Domestic Sewage. The liquid and water-borne wastes derived from the ordinary living processes, free from industrial wastes, and of such character as to permit satisfactory disposal, without special treatment, into the public sewer or by means of a private sewage disposal system.

Effective Ground-Fault Current Path. An intentionally constructed, low-impedance electrically conductive path designed and intended to carry current under ground-fault conditions from the point of a ground fault on a wiring system to the electrical supply source and that facilitates the operation of the overcurrent protective device or ground-fault detectors on high-impedance grounded systems.

Effective Opening. The minimum cross-sectional area at the point of water supply discharge measured or expressed in terms of: (1) diameter of a circle or (2) where the opening is not circular, the diameter of a circle of equivalent cross-sectional area. (This is applicable also to air gap.)

Essentially Nontoxic Transfer Fluid. Essentially nontoxic at practically nontoxic, Toxicity Rating Class 1 (reference "Clinical Toxicology of Commercial Products" by Gosselin, Smith, Hodge, & Braddock).

Existing Work. A plumbing system or any part thereof that has been installed prior to the effective date of this code.

F Rating. The time period that the penetration firestop system limits the spread of fire through the penetration, where tested in accordance with ASTM E 814 or UL 1479.

Fixture Branch. A water supply pipe between the fixture supply pipe and the water distribution pipe.

Fixture Drain. The drain from the trap of a fixture to the junction of that drain with any other drain pipe.

Fixture Supply. A water supply pipe connecting the fixture with the fixture branch.

Fixture Unit. A quantity in terms of which the load-producing effects on the plumbing system of different kinds of plumbing fixtures are expressed on some arbitrarily chosen scale.

Exam Questions:

58. What is a pipe that carries waste or waterborne wastes in a building drainage system?
- A. Durham System
- B. Downspout
- C. Drain
- D. Drainage System

59. What do we call an intentional low-impedance electrically conductive path intended to carry current under ground-fault conditions from the point of a ground fault on a wiring system back to the source?
- A. Effective Ground-Fault Current Path
- B. Ground-Fault Current Path
- C. Equipment grounding Conductor
- D. Tracer Wire

60. What is the rain leader from the roof to the building storm drain, combined building sewer, or other means of disposal located outside of the building known as?
- A. Drain
- B. Downspout
- C. Durham System
- D. Drainage System

61. What is known as a plumbing system or any part thereof that has been installed prior to the effective date of this code?
- A. Existing Installation
- B. Grandfathered
- C. Existing Work
- D. All listed answers

62. The essentially nontoxic at practically nontoxic, Toxicity Rating Class 1 (reference "Clinical Toxicology of Commercial Products" by Gosselin, Smith, Hodge, & Braddock) is defined by this code as?

A. Equivalency Fluid
B. Nontoxic Fluid
C. Equivalency Transfer Fluid
D. Essentially Nontoxic Transfer Fluid

63. What best defines a quantity in terms of which the load-producing effects on the plumbing system of different kinds of plumbing fixtures are expressed on some arbitrarily chosen scale?

A. Fixture Unit
B. Flush Unit
C. Branch Unit
D. Arbitrary Unit

64. A soil or waste system in which all piping is threaded pipe, tubing, or other such rigid construction, using recessed drainage fittings to correspond to the types of piping, would best be defined as?

A. Durham System
B. Drainage System
C. Downspout
D. Domestic Sewage

65. What is best defined as the time period that a penetration firestop system will limit the spread of fire through the penetration?

A. UL Number
B. F Rating
C. UL Installation assembly
D. F Installation assembly

66. What is the water supply pipe connecting the fixture with the fixture branch known as?

A. Supply Fixture
B. Fixture Supply
C. Fixture Branch
D. Branch Supply

67. What best defines the liquid and water-borne wastes derived from the ordinary living processes, free from industrial wastes, and of such character as to permit satisfactory disposal, without special treatment, into the public sewer or by means of a private sewage disposal system?

A. Residential sewage system
B. Brown Water
C. Sewage
D. Domestic Sewage

68. What best defines the drain from the trap of a fixture to the junction of that drain with any other drain pipe?

A. Fixture Drain
B. Fixture Trap
C. Fixture Junction
D. Drain Junction

69. What best defines the minimum cross-sectional area at the point of water supply discharge measured or expressed in terms of: (1) diameter of a circle or (2) where the opening is not circular, the diameter of a circle of equivalent cross-sectional area?

A. Effective Opening
B. Air Gap
C. Cross Section
D. Equivalency

70. The water supply pipe between the fixture supply pipe and the water distribution pipe is known as the?

A. Fixture Supply
B. Fixture Branch
C. Branch Supply
D. Supply Fixture

Flood Hazard Area. The greater of the following two areas:

(1) The area within a floodplain subject to a 1 percent or greater chance of flooding in any given year.

(2) The area designated as a flood hazard area on a community's flood hazard map, or otherwise legally designated.

Flood Hazard Area Subject to High-Velocity Wave Action. Area within the flood hazard area that is subject to high velocity wave action, and shown on a Flood Insurance Rate Map or other flood hazard map as Zone V, VO, VE or V1-30.

Flood Level. See Flooded.

Flood-Level Rim. The top edge of a receptor from which water overflows.

Flooded. A fixture is flooded where the liquid therein rises to the flood-level rim.

Flush Tank. A tank located above or integral with water closets, urinals, or similar fixtures for the purpose of flushing the usable portion of the fixture.

Flush Valve. A valve located at the bottom of a tank for the purpose of flushing water closets and similar fixtures.

Flushometer Tank. A tank integrated within an air accumulator vessel that is designed to discharge a predetermined quantity of water to fixtures for flushing purposes.

Flushometer Valve. A valve that discharges a predetermined quantity of water to fixtures for flushing purposes and is actuated by direct water pressure.

FOG Disposal System. A grease interceptor that reduces nonpetroleum fats, oils, and grease (FOG) in effluent by separation, mass, and volume reduction.

Gang or Group Shower. Two or more showers in a common area.

Exam Questions:

71. The area within a floodplain subject to a 1 percent or greater chance of flooding in any given year falls under the broader definition of?
- A. Flood Level
- B. Flood Hazard Area
- C. Flood-Level Rim
- D. High-Velocity Flood Hazard Area

72. What listed definition would satisfy the definition of Flood level?
- A. Flood Level Zone
- B. Flooded
- C. Flood-Level Rim
- D. Flood Plain

73. What best defines a grease interceptor that reduces nonpetroleum fats, oils, and grease in effluent by separation, mass, and volume reduction?
- A. Grease Interceptor
- B. Grease Trap
- C. FOG Disposal System
- D. Volume Reduction Device

74. What is known as the top edge of a receptor from which water overflows?
- A. Flood Level Zone
- B. Flooded
- C. Flood-Level Rim
- D. Flood Plain

75. When two or more showers are in a common area, this is known as a (an)?
- A. All listed answers
- B. Gang or Group Shower
- C. Gang Shower
- D. Group Shower

76. A tank located above or integral with water closets, urinals, or similar fixtures for the purpose of flushing the usable portion of the fixture is known as a?
- A. Flush Valve tank
- B. Flush Tank
- C. Flushometer Tank
- D. Tank

77. What best defines a tank integrated within an air accumulator vessel that is designed to discharge a predetermined quantity of water to fixtures for flushing purposes?

A. Flush Collar Tank
B. Flush Valve tank
C. Flushometer Tank
D. Tank Valve

78. A fixture is considered_____ when the liquid therein rises to the flood-level rim.

A. Maxed
B. Flooded
C. Plugged
D. Non Functional

79. A valve that discharges a predetermined quantity of water to fixtures for flushing purposes and is actuated by direct water pressure is known as a?

A. Flushometer Valve
B. Flush Valve
C. Flush Tank Valve
D. Tank Valve

80. What do you call a valve located at the bottom of a tank for the purpose of flushing water closets?

A. Flush Tank Valve
B. Flush Valve
C. Flushometer Tank Valve
D. Tank Valve

81. A home listed on a flood Insurance Rate Map or other flood hazard map as Zone V would fall under what definition?

A. Flood-Level Rim
B. Flood Level Zone
C. Flood Hazard Area Subject to High-Velocity Wave Action
D. High-Velocity Flood Hazard Area

(Revised) General Care Areas. See patient care room.

Grade. The slope or fall of a line of pipe in reference to a horizontal plane. In drainage, it is usually expressed as the fall in a fraction of an inch (mm) or percentage slope per foot (meter) length of pipe.

(Revised) Gravity Grease Interceptor. A plumbing appurtenance or appliance that is installed in a sanitary drainage system to intercept nonpetroleum fats, oils, and greases (FOG) from a wastewater discharge and is identified by volume, 30 minute retention time, baffle(s), not less than two compartments, a total volume of not less than 300 gallons (1135 L), and gravity separation. [These interceptors comply with the requirements of Chapter 10 or are designed by a registered design professional.] Gravity grease interceptors are generally installed outside.

Gray Water. Untreated wastewater that has not come into contact with toilet waste, kitchen sink waste, dishwasher waste or similarly contaminated sources. Gray water includes wastewater from bathtubs, showers, lavatories, clothes washers, and laundry tubs. Also known as grey water, graywater, and greywater.

Gray Water Diverter Valve. A valve that directs gray water to the sanitary drainage system or to a subsurface irrigation system.

Grease Interceptor. A plumbing appurtenance or appliance that is installed in a sanitary drainage system to intercept nonpetroleum fats, oil, and greases (FOG) from a wastewater discharge.

Grease Removal Device (GRD). A hydromechanical grease interceptor that automatically, mechanically removes non-petroleum fats, oils and grease (FOG) from the interceptor, the control of which are either automatic or manually initiated.

(Revised) Grounding Electrode. A conducting object through which a direct connection to the earth is established.

Hangers. See Supports.

Heat-Fusion Weld Joints. A joint used in some thermoplastic systems to connect pipe to fittings or pipe lengths directly to one another (butt-fusion). This method of joining pipe to fittings includes socket-fusion, electro-fusion, and saddle-fusion. This method of welding involves the application of heat and pressure to the components, allowing them to fuse together forming a bond between the pipe and fitting.

High Hazard. See Contamination.

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 it to the soil or waste stack or to the building drain.

Horizontal Pipe. A pipe or fitting that is installed in a horizontal position or which makes an angle of less than 45 degrees (0.79 rad) with the horizontal.

(Revised) Hydromechanical Grease Interceptor. A plumbing appurtenance or appliance that is installed in a sanitary drainage system to intercept nonpetroleum fats, oil, and grease (FOG) from a wastewater discharge and is identified by flow rate, and separation and retention efficiency. The design incorporates air entrainment, hydromechanical separation, interior baffling, or barriers in combination or separately, and one of the following:

(1) - External flow control, with air intake (vent), directly connected.

(2) - External flow control, without air intake (vent), directly connected.

(3)- Without external flow control, directly connected.

(4) - Without external flow control, indirectly connected.

These interceptors comply with the requirements of Table 1014.2.1. Hydromechanical grease interceptors are generally installed inside.

Exam Questions:

82. A gravity Grease Interceptor is normally installed _____.
- A. In Full view of the drainage system
- B. Inside
- C. In a confined area
- D. Outside

83. A Hydromechanical Grease Interceptor is normally installed _____.
- A. Outside
- B. Inside
- C. In a confined area
- D. In Full view of the drainage system

84. Where are you directed to look by the UPC to find the definition for Hangars?
- A. Supports
- B. Support Systems
- C. Hanging Systems
- D. Methods, Vertical systems

85. The definition of "High Hazard" can be referenced by looking at what listed definition?
- A. Hazards
- B. Contamination
- C. Requirements, Potable Water
- D. Water treatment

86. A plumbing appurtenance that is installed in a sanitary drainage system to intercept nonpetroleum fats from a wastewater discharge is best defined as a?

A. Grease Removal Device
B. Grease Interceptor
C. Gravity Grease Interceptor
D. Fuel Gas Removal System

87. A drain pipe extending laterally from a building drain with or without vertical sections which receives the discharge from one or more fixture drains to the building drain is known as?

A. Horizontal Drain
B. Horizontal Pipe
C. Horizontal Branch
D. Building Drain

88. A hydromechanical grease interceptor can be operated _____.

A. Remotely
B. Automatically
C. Manually
D. All Listed Answers

89. What is commonly referred to as a joint used in some thermoplastic systems to connect pipe to fittings or pipe lengths directly to one another?

A. Chemical-Fusion Weld Joints
B. Cold-Fusion Weld Joints
C. Heat-Fusion Weld Joints
D. Cold-Chemical Weld Joints

90. What best defines the slope or fall of a line of pipe in reference to a horizontal plane?

A. Slope Line
B. Grade
C. Fall Angle
D. Incline

91. A Horizontal Pipe makes an angle of less than _____ degrees with the horizontal.

A. 50
B. 60
C. 45
D. 90

92. What is known as a device that establishes an electrical connection to the earth?

A. Service Bond
B. Ground Rod
C. Grounding electrode conductor
D. Grounding Electrode

93. Patient care rooms also encompass what listed term?

A. Ambulatory Care Facility
B. General Care Areas
C. Assisted Care Areas
D. All listed answers

94. Wastewater from bathtubs, showers, lavatories, clothes washers, and laundry tubs is known as?

A. Wastewater discharge
B. Brown Water
C. Gray Water
D. Non Treated Water

Indirect-Fired Water Heater. A water heater consisting of a storage tank equipped with an internal or external heat exchanger used to transfer heat from an external source to heat potable water. The storage tank either contains heated potable water or water supplied from an external source, such as a boiler.

Indirect Waste Pipe. A pipe that does not connect directly with the drainage system but conveys liquid wastes by discharging into a plumbing fixture, interceptor, or receptacle that is directly connected to the drainage system.

Indirect Waste Pipe. A pipe that does not connect directly with the drainage system but conveys liquid wastes by discharging into a plumbing fixture, interceptor, or receptacle that is directly connected to the drainage system.

Individual Vent. A pipe installed to vent a fixture trap and that connects with the vent system above the fixture served or terminates in the open air.

Industrial Waste. Liquid or water-borne waste from industrial or commercial processes, except domestic sewage.

Interceptor (Clarifier). A device designed and installed so as to separate and retain deleterious, hazardous, or undesirable matter from normal wastes and permit normal sewage or liquid wastes to discharge into the disposal terminal by gravity.

Invert. The lowest portion of the inside of a horizontal pipe.

Joint, Brazed. A joint obtained by joining of metal parts with alloys that melt at temperatures exceeding 840°F (449°C), but less than the melting temperature of the parts to be joined.

Joint, Soldered. A joint obtained by the joining of metal parts with metallic mixtures or alloys that melt at a temperature up to and including 840°F (449°C).

Joint, Welded. A gastight joint obtained by the joining of metal parts in the plastic molten state.

Exam Questions:

95. What is the lowest portion of the inside of a horizontal pipe called?
- A. Inside Low Point
- B. Deep Well
- C. Bottom
- D. Invert

96. Also known as a pipe that does not connect directly with the drainage system but conveys liquid wastes by discharging into a plumbing fixture, interceptor, or receptacle that is directly connected to the drainage system would best meet the definition of?
- A. Storm Water Pipe
- B. Indirect Waste Pipe
- C. Sewer Waste Pipe
- D. Individual Waste Pipe

97. What is the process of obtaining a gastight joint by the joining of metal parts in the plastic molten state?
- A. Joint, Fusion
- B. Joint, Welded
- C. Joint, Brazed
- D. Joint, Soldered

98. What is not included with regards to industrial waste?
- A. Treated sewage
- B. Chemical Wastes
- C. Corrosive Wastes
- D. Domestic sewage

99. What is the process of joining metal parts with alloys that melt at temperatures exceeding 840°F known as?
- A. Joint, Brazed
- B. Joint, Welded
- C. Joint, Soldered
- D. Joint, Fusion

100. What best defines a device designed to separate and retain deleterious, hazardous, or undesirable matter from normal wastes and also permits normal sewage or liquid wastes to discharge into the disposal terminal by gravity?
- A. Back flow Preventer
- B. Indirect Waste Pipe Ionizer
- C. Interceptor (Clarifier)
- D. Receptor

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1.	A B C D	26.	A B C D	51.	A B C D	76.	A B C D
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4.	A B C D	29.	A B C D	54.	A B C D	79.	A B C D
5.	A B C D	30.	A B C D	55.	A B C D	80.	A B C D
6.	A B C D	31.	A B C D	56.	A B C D	81.	A B C D
7.	A B C D	32.	A B C D	57.	A B C D	82.	A B C D
8.	A B C D	33.	A B C D	58.	A B C D	83.	A B C D
9.	A B C D	34.	A B C D	59.	A B C D	84.	A B C D
10.	A B C D	35.	A B C D	60.	A B C D	85.	A B C D
11.	A B C D	36.	A B C D	61.	A B C D	86.	A B C D
12.	A B C D	37.	A B C D	62.	A B C D	87.	A B C D
13.	A B C D	38.	A B C D	63.	A B C D	88.	A B C D
14.	A B C D	39.	A B C D	64.	A B C D	89.	A B C D
15.	A B C D	40.	A B C D	65.	A B C D	90.	A B C D
16.	A B C D	41.	A B C D	66.	A B C D	91.	A B C D
17.	A B C D	42.	A B C D	67.	A B C D	92.	A B C D
18.	A B C D	43.	A B C D	68.	A B C D	93.	A B C D
19.	A B C D	44.	A B C D	69.	A B C D	94.	A B C D
20.	A B C D	45.	A B C D	70.	A B C D	95.	A B C D
21.	A B C D	46.	A B C D	71.	A B C D	96.	A B C D
22.	A B C D	47.	A B C D	72.	A B C D	97.	A B C D
23.	A B C D	48.	A B C D	73.	A B C D	98.	A B C D
24.	A B C D	49.	A B C D	74.	A B C D	99.	A B C D
25.	A B C D	50.	A B C D	75.	A B C D	100.	A B C D

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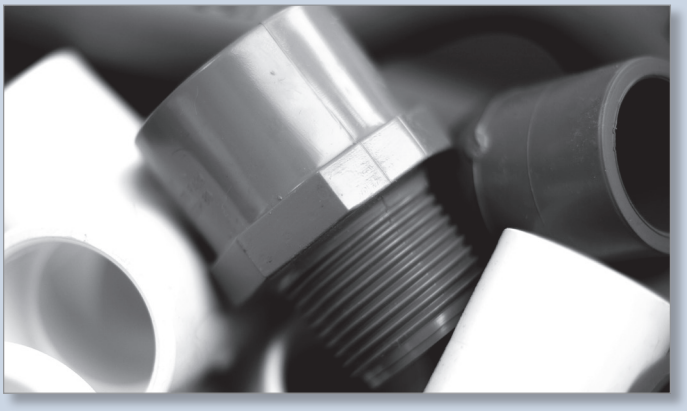


(Moved) 701.3.1 Screwed Pipe. Fittings on screwed pipe shall be of the recessed drainage type. Burred ends shall be reamed to the full bore of the pipe.

(Moved) 701.3.2 Threads. The threads of drainage fittings shall be tapped so as to allow 1⁄4 inch per foot (20.8 mm/m) grade.

(Moved) 701.3.3 Type. Fittings used for drainage shall be of the drainage type, have a smooth interior water-way, and be constructed so as to allow 1⁄4 inch per foot (20.8 mm/m) grade.

(Moved/Revised) 701.5 lead. (See Table 1401.1) Sheet lead shall be not less than the following:

(1) For safe pans – not less than 4 pounds per square foot lb/ft2 (19 kg/m2) or 1⁄16 of an inch (1.6 mm) thick.

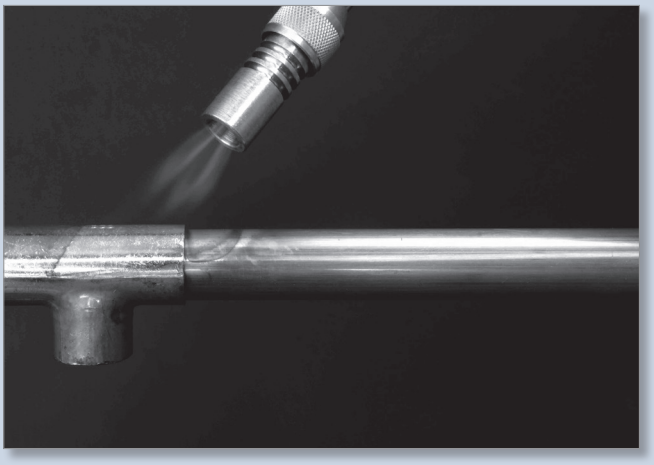
(2) For flashings or vent terminals – not less than 3 lb/ft2 (15 kg/m2) or 0.0472 of an inch (1.1989 mm) thick.

(3) Lead bends and lead traps shall be not less than 1⁄8 of an inch (3.2 mm) wall thickness.

705.1.2 Solvent Cement Joints. Solvent cement joints for ABS pipe and fittings shall be clean from dirt and moisture. Pipe shall be cut square and shall be deburred. Where surfaces to be joined are cleaned and free of dirt, moisture, oil, and other foreign material, solvent cement in accordance with ASTM D 2235 shall be applied to all joint surfaces. Joints shall be made while both the inside socket surface and outside surface of pipe are wet with solvent cement. Hold joint in place and undisturbed for 1 minute after assembly.

705.1.3 Threaded Joints. Threads shall comply with ASME B1.20.1. A minimum of Schedule 80 shall be permitted to be threaded. Molded threads on adapter fittings for transition to threaded joints shall be permitted. Thread sealant compound shall be applied to male threads, insoluble in water, and nontoxic. The joint between the pipe and transition fitting shall be of the solvent cement type. Caution shall be used during assembly to prevent over tightening of the ABS components once the thread sealant compound has been applied.

705.3.1 Brazed Joints. Brazed joints between brass pipe and fittings shall be made with brazing alloys having a liquid temperature above 1000°F (538°C). The joint surfaces to be brazed shall be cleaned bright by either manual or mechanical means. Pipe shall be cut square and reamed to full inside diameter. Brazing flux shall be applied to the joint surfaces where required by manufacturer's recommendation. Brazing filler metal in accordance with AWS A5.8 shall be applied at the point where the pipe or tubing enters the socket of the fitting.



(Moved) 705.3.2 Mechanical Joints. Mechanical joints in copper or copper alloy piping shall be made with a mechanical coupling with grooved end piping or approved joint designed for the specific application.

(Moved) 705.3.4 Threaded Joints. Threaded joints shall be made with pipe threads in accordance with ASME B1.20.1. Thread sealant tape or compound shall be applied only on male threads, and such material shall be of approved types, insoluble in water, and nontoxic.

(Moved) 705.3.1 brazed Joints. Brazed joints between copper or copper alloy pipe and fittings shall be made with brazing alloys having a liquid temperature above

1000°F (538°C). The joint surfaces to be brazed shall be cleaned bright by either manual or mechanical means. Piping shall be cut square and reamed to full inside diameter. Brazing flux shall be applied to the joint surfaces where required by manufacturer's recommendation. Brazing filler metal in accordance with AWS A5.8 shall be applied at the point where the pipe or tubing enters the socket of the fitting.

(Moved) 705.3.3 Soldered Joints. Soldered joints between copper pipe and fittings shall be made in accordance with ASTM B 828 with the following sequence of joint preparation and operation as follows: measuring and cutting, reaming, cleaning, fluxing, assembly and support, heating, applying the solder, cooling, and cleaning. Pipe shall be cut square and reamed to the full inside diameter including the removal of burrs on the outside of the pipe. Surfaces to be joined shall be cleaned bright by manual or mechanical means. Flux shall be applied to pipe and fittings and shall be in accordance with ASTM B 813, and shall become noncorrosive and nontoxic after soldering. Insert pipe into the base of the fitting and remove excess flux. Pipe and fitting shall be supported to ensure a uniform capillary space around the joint. Heat shall be applied using an air or fuel torch with the flame perpendicular to the pipe using acetylene or an LP gas. Preheating shall depend on the size of the joint. The flame shall be moved to the fitting cup and alternate between the pipe and fitting. Solder in accordance with ASTM B 32 shall be applied to the joint surfaces until capillary action draws the molten solder into the cup. Joint surfaces shall not be disturbed until cool and any remaining flux residue shall be cleaned.

Exam Questions:

1. The fittings on screwed drainage pipe are required to be of the _____.
- A. Recessed drainage type
- B. Smooth Bore type
- C. Corrosion resistant type
- D. Fiberglass reinforced type

2. Threaded drainage fittings are required to be tapped to allow _____ per foot grade.
- A. 5/8″
- B. 1⁄4″
- C. 1/8″
- D. No requirement

3. What is the minimum acceptable thickness for the lead used when making a safe pan?
- A. 1/4"
- B. 1/8″
- C. 1/32″
- D. 1/16″

4. What are the mechanical joints in copper alloy piping required to be made with?
- A. Mechanical Coupling
- B. Solid Rubber gasket
- C. Expandable Coupling
- D. Irreversible Threads

5. How long are you required to leave ABS joints undisturbed after they are glued?
- A. 1 Minute
- B. 20 Minutes
- C. 5 Minutes
- D. There are no time requirements

6. What is the minimum schedule that ABS threaded fittings can be made from?
- A. 40
- B. 80
- C. 60
- D. 20

7. What is the minimum listed temperature for liquid brazing alloys?
- A. 900°C
- B. 538°F
- C. 1000°F
- D. 500-550°F

8. If using thread sealant compound for brass fittings, the compound can only be placed on the _____.
- A. Sealant compound cannot be used for brass fittings
- B. Female end
- C. Coupling
- D. Male threads

9. Brazing filler metal should be applied where the pipe enters the _____.

A. Socket of the fitting
B. Valve body
C. Fixture
D. Hand valve

10. What ASTM B are you required to reference for soldered joints between copper pipe and fittings?

A. 728
B. 813
C. 32
D. 828

11. What ASTM B are you required to reference for Flux applied to pipe and fittings?

A. 813
B. 828
C. 32
D. 728

12. What ASTM B are you required to reference for solder used with copper pipe and fittings?

A. 828
B. 32
C. 813
D. 728

(Moved/Revised) 705.6 Galvanized Steel Pipe and Joints. Joining methods for galvanized steel pipe and fittings shall be installed in accordance with the manufacturer's installation instructions and shall comply with Section 705.4.1 and Section 705.4.2.

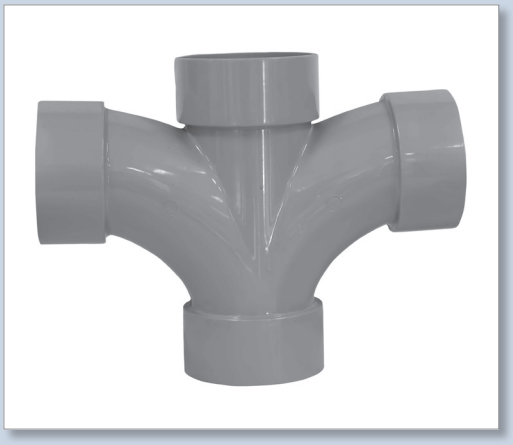
(Moved) 705.4.1 Mechanical Joints. Mechanical joints shall be made with an elastomeric gasket.

(Moved) 705.4.2 Threaded Joints. Threaded joints shall be made with pipe threads in accordance with ASME B1.20.1. Thread sealant tape or compound shall be applied only on male threads, and such material shall be of approved types, insoluble in water, and nontoxic.

(Moved) 705.5.1 Mechanical Joints. Mechanical joints shall be designed to provide a permanent seal and shall be of the mechanical or push-on joint type. The push-on joint shall include an elastomeric gasket in accordance with ASTM D 3212 and shall provide a compressive force against the spigot and socket after assembly to provide a permanent seal.

(Moved) 705.5.2 Solvent Cement Joints. Solvent cement joints for PVC pipe and fittings shall be clean from dirt and moisture. Pipe shall be cut square and pipe shall be deburred. Where surfaces to be joined are cleaned and free of dirt, moisture, oil, and other foreign material, apply primer purple in color in accordance with ASTM F 656. Primer shall be applied until the surface of the pipe and fitting is softened. Solvent cements in accordance with ASTM D 2564 shall be applied to all joint surfaces. Joints shall be made while both the inside socket surface and outside surface of pipe are wet with solvent cement. Hold joint in place and undisturbed for 1 minute after assembly.

(Moved/Revised) 705.9.2 Copper or Copper Alloy Pipe to Threaded Pipe Joints. Joints from copper or copper alloy pipe or tubing to threaded pipe shall be made by the use of a listed copper alloy adapter or dielectric fitting. The joint between the copper or copper alloy pipe and the fitting shall be a soldered or brazed, and the connection between the threaded and the fittings shall be made with a standard pipe size threaded joint.



706.0 Changes in Direction of Drainage Flow.

706.1 Approved Fittings. Changes in direction of drainage piping shall be made by the appropriate use of approved fittings and shall be of the angles presented by a one-sixteenth bend, one-eighth bend, or one-sixth bend, or other approved fittings of equivalent sweep.

706.2 Horizontal to Vertical. Horizontal drainage lines, connecting with a vertical stack, shall enter through 45 degree (0.79 rad) wye branches, 60 degree (1.05 rad) wye branches, combination wye and one-eighth bend branches, sanitary tee or sanitary tapped tee branches, or other approved fittings of equivalent sweep. No fitting having more than one inlet at the same level shall be used unless such fitting is constructed so that the discharge from one inlet cannot readily enter any other inlet. Double sanitary tees shall be permitted to be used where the barrel of the fitting is not less than two pipe sizes larger than the largest inlet, (pipe sizes recognized for this purpose are 2 inches, 21⁄2 inches, 3 inches, 31⁄2 inches, 4 inches, 41⁄2 inches, 5 inches, 6 inches, etc.) (50, 65, 80, 90, 100, 115, 125, 150 mm, etc.).

707.0 Cleanouts.

707.1 Plug. Each cleanout fitting for cast-iron pipe shall consist of a cast-iron or brass body and an approved plug. Each cleanout for galvanized wrought-iron, galvanized steel, copper, or brass pipe shall consist of a brass plug as specified in Table 707.1, or a standard weight brass cap, or an approved ABS or PVC plastic plug, or an approved stainless steel cleanout or plug. Plugs shall have raised square heads or approved countersunk rectangular slots.

(Revised) 707.3 Watertight and Gastight. Cleanouts shall be designed to be watertight and gastight.

Exam Questions:

13. Galvanized Steel Pipe and Joints are required to be joined by _____.
- A. 705.6.2
- B. 705.6.1
- C. The manufacturer's instructions
- D. All listed answers

14. What ASTM are you required to reference for pipe threads and fittings used with galvanized steel pipe?
- A. 32
- B. 813
- C. B1.20.1
- D. 728

15. A push-on joint for PVC pipe should provide _____.
- A. Easy access
- B. A permanent seal
- C. An attachment point
- D. All listed answers

16. PVC joint primer is required to comply with _____.
- A. ASTM F 656
- B. ASME B1.20.1
- C. ASTM B 813
- D. ASTM D 3212

17. What type of fitting should be used to join copper pipe to threaded pipe joints?
- A. Dielectric
- B. Expansion
- C. Push on
- D. All listed answers

18. If changing the direction of drainage piping, the fittings are required to be of what listed standard bend angles?
- A. One-sixth
- B. One-sixteenth
- C. One-eighth
- D. All Listed answers

19. When connecting a horizontal drainage line to a vertical stack, a double sanitary tee can be used where the barrel of the fitting is not less than _____ pipe size(s) larger than the largest inlet.
- A. One
- B. Two
- C. Three
- D. No such requirement

20. What table should you reference to determine the plug needed for a galvanized wrought-iron cleanout?
- A. 707.4
- B. 607.1
- C. 707.1
- D. 706.1

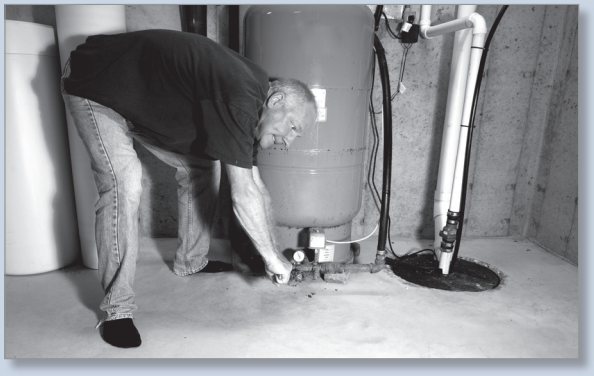
21. Cleanouts are required to be?
- A. B and C
- B. Gas Tight
- C. Water Tight
- D. Pressure activated

707.5 Cleaning. Each cleanout shall be installed so that it opens to allow cleaning in the direction of flow of the soil or waste or at right angles thereto and, except in the case of wye branch and end-of-line cleanouts, shall be installed vertically above the flow line of the pipe.

708.0 Grade of Horizontal Drainage Piping.
708.1 General. Horizontal drainage piping shall be run in practical alignment and a uniform slope of not less than 1⁄4 inch per foot (20.8 mm/m) or 2 percent toward the point of disposal provided that, where it is impractical due to the depth of the street sewer, to the structural features, or to the arrangement of a building or structure to obtain a slope of 1⁄4 inch per foot (20.8 mm/m) or 2 percent, such pipe or piping 4 inches (100 mm) or larger in diameter shall be permitted to have a slope of not less than 1⁄8 inch per foot (10.4 mm/m) or 1 percent, where first approved by the Authority Having Jurisdiction.

710.1 Backflow Protection. Fixtures installed on a floor level that is lower than the next upstream manhole cover of the public or private sewer shall be protected from back- flow of sewage by installing an approved type of backwater valve. Fixtures on such floor level that are not below the next upstream manhole cover shall not be required to be protected by a backwater valve. Fixtures on floor levels above such elevation shall not discharge through the backwater valve. Cleanouts for drains that pass through a backwater valve shall be clearly identified with a permanent label stating, "backwater valve downstream".

(Revised) 710.4 Discharge Line. The discharge line from such ejector, pump, or other mechanical device shall be of an approved pressure rated material and be provided with an accessible backwater or swing check valve and gate or ball valve. Where the gravity drainage line to which such discharge line connects is horizontal, the method of connection shall be from the top through a wye branch fitting. The gate or ball valve shall be located on the discharge side of the backwater or check valve.



Exam Questions:

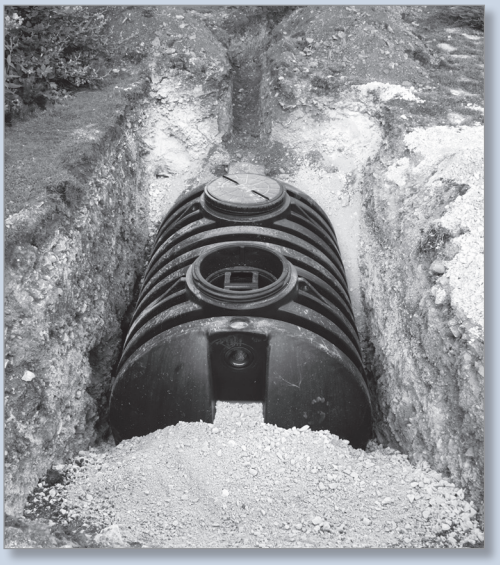
22. True or False? A cleanout shall be installed so that it opens to allow cleaning in the direction of flow.
A. True
B. False

23. What is the minimum uniform slope per foot for horizontal drainage piping to be run?
A. 1⁄8 inch
B. 1⁄4 inch
C. 3⁄16 inch
D. 3⁄8 inch

24. Fixtures that are installed on a floor level that is lower than the next upstream manhole cover of the public or private sewer are required be protected from?
A. Flow Rate
B. Siphonage
C. Pressure
D. Back- flow of sewage

25. The discharge line from a sewage pump needs to have a backwater or swing check valve and gate or ball valve that is?
A. Readily Accessible
B. Accessible
C. Schedule 40 PVC
D. Schedule 80 PVC

710.10 Sump and Receiving Tank Covers and Vents. Sumps and receiving tanks shall be provided with substantial covers having a bolt-and-gasket- type manhole or equivalent opening to permit access for inspection, repairs, and cleaning. The top shall be provided with a vent pipe that shall extend separately through the roof or, where permitted, be combined with other vent pipes. Such vent shall be large enough to maintain atmospheric pressure within the sump under normal operating conditions and, in no case, shall be less in size than that required by Table 703.2 for the number and type of fixtures discharging into the sump, nor less than 1½ inches (40 mm) in diameter. Where the foregoing requirements are met and the vent, after leaving the sump, is combined with vents from fixtures discharging into the sump, the size of the combined vent need not exceed that required for the total number of fixtures discharging into the sump. No vent from an air operating sewage ejector shall combine with other vents.



710.11 Air Tanks. Air tanks shall be so proportioned as to be of equal cubical capacity to the ejectors connected there with in which there shall be maintained an air pressure of not less than 2 pounds per foot (lb/ft) (3 kg/m) of height the sewage is to be raised. No water-operated ejectors shall be permitted.

710.12 Grinder Pump Ejector. Grinder pumps shall be permitted to be used.

710.12.1 Discharge Piping. The discharge piping shall be sized in accordance with the manufacturer's installation instructions and shall be not less than 1¼ inches (32 mm) in diameter. A check valve and full way type shutoff valve shall be located within the discharge line.

712.1 Media. The piping of the plumbing, drainage, and venting systems shall be tested with water or air except that plastic pipe shall not be tested with air. The Authority Having Jurisdiction shall be permitted to require the removal of cleanouts, etc., to ascertain whether the pressure has reached all parts of the system. After the plumbing fixtures have been set and their traps filled with water, they shall be submitted to a final test.

712.2 Water Test. The water test shall be applied to the drainage and vent systems either in its entirety or in sections. Where the test is applied to the entire system, openings in the piping shall be tightly closed, except the highest opening, and the system filled with water to point of overflow. Where the system is tested in sections, each opening shall be tightly plugged, except the highest opening of the section under test, and each section shall be filled with water, but no section shall be tested with less than a 10 foot (3048 mm) head of water. In testing successive sections, not less than the upper 10 feet (3048 mm) of the next preceding section shall be tested, so that no joint or pipe in the building (except the uppermost 10 feet (3048 mm) of the system) shall have been submitted to a test of less than a 10 foot (3048 mm) head of water. The water shall be kept in the system, or in the portion under test, for not less than 15 minutes before inspection starts. The system shall then be tight at points.

712.3 Air Test. The air test shall be made by attaching an air compressor testing apparatus to a suitable opening and, after closing all other inlets and outlets to the system, forcing air into the system until there is a uniform gauge pressure of 5 pounds-force per square inch (psi) (34 kPa) or sufficient to balance a column of mercury 10 inches (34 kPa) in height. The pressure shall be held without introduction of additional air for a period of not less than 15 minutes.

(Moved) 801.2 Air Gap or Air Break Required. Indirect waste piping shall discharge into the building drainage system through an air gap or air break as set forth in this code. Where a drainage air gap is required by this code, the minimum vertical distance as measured from the lowest point of the indirect waste pipe or the fixture outlet to the flood-level rim of the receptor shall be not less than 1 inch (25.4 mm).

(Moved) 801.3.1 Size of Indirect Waste Pipes Except for refrigeration coils and ice-making machines, the size of the indirect waste pipe shall be not smaller than the drain on the unit, but shall be not smaller than 1 inch (25 mm), and the maximum developed length shall not exceed 15 feet (4572 mm). Indirect waste pipe for ice making machines shall be not less than the drain on the unit, and in no case less than 3⁄4 of an inch (20 mm).

Exam Questions:

26. True or False? The vent from an air operating sewage ejector is required to combine with other vents.
A. True
B. False

27. Air tanks are required to be proportioned so they can be of equal _____capacity to any ejectors connected.
A. External
B. Cubical
C. Storage
D. Overage

28. What is the minimum size discharge pipe that can be used for a grinder pump ejector?
A. 1 1⁄4 inches
B. 1 1⁄2 inches
C. 2 inches
D. 3⁄4 inches

29. True or False? Plastic pipe is required to be tested with air before final inspection will pass.
A. True
B. False

30. What is the minimum head of water required for a drainage and vent system water test?
A. 5 foot
B. 15 foot
C. 10 foot
D. No Such requirement

31. How long is a drainage system required to have water in it before an inspection can start?
A. 35 minutes
B. 15 minutes
C. 25 minutes
D. 30 minutes

32. How long is an air test required to be held without adding additional air?
A. 15 minutes
B. 35 minutes
C. 25 minutes
D. 30 minutes

33. Indirect waste piping is required to discharge into the building drainage system through what listed term(s)?
A. B and C
B. Air gap
C. Air break
D. No Requirement

34. What is the minimum size that an indirect waste pipe must be?
A. 1 1/4 inch
B. 3/4 inch
C. 1/2 inch
D. 1 inch

35. What is the minimum size that an indirect waste pipe must be for an ice making machine?
A. 1 inch
B. 3/4 inch
C. 1/2 inch
D. 1 1/4 inch

(Moved) 801.3.2 Walk-In Coolers. For walk-in coolers, floor drains shall be permitted to be connected to a separate drainage line discharging into an outside receptor. The flood-level rim of the receptor shall be not less than 6 inches (152 mm) lower than the lowest floor drain.

Such floor drains shall be trapped and individually vented. Cleanouts shall be provided at 90 degree (1.57 rad) turns and shall be accessibly located. Such waste shall discharge through an air gap or air break into a trapped and vented receptor, except that a full-size air gap is required where the indirect waste pipe is under vacuum.

(Moved) 801.3.3 Food-Handling Fixtures. Food-preparation sinks, steam kettles, potato peelers, ice cream dipper wells, and similar equipment shall be indirectly connected to the drainage system by means of an air gap. Bins, sinks, and other equipment having drainage connections and used for the storage of unpackaged ice used for human ingestion, or used in direct contact with ready-to-eat food, shall be indirectly connected to the drainage system by means of an air gap. Each indirect waste pipe from food-handling fixtures or equipment shall be separately piped to the indirect waste receptor and shall not combine with other indirect waste pipes. The piping from the equipment to the receptor shall be not less than the drain on the unit, and in no case less than 1⁄2 of an inch (15 mm).

(Moved) 801.4 Bar and Fountain Sink Traps. Where the sink in a bar, soda fountain, or counter is so located that the trap serving the sink cannot be vented, the sink drain shall discharge through an air gap or air break (see Section 801.2.3) into an approved receptor that is vented. The developed length from the fixture outlet to the receptor shall not exceed 5 feet (1524 mm).

(Moved) 801.6 Sterilizers. Lines, devices, or apparatus such as stills, sterilizers, and similar equipment requiring waste connections and used for sterile materials shall be indirectly connected by means of an air gap. Each such indirect waste pipe shall be separately piped to the receptor and shall not exceed 15 feet (4572 mm). Such receptors shall be located in the same room.

803.0 Indirect Waste Piping.

(Moved/Revised) 803.3 Pipe Size and Length. Except as hereinafter provided, the size and construction of indirect waste piping shall be in accordance with other sections of this code applicable to drainage and vent piping. No vent from indirect waste piping shall combine with a sewer-connected vent, but shall extend separately to the outside air. Indirect waste pipes exceeding 5 feet (1524 mm), but less than 15 feet (4572 mm) in length shall be directly trapped, but such traps need not be vented.

Indirect waste pipes less than 15 feet (4572 mm) in length shall be not less than the diameter of the drain outlet or tailpiece of the fixture, appliance, or equipment served, and in no case less than 1⁄2 of an inch (15 mm). Angles and changes of direction in such indirect waste pipes shall be provided with cleanouts so as to permit flushing and cleaning.

804.0 Indirect Waste Receptors.

804.1 Standpipe Receptors. Plumbing fixtures or other receptors receiving the discharge of indirect waste pipes shall be approved for the use proposed and shall be of such shape and capacity as to prevent splashing or flooding and shall be located where they are readily accessible for inspection and cleaning. No standpipe receptor for a clothes washer shall extend more than 30 inches (762 mm), or not less than 18 inches (457 mm) above its trap. No trap for a clothes washer standpipe receptor shall be installed below the floor, but shall be roughed in not less than 6 inches (152 mm) and not more than 18 inches (457 mm) above the floor. No indirect waste receptor shall be installed in a toilet room, closet, cupboard, or storeroom, nor in a portion of a building not in general use by the occupants thereof; except standpipes for clothes washers shall be permitted to be installed in toilet and bathroom areas where the clothes washer is installed in the same room.

Exam Questions:

36. The flood-level rim of a receptor cannot be installed less than _____lower than the lowest floor drain.
A. 2 inches
B. 4 inches
C. 8 inches
D. 6 inches

37. Would it be considered acceptable or a violation of this code to combine the indirect waste pipes of equipment used for the storage of unpackaged ice used for human ingestion?
A. Acceptable
B. Violation

38. What is the maximum developed length for a fixture outlet to a receptor being used for a bar sink vent if the trap serving the sink cannot be vented?
A. 8 feet
B. 4 feet
C. 5 feet
D. 2 feet

39. A still that requires a waste connection used for sterile materials must have its waste pipe connected to a receptor at a maximum of _____.
A. 20 feet
B. 10 feet
C. 5 feet
D. 15 feet

40. Would it be considered acceptable or a violation of this code to combine the vent from an indirect waste pipe with a sewer-connected vent?
A. Acceptable
B. Violation

41. An indirect waste pipe that exceeds_____, but less than _____in length is required to be directly trapped.
A. 5 feet, 15 feet
B. 10 feet, 25 feet
C. 7 feet, 18 feet
D. 12 feet, 25 feet

42. What is the maximum distance a standpipe receptor for a clothes washer can extend from its trap?
A. 6 inches
B. 18 inches
C. 24 inches
D. 30 inches

43. What is the minimum distance a standpipe receptor for a clothes washer can extend above its trap?
A. 30 inches
B. 18 inches
C. 24 inches
D. 6 inches

44. What is the minimum distance the trap for a clothes washer standpipe receptor can be roughed in above finish floor?
A. 30 inches
B. 18 inches
C. 24 inches
D. 6 inches

45. What is the maximum distance the trap for a clothes washer standpipe receptor can be roughed in above finish floor?
A. 30 inches
B. 18 inches
C. 24 inches
D. 6 inches

806.0 Sterile Equipment.

806.1 General. Appliances, devices, or apparatus such as stills, sterilizers, and similar equipment requiring water and waste and used for sterile materials shall be drained through an air gap.

(Revised) 807.1 Non-Classed Apparatus. Commercial dishwashing machines and other appliances, devices, equipment, or other apparatus not regularly classed as plumbing fixtures, which are equipped with pumps, drips, or drainage outlets, shall be permitted to be drained by indirect waste pipes discharging into an approved type of open receptor.

(Moved) 807.2 Undiluted Condensate Waste. Where undiluted condensate waste from a fuel-burning condensing appliance is discharged into the drainage system, the material in the drainage system shall be cast-iron, galvanized iron, plastic, or other materials approved for this use.

Exceptions:

(1) Where the above condensate is discharged to an exposed fixture tailpiece and trap, such tailpiece and trap shall be permitted to be brass.

(2) Materials approved in Section 701.0 shall be permitted to be used where data is provided that the condensate waste is adequately diluted.

(Moved) 807.3 Domestic Dishwashing Machine. No domestic dishwashing machine shall be directly connected to a drainage system or food waste disposer without the use of an approved dishwasher air gap fitting on the discharge side of the dishwashing machine. Listed air gaps shall be installed with the flood-level (FL) marking at or above the flood level of the sink or drainboard, whichever is higher.

808.0 Cooling Water.

808.1 General. Where permitted by the Authority Having Jurisdiction, clean running water used exclusively as a cooling medium in an appliance, device, or apparatus shall be permitted to discharge into the drainage system through the inlet side of a fixture trap in the event that a suitable fixture is not available to receive such discharge. Such trap connection shall be by means of a pipe connected to the inlet side of an approved fixture trap, the upper end terminating in a funnel-shaped receptacle set adjacent, and not less than 6 inches (152 mm) above the overflow rim of the fixture.

809.0 Drinking Fountains.

809.1 General. Drinking fountains shall be permitted to be installed with indirect wastes. Page 45 Image

810.0 Steam and Hot Water Drainage Condensers and Sumps.

810.1 High Temperature Discharge. No steam pipe shall be directly connected to a plumbing or drainage system, nor shall water having a temperature above 140°F (60°C) be discharged under pressure directly into a drainage system. Pipes from boilers shall discharge by means of indirect waste piping, as determined by the Authority Having Jurisdiction or the boiler manufacturer's recommendations. Such pipes shall be permitted to be indirectly connected by discharging into an open or closed condenser or an intercepting sump of an approved type that will prevent the entrance of steam or such water under pressure into the drainage system. Closed condensers or sumps shall be provided with a vent that shall be taken off the top and extended separately, full size above the roof. Condensers and sumps shall be properly trapped at the outlet with a deep seal trap extending to within 6 inches (152 mm) of the bottom of the tank. The top of the deep seal trap shall have a 3⁄4 of an inch (19.1 mm) opening located at the highest point of the trap to serve as a siphon breaker. Outlets shall be taken off from the side in such a manner as to allow a waterline to be maintained that will permanently occupy not less than one-half the capacity of the condenser or sump. Inlets shall enter above the waterline.

Wearing plates or baffles shall be installed in the tank to protect the shell. The sizes of the blowoff line inlet, the water outlets, and the vent shall be as shown in Table 810.1. The contents of condensers receiving steam or hot water under pressure shall pass through an open sump before entering the drainage system.

Exam Questions:

46. A sterilizer requiring water and waste and used for sterile materials is required to drain through a (an) _____?
A. Air Gap
B. Closed System
C. Pressurized System
D. Back Flow Preventer

47. An appliance with a pump not regularly classed as plumbing fixture can be drained by an indirect waste pipe into an "approved _____".
A. Open Receptor
B. Floor Drain
C. Lead Pan
D. Filter

48. The drainage system material used for undiluted condensate waste from a fuel-burning condensing appliance must be made out of _____.
A. Plastic
B. Cast-iron
C. Galvanized iron
D. All listed answers

49. Where are you required to install the air gap fitting on a domestic dishwashing machine?
A. Garbage disposal side
B. Inlet side
C. Discharge side
D. No such requirement

50. Where clean running water is used exclusively as a cooling medium for an appliance, the apparatus can be discharge into the drainage system through the _____ of a fixture trap.
A. Discharge side
B. Inlet side
C. Garbage disposal side
D. No such requirement

51. What is the maximum temperature water can be discharged under pressure directly into a drainage system?
A. 90°F
B. 60°F
C. 130°F
D. 140°F

52. A steam pipe can be connected indirectly to a drainage system by discharging into a (an) _____.
A. Intercepting sump
B. Closed condenser
C. Open condenser
D. All listed answers

53. The traps for condensers or sumps used with steam lines are required to extend within _____ of the bottom of the tank.
A. 8 inches
B. 6 inches
C. 4 inches
D. 3 inches

54. What size opening is required for a siphon breaker located at the top of a deep seal trap?
A. 1 inch
B. 1/2 inch
C. 3/4 inch
D. 1/4 inch

810.2 Sumps, Condensers, and Intercepting Tanks. Sumps, condensers, or intercepting tanks that are constructed of concrete shall have walls and bottom not less than 4 inches (102 mm) in thickness, and the inside shall be cement plastered not less than 1⁄2 of an inch (12.7 mm) in thickness. Condensers constructed of metal shall be not less than No. 12 U.S. standard gauge (0.109 inch) (2.77 mm), and such metal condensers shall be protected from external corrosion by an approved bituminous coating.

810.4 Strainers. An indirect waste interceptor receiving discharge-containing particles that would clog the receptor drain shall have a readily removable beehive strainer.

811.0 Chemical Wastes.

811.1 Pretreatment. Chemical or industrial liquid wastes that are likely to damage or increase maintenance costs on the sanitary sewer system, detrimentally affect sewage treatment, or contaminate surface or subsurface waters shall be pretreated to render them innocuous prior to discharge into a drainage system. Detailed plans and specifications of the pretreatment facilities shall be required by the Authority Having Jurisdiction. Piping conveying industrial, chemical, or process wastes from their point of origin to sewer-connected pretreatment facilities shall be of such material and design as to adequately perform its intended function to the satisfaction of the Authority Having Jurisdiction. Drainage discharge piping from pretreatment facilities or interceptors shall be in accordance with standard drainage installation procedures. Copper tube shall not be used for chemical or industrial wastes as defined in this section.

(Revised) 811.2 Waste and Vent Pipes. Each waste pipe receiving or intended to receive the discharge of a fixture into which acid or corrosive chemical is placed, and each vent pipe connected thereto, shall be constructed of Chlorinated Poly(vinyl-chloride) (CPVC), Polypropylene (PP), Polyvinylidene Fluoride (PVDF), chemical-resistant glass, high-silicon iron pipe, or lead pipe with a wall thickness of not less than 1⁄8 of an inch (3.2 mm); an approved type of ceramic glazed or unglazed vitrified clay; or other approved corrosion-resistant materials. PP pipe and fittings shall comply with ASTMF1412 or CSA B181.3. Chemical-resistant glass pipe and fittings shall comply with ASTM C1053. High-silicon iron pipe and fittings shall comply with ASTM A861.

811.8 Diluted Chemicals. The provisions in this section relative to materials and methods of construction shall not apply to installations such as photographic or x-ray dark rooms or research or control laboratories where minor amounts of adequately diluted chemicals are discharged.

812.0 Clear Water Wastes.

812.1 General. Water lifts, expansion tanks, cooling jackets, sprinkler systems, drip or overflow pans, or similar devices that discharge clear wastewater into the building drainage system shall discharge through an indirect waste.

813.0 Swimming Pools.

813.1 General. Pipes carrying wastewater from swimming or wading pools, including pool drainage and backwash from filters, shall be installed as an indirect waste. Where a pump is used to discharge waste pool water to the drainage system, the pump discharge shall be installed as an indirect waste.

814.0 Condensate Wastes and Control.

(Revised) 814.1 Condensate Disposal. Condensate from air washers, air-cooling coils, fuel-burning condensing appliances, the overflow from evaporative coolers, and similar water-supplied equipment or similar air-conditioning equipment shall be collected and discharged to an approved plumbing fixture or disposal area. Where discharged into the drainage system, equipment shall drain by means of an indirect waste pipe. The waste pipe shall have a slope of not less than 1⁄8 inch per foot (10.4 mm/m) or 1 percent slope and shall be of approved corrosion-resistant material not smaller than the outlet size in accordance with Section 814.3 or Section 814.4 for air cooling coils or condensing appliances, respectively. Condensate or wastewater shall not drain over a public way.

Exam Questions:

55. What is the minimum slope per foot that an indirect waste pipe for air-conditioning equipment is required to have?
A. 1/16
B. 1⁄8
C. 3/8
D. 1/4

56. Condensate is never allowed to drain _____.
A. By means of a direct waste pipe
B. By means of an indirect waste pipe
C. Over a public way
D. No special requirement

57. What is the minimum required thickness of an intercepting tanks sidewalls and bottom constructed of concrete?
A. 6 inches
B. 8 inches
C. 4 inches
D. 3 inches

58. What type of coating is required for a condenser constructed of metal?
A. Bituminous
B. Charcoal
C. Ceramic
D. Substantive

59. What type of strainer is required for an indirect waste interceptor receiving discharge-containing particles that would clog the receptor drain?
A. Beehive
B. Clear
C. Elongated
D. Compact

60. What is the minimum required wall thickness for lead pipe venting chemical waste?
A. 3/16 inch
B. 1/16 inch
C. 1/4 inch
D. 1/8 inch

61. An expansion tank can discharge its clear water waste through a (an) _____ waste pipe to the drainage system.
A. Direct connected
B. Indirect
C. Treated
D. All listed answers

901.0 General.

(Moved) 901.2 Vents Required. Each plumbing fixture trap, except as otherwise provided in this code, shall be protected against siphonage and backpressure, and air circulation shall be ensured throughout all parts of the drainage system by means of vent pipes installed in accordance with the requirements of this chapter and as otherwise required by this code.

(Moved) 901.3 Trap Seal Protection. The vent system shall be designed to prevent a trap seal from being exposed to a pressure differential that exceeds 1 inch water column (0.24 kPa) on the outlet side of the trap.

902.0 Vents Not Required.

902.1 Interceptor. Vent piping shall be permitted to be omitted on an interceptor where such interceptor acts as a primary settling tank and discharges through a horizontal indirect waste pipe into a secondary interceptor. The second interceptor shall be properly trapped and vented.

902.2 Bars, Soda Fountains, and Counter. Traps serving sinks that are part of the equipment of bars, soda fountains, and counters need not

be vented where the location and construction of such bars, soda fountains, and counters is such as to make it impossible to do so. Where such conditions exist, said sinks shall discharge by means of approved indirect waste pipes into a floor sink or other approved type of receptor.

(Moved/Revised) 903.2.3 Marking. Copper or copper alloy tubing, in addition to the required incised marking, shall be marked in accordance with either ASTM B 306 or ASTM B 88 as listed in Table 1701.1. The colors shall be: Type K, green; Type L, blue; Type M, red; and Type DWV, yellow.

903.3 Changes in Direction. Changes in direction of vent piping shall be made by the appropriate use of approved fittings, and no such pipe shall be strained or bent. Burred ends shall be reamed to the full bore of the pipe.

Exam Questions:

62. All plumbing fixture traps are required to be protected from?
- A. Poor air circulation
- B. Siphonage
- C. Backpressure
- D. All listed answers

63. What is the maximum pressure differential that a trap seal should be exposed to?
- A. 1/3 inch water column
- B. 1/2 inch water column
- C. 1 inch water column
- D. 3/4 inch water column

64. What color is type K hard-drawn copper tubing required to be?
- A. Green
- B. Blue
- C. Red
- D. Yellow

65. What color is type L hard-drawn copper tubing required to be?
- A. Green
- B. Blue
- C. Red
- D. Yellow

66. What color is type M hard-drawn copper tubing required to be?
- A. Green
- B. Blue
- C. Red
- D. Yellow

67. What color is type DWV copper drainage tube required to be?
- A. Green
- B. Blue
- C. Red
- D. Yellow

68. Vent pipe is required to be _____.
- A. Strained
- B. Bent
- C. De-Burred
- D. All listed answers

904.0 Size of Vents.

904.1 Size. The size of vent piping shall be determined from its length and the total number of fixture units connected thereto, in accordance with Table 703.2. The diameter of an individual vent shall be not less than 1¼ inches (32 mm) nor less than one-half the diameter of the drain to which it is connected. In addition, the drainage piping of each building and each connection to a public sewer or a private sewage disposal system shall be vented by means of one or more vent pipes, the aggregate cross sectional area of which shall be not less than that of the largest required building sewer, as determined from Table 703.2. Vent pipes from fixtures

located upstream from pumps, ejectors, backwater valves, or other devices that obstruct the free flow of air and other gases between the building sewer and the outside atmosphere shall not be used for meeting the cross-sectional area venting requirements of this section.

905.0 Vent Pipe Grades and Connections.

905.1 Grade. Vent and branch vent pipes shall be free from drops or sags, and each such vent shall be level or shall be so graded and connected as to drip back by gravity to the drainage pipe it serves.

905.2 Horizontal Drainage Pipe. Where vents connect to a horizontal drainage pipe, each vent pipe shall have its invert taken off above the drainage centerline of such pipe downstream of the trap being served.

905.3 Vent Pipe Rise. Unless prohibited by structural conditions, each vent shall rise vertically to a point not less than 6 inches (152 mm) above the flood-level rim of the fixture served before offsetting horizontally, and where two or more vent pipes converge, each such vent pipe shall rise to a point not less than 6 inches (152 mm) in height above the flood-level rim of the plumbing fixture it serves before being connected to any other vent. Vents less than 6 inches (152 mm) above the flood-level rim of the fixture shall be installed with approved drainage fittings, material, and grade to the drain.

905.4 Roof Termination. Vent pipes shall extend undiminished in size above the roof, or shall be reconnected with a soil or waste vent of proper size.

906.0 Vent Termination.

906.1 Roof Termination. Each vent pipe or stack shall extend through its flashing and shall terminate vertically not less than 6 inches (152 mm) above the roof nor less than 1 foot (305 mm) from a vertical surface.

906.2 Clearance. Each vent shall terminate not less than 10 feet (3048 mm) from, or not less than 3 feet (914 mm) above, an openable window, door, opening, air intake, or vent shaft, or not less than 3 feet (914 mm) in every direction from a lot line, alley and street excepted.

Exam Questions:

69. How do you determine the size of vent piping?
- A. Total length
- B. Table 703.2
- C. Total number of fixtures connected
- D. All listed answers

70. What is the minimum diameter allowed by this code for an individual vent pipe?
- A. 1 inch
- B. 1 1⁄4 inches
- C. 1 1/2 inches
- D. 2 inch

71. Vent and branch vent pipes are required to be free from _____.
- A. Drops
- B. Sags
- C. Bows
- D. All listed answers

72. Each vent pipe that connects to a horizontal drainage pipe is required to have its _____ taken off above the drainage centerline of such pipes downstream of the trap being served.
- A. Ejector
- B. Offset
- C. Invert
- D. Connection

73. As a general rule, each vent is required to rise vertically to a minimum point no less than _____ above the flood-level rim of the fixture served before offsetting horizontally.

A. 5 inches
B. 6 inches
C. 3 inches
D. 2 inches

74. Vents less than _____ above the flood-level rim of a fixture are required to be installed with approved drainage fittings, material, and grade to the drain.

A. 6 inches
B. 4 inches
C. 2 inches
D. All listed answers

75. Vent pipes are required to extend undiminished in size above the _____.

A. Receptor
B. Trap
C. Roof
D. Horizontal plane

76. A vent pipe is required to extend through its flashing and terminate vertically at a minimum of _____ above the roof.

A. 3 inches
B. 5 inches
C. 6 inches
D. 2 inches

77. What is the minimum distance a vent can terminate in every direction from a lot line, alley and street excepted?

A. 3 feet
B. 10 feet
C. 5 feet
D. 6 feet

(Revised) 906.3 Use of Roof. Vent pipes shall be extended separately or combined, of full required size, not less than 6 inches (152 mm) above the roof or fire wall. Flagpoling of vents shall be prohibited except where the roof is used for assembly purposes or parking. Vents within 10 feet (3048 mm) of a part of the roof that is used for such other purposes shall extend not less than 7 feet (2134 mm) above such roof and shall be securely stayed.

906.4 Outdoor Installations. Vent pipes for outdoor installations shall extend not less than 10 feet (3048 mm) above the surrounding ground and shall be securely supported.

906.6 Lead. (See Table 1401.1) Sheet lead shall be not less than the following:

(1) For safe pans – not less than 4 pounds per square foot (lb/ft2) (19 kg/m2) or 1⁄16 of an inch (1.6 mm) thick.

(2) For flashings or vent terminals – not less than 3 lb/ft2 (15 kg/m2).

(3) Lead bends and lead traps shall be not less than 1⁄8 of an inch (3.2 mm) wall thickness.

906.7 Frost or Snow Closure. Where frost or snow closure is likely to occur in locations having minimum design temperature below 0°F (-17.8°C), vent terminals shall be not less than 2 inches (50 mm) in diameter, but in no event smaller than the required vent pipe. The change in diameter shall be made inside the building not less than 1 foot (305 mm) below the roof in an insulated space and terminate not less than 10 inches (254 mm) above the roof, or in accordance with the Authority Having Jurisdiction.

907.0 Vent Stacks and Relief Vents.

(Revised) 907.1 Drainage Stack. Each drainage stack that extends 10 or more stories shall be served by a parallel vent stack, which shall extend undiminished in size from its upper terminal and connect to the drainage stack at or

immediately below the lowest fixture drain. Each such vent stack shall also be connected to the drainage stack at each fifth floor, counting down from the uppermost fixture drain, by means of a yoke vent, the size of which shall be not less in diameter than either the drainage or the vent stack, whichever is smaller. Page 52 Image

907.2 Yoke Vent. The yoke vent connection to the vent stack shall be placed not less than 42 inches (1067 mm) above the floor level, and the yoke vent connection to the drainage stack shall be by means of a wye-branch fitting placed below the lowest drainage branch connection serving that floor.

908.0 Wet Venting.

908.1 Vertical Wet Venting. Wet venting is limited to vertical drainage piping receiving the discharge from the trap arm of one and two fixture unit fixtures that also serves as a vent not exceeding four fixtures. Wet-vented fixtures shall be within the same story; provided, further, that fixtures with a continuous vent discharging into a wet vent shall be within the same story as the wet-vented fixtures. No wet vent shall exceed 6 feet (1829 mm) in developed length.

908.1.1 Size. The vertical piping between two consecutive inlet levels shall be considered a wet-vented section. Each wet-vented section shall be not less than one pipe size exceeding the required minimum waste pipe size of the upper fixture or shall be one pipe size exceeding the required minimum pipe size for the sum of the fixture units served by such wet-vented section, whichever is larger, but in no case less than 2 inches (50 mm).

Exam Questions:

78. What is the minimum height vent pipes are required to extend above a fire wall?

A. 6 inches
B. 5 inches
C. 3 inches
D. 2 inches

79. A vent pipe used for outdoor installations is required to extend to a minimum height of _____ above the surrounding ground.

A. 3 feet
B. 10 feet
C. 5 feet
D. 6 feet

80. What is the minimum required thickness for a lead safe pan?

A. 1/4 of an inch
B. 1/8 of an inch
C. 1/16 of an inch
D. 3/16 of an inch

81. What is the minimum required wall thickness for a lead trap?

A. 1/16 of an inch
B. 1/8 of an inch
C. 1/4 of an inch
D. 3/16 of an inch

82. What is the minimum size vent terminal required where frost or snow closure is likely to occur?

A. 1 1/4 inches
B. 1 inch
C. 1 1/2 inches
D. 2 inch

83. If a vent stack extends 10 or more stories above a building drain, it is required to be served by a _____.

A. Parallel vent stack
B. Guide wire system
C. Horizontal support system
D. Lateral movement damper

84. The yoke vent connection to the drainage stack is required to be made by means of a _____ fitting placed below the lowest drainage branch connection serving that floor.

A. Sanitary cross
B. Closet bend
C. Cap reducer
D. Wye-branch

85. What is the allowable maximum developed length for a wet vent?

A. 3 feet
B. 10 feet
C. 5 feet
D. 6 feet

86. What best defines the vertical piping between two consecutive inlet levels?

A. Wet-vented section
B. Yoke vent
C. Drainage stack
D. Parallel vent stack

(New) 908.2 Horizontal Wet Venting for A Bathroom Group. A bathroom group located on the same floor level shall be permitted to be vented by a Horizontal wet vent where all the conditions of section 908.2.1 through Section 908.2.5 are met.

(Revised) 908.2.1 Vent Connection. The dry vent connection to the wet vent shall be an individual vent for the bidet, shower, or bathtub. One or two vented lavatory(s) shall be permitted to serve as a wet vent for a bathroom group. Only one wet-vented fixture drain or trap arm shall discharge upstream of the dry-vented fixture drain connection. Dry vent connections to the horizontal wet vent shall be in accordance with section 905.2 and section 905.3

908.2.2 Size. The wet vent shall be sized based on the fixture unit discharge into the wet vent. The wet vent shall be not less than 2 inches (50 mm) in diameter for 4 drainage fixture units (dfu) or less, and not less than 3 inches (80 mm) in diameter for 5 dfu or more. The dry vent shall be sized in accordance with Table 702.1 and Table 703.2 based on the total fixture units discharging into the wet vent.

(New) 908.2.3 Trap Arm. The length of the trap arm shall not exceed the limits in Table 1002.2. The trap size shall be in accordance with section 1003.3. The vent pipe opening from the horizontal wet vent, except for water closets and similar fixtures, shall not be below the weir of the trap.

(New 908.2.5 Additional Fixtures. Additional fixtures shall discharge downstream of the wet vent system and be conventionally vented. Only the fixtures within the bathroom group shall connect to the wet vented horizontal branch.

Exam Questions:

87. A dry vent connection to the wet vent is required to be an individual vent for which listed fixture(s)?

A. Bathtub
B. Bidet
C. Shower
D. All listed answers

88. What can one or two vented lavatory(s) serve as for a bathroom group?

A. A common vent
B. A trap
C. A wet vent
D. All listed answers

89. What table should be referenced to determine the maximum length of a trap arm?

A. 703.2
B. 1002.2
C. 702.1
D. 908.21

90. How many wet-vented fixture trap arms can discharge upstream of a dry-vented fixture drain connection?

A. 1
B. 2
C. Unlimited
D. This type of connection is not allowed

91. What is the minimum size required diameter wet vent for 4 drainage fixture units?

A. 1 1/4 inches
B. 3 inch
C. 1 1/2 inches
D. 2 inch

92. What is the minimum size required diameter wet vent for 5 drainage fixture units?

A. 1 1/4 inches
B. 3 inch
C. 1 1/2 inches
D. 2 inch

93. A dry vent is required to be sized in accordance with what listed table(s)?

A. 701.2
B. 702.1
C. B and D
D. 703.2

909.0 Special Venting for Island Fixtures.

909.1 General. Traps for island sinks and similar equipment shall be roughed in above the floor and shall be permitted to be vented by extending the vent as high as possible, but not less than the drain-board height and then returning it downward and connecting it to the horizontal sink drain immediately downstream from the vertical fixture drain. The return vent shall be connected to the horizontal drain through a wye-branch fitting and shall, in addition, be provided with a foot vent taken off the vertical fixture vent by means of a wye branch immediately below the floor and extending to the nearest partition and then through the roof to the open air, or shall be permitted to be connected to other vents at a point not less than 6 inches (152 mm) above the flood-level rim of the fixtures served. Drainage fittings shall be used on the vent below the floor level, and a slope of not less than 1/4 inch per foot (20.8 mm/m) back to the drain shall be maintained. The return bend used under the drain-board shall be a one piece fitting or an assembly of a 45 degree (0.79 rad), a 90 degree (1.57 rad), and a 45 degree (0.79 rad) elbow in the order named. Pipe sizing shall be as elsewhere required in this code. The island sink drain, upstream of the returned vent, shall serve no other fixtures. An accessible cleanout shall be installed in the vertical portion of the foot vent.

910.0 Combination Waste and Vent Systems.

910.1 Where Permitted. Combination waste and vent systems shall be permitted where structural conditions preclude the installation of conventional systems as otherwise prescribed by this code.

910.2 Approval. Plans and specifications for each combination waste and vent system shall first be approved by the Authority Having Jurisdiction before a portion of such system is installed.

910.3 Vents. Each combination waste and vent system, as defined in Chapter 2, shall be provided with a vent or vents adequate to ensure free circulation of air. A branch exceeding 15 feet (4572 mm) in length shall be separately vented in an approved manner. The area of a vent installed in a combination waste and vent system shall be not less than one-half the inside cross-sectional area of the drain pipe served. The vent connection shall be downstream of the uppermost fixture.

910.5 Vertical Waste Pipe. No vertical waste pipe shall be used in such a system, except the tailpiece or connection between the outlet of a plumbing fixture and the trap. Such tailpieces or connections shall be as short as possible, and in no case shall exceed 2 feet (610 mm).

910.4 Size. Each waste pipe and each trap in a combination system shall be not less than two pipe sizes exceeding the sizes required by Chapter 7 of this code, and not less than two pipe sizes exceeding a fixture tailpiece or connection.

910.6 Cleanouts. An accessible cleanout shall be installed in each vent for the combination waste and vent system. Cleanouts shall not be required on a wet-vented branch serving a single trap where the fixture tailpiece or connection is not less than 2 inches (50 mm) in diameter and provides ready access for cleaning through the trap.

Exam Questions:

94. Drainage fittings used with island fixtures are required to maintain a minimum slope of _____ per foot back to its drain.

A. 5/16 inch
B. 1/8 inch
C. 1/16 inch
D. 1⁄4 inch

95. The return bend used under the drain-board for island fixtures is required to be a one-piece fitting or an assembly of a _____, a _____, and a _____ elbow in the order named.

A. 45°, 95°, 45°
B. 90°, 90°, 45°
C. 45°, 90°, 45°
D. 22 1/2°, 90°, 22 1/2°

96. An island sink drain upstream of the returned vent can serve how many additional fixtures?

A. 1
B. 0
C. 4
D. 2

97. Who needs to approve the plans for a combination waste and vent system?

A. Mechanical engineer
B. Authority Having Jurisdiction
C. Structural Engineer
D. All listed answers

98. A combination branch exceeding _____ is required to be separately vented in an approved manner.

A. 15 feet
B. 20 feet
C. 50 feet
D. 10 feet

99. What is the minimum required area for a vent installed in a combination waste and vent system?

A. Three times the inside cross-sectional area of the drain pipe served
B. Twice the inside cross-sectional area of the drain pipe served
C. One-half the inside cross-sectional area of the drain pipe served
D. Two-thirds the inside cross-sectional area of the drain pipe served

100. The minimum size waste pipe for a combination system is required to be _____than the fixture's tailpiece.

A. One pipe size larger
B. Two pipe sizes larger
C. Equal to, and in no case smaller
D. Three pipe sizes larger

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1.	A	B	C	D	26.	A	B	C	D	51.	A	B	C	D	76.	A	B	C	D
2.	A	B	C	D	27.	A	B	C	D	52.	A	B	C	D	77.	A	B	C	D
3.	A	B	C	D	28.	A	B	C	D	53.	A	B	C	D	78.	A	B	C	D
4.	A	B	C	D	29.	A	B	C	D	54.	A	B	C	D	79.	A	B	C	D
5.	A	B	C	D	30.	A	B	C	D	55.	A	B	C	D	80.	A	B	C	D
6.	A	B	C	D	31.	A	B	C	D	56.	A	B	C	D	81.	A	B	C	D
7.	A	B	C	D	32.	A	B	C	D	57.	A	B	C	D	82.	A	B	C	D
8.	A	B	C	D	33.	A	B	C	D	58.	A	B	C	D	83.	A	B	C	D
9.	A	B	C	D	34.	A	B	C	D	59.	A	B	C	D	84.	A	B	C	D
10.	A	B	C	D	35.	A	B	C	D	60.	A	B	C	D	85.	A	B	C	D
11.	A	B	C	D	36.	A	B	C	D	61.	A	B	C	D	86.	A	B	C	D
12.	A	B	C	D	37.	A	B	C	D	62.	A	B	C	D	87.	A	B	C	D
13.	A	B	C	D	38.	A	B	C	D	63.	A	B	C	D	88.	A	B	C	D
14.	A	B	C	D	39.	A	B	C	D	64.	A	B	C	D	89.	A	B	C	D
15.	A	B	C	D	40.	A	B	C	D	65.	A	B	C	D	90.	A	B	C	D
16.	A	B	C	D	41.	A	B	C	D	66.	A	B	C	D	91.	A	B	C	D
17.	A	B	C	D	42.	A	B	C	D	67.	A	B	C	D	92.	A	B	C	D
18.	A	B	C	D	43.	A	B	C	D	68.	A	B	C	D	93.	A	B	C	D
19.	A	B	C	D	44.	A	B	C	D	69.	A	B	C	D	94.	A	B	C	D
20.	A	B	C	D	45.	A	B	C	D	70.	A	B	C	D	95.	A	B	C	D
21.	A	B	C	D	46.	A	B	C	D	71.	A	B	C	D	96.	A	B	C	D
22.	A	B	C	D	47.	A	B	C	D	72.	A	B	C	D	97.	A	B	C	D
23.	A	B	C	D	48.	A	B	C	D	73.	A	B	C	D	98.	A	B	C	D
24.	A	B	C	D	49.	A	B	C	D	74.	A	B	C	D	99.	A	B	C	D
25.	A	B	C	D	50.	A	B	C	D	75.	A	B	C	D	100.	A	B	C	D

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(Moved) 102.4 Additions, Alterations, Renovations, or Repairs: Existing buildings that need plumbing systems repaired or altered must have every effort made to ensure the new alterations and repairs are made to the current code; however, existing structural conditions in these buildings can make this highly impractical so the Authority Having Jurisdiction can allow deviations from this code based on structural conditions.

(Moved) 102.4.1 Building sewers and Drains: When a building is being remodeled or has been destroyed by a natural disaster like an earth quake or flood, the building's existing sewer or drainage system can be reused. If the owner of such a property would like to reuse the existing sewer and drain system, they must prove that the system complies with the current code which, would also include the materials used. The existing system must also undergo a pressure test and demonstrate that it is sound and satisfactory to the AHJ.

(Moved) 102.4.2 Openings: any unused pipe stubs left open for future use or when a fixture has been removed that opening is required to be capped or plugged. This is mandated by the UPC to prevent dangerous gases or liquids from entering the structure.

(Revised) 102.2 Existing Installation: When a plumbing installation was made using the current code at the time of that installation, that existing work does not have to be redone to comply with later versions of the code unless that system creates health, property, or a hazard to life.

(Moved) 102.7 Moved Structures: If a building or structure is moved from its current location to a new one, the plumbing system must now be updated to comply with the most current code. This is true even if the structure had its plumbing installed prior to the existence of any code.

(Moved) 106.5 Authority to Disconnect in Emergencies: If a plumbing system is causing a real threat to property or life, the AHJ has the right to disconnect such a system to prevent a catastrophic failure. The AHJ has the right to enter and inspect a premises during reasonable hours.

(Moved) 103.2 Liability: If the AHJ inspects a system while doing their job and damage or loss of life occurs due to something they did or failed to correct, the AHJ will not be held liable for any damages that may occur. Furthermore, if a lawsuit is filed against the AHJ, the governing jurisdiction will pay for the costs to defend such a suit.

(Moved) 107.1 Board of Appeals. All persons shall have the right to appeal a decision of the Authority Having Jurisdiction. The jurisdiction shall have a board of appeals to hear and rule on Plumbing Code appeals. Members of the board shall be appointed by the jurisdiction. Decisions by the board shall be reported to the jurisdiction and administered by the Authority Having Jurisdiction.

(Moved) 106.3 Penalties: Any company or person violating this code will be considered having committed a misdemeanor crime. Each day after the violation continues is considered a new and separate violation as well. This is usually assessed by a monetary fine, however, in some cases where the violation is flagrant and results in sickness or death, jail time may be assessed as spelled out by the local jurisdictions.

Exam Questions:

1. **Existing _____ conditions can make it nearly impossible to make repairs or alterations in an existing building.**
   A. Tenant
   B. Municipality
   C. Structural
   D. Road

2. **A violation of this code is considered a _____ crime.**
   A. Felony
   B. Property
   C. Misdemeanor
   D. Humanity

3. **When using a building's existing sewer or drain system, the system must undergo a _____ test.**
   A. Static
   B. EMF
   C. Mold
   D. Pressure

4. **Who enforces the decisions made by the state plumbing board?**
   A. Plumbing Contractor
   B. General Contractor
   C. AHJ
   D. Trades person

5. **Existing plumbing work must be redone to the most current version of the code if that system poses a _____.**
   A. Nuisance
   B. Update
   C. Hazard
   D. Change

6. **The _____ has the authority to allow deviation from the most current code when repairing or altering plumbing systems in an existing structure.**
   A. UPC
   B. AHJ
   C. NEC
   D. Plumber

7. **Each day a code violation continues is considered a new and _____ offense.**
   A. Existing
   B. Flagrant
   C. Continuing
   D. Separate

8. **If a lawsuit is filed against the AHJ, the governing jurisdiction shall _____ for all costs to defend them.**
   A. Ask
   B. Include
   C. Petition
   D. Pay

9. **If an existing structure is moved for any reason, its plumbing must be brought up to the standards of the current_____.**
   A. Code
   B. Zone
   C. Street
   D. Sewer

10. **Following the minimum installation requirements in the UPC will ensure a reasonably _____ and sanitary installation.**
    A. Dated
    B. Used
    C. Safe
    D. Obscure

(Moved) 104.1 Permits Required: Before starting any work to install or alter a plumbing system, a permit must be purchased. The requirements for permits vary depending on local jurisdictions. Separate buildings or structures usually require a separate permit. It would be considered a violation of this code to not first acquire a permit before beginning any work.

(Moved) 104.2 Exempt Work: Certain plumbing activities do not require a permit. They are as follows: clearing stoppages, repairing leaks in valves, pipes and fixtures, and

replacing a wax ring. If fittings, pipe, or fixtures are replaced and re-routed, this code requires a permit to be pulled and all work inspected.

(Moved) 104.4.3 Expiration: Once a permit has been pulled and approved, a plumber has 180 days to begin work on the project for which the permit was pulled. If for some reason the plumber fails to do this, then the permit becomes void and a new permit will have be pulled. Additionally, if a plumber suspends work for 180 days after the work has been started, the permit will become void as well. The AHJ can extend a permit past the 180 day mark for an additional 180 days if good reason is given but this can be done only one time.

(Moved) 105.2 Required inspections: The AHJ must inspect all plumbing installations that require a permit. All work done must be left exposed for inspection and testing. If work to be inspected has been covered, the cost to remove all coverings will not be the responsibility of the local jurisdiction. There are three types of inspections. Underground inspections require all ground work to be inspected before the trench is covered. The rough in inspection looks at all interior systems before they are covered to ensure compliance with the code and are water or air tight. And lastly, the final inspection is to ensure all fixtures and connections are done correctly.

(Moved) 105.2.3 Inspection Requests and 105.2.4-105.2.5 Advance notice/ Responsibility: When calling in for an inspection, 24 hours' notice must be given. This can be done orally or in writing. The person performing the work under a permit is responsible for scheduling the inspection. The person scheduling the inspection is also responsible for providing access to the work being inspected. Before calling in an inspection, it should be tested to make sure the system can hold the required pressure. The person scheduling the inspection must also furnish all equipment necessary for the test.

(Moved) 105.2.6 Reinspections: When scheduling an inspection, all work must be complete prior to the inspection. If the work is not complete, the inspection will fail. A reinspection fee will be assessed and a reinspection form filled out and all necessary fees paid before the system can be inspected again.

(Moved) 106.2 Notices of Correction or Violation: If a correction needs to be made or a code violation discovered in the course of an inspection, notice shall be given in person, posted on the job site, or by mail. The violation needs to be remedied within 10 days. If the violation is not remedied in that period, it shall be considered a violation and additional penalties may be assessed. When all money and final tests have been approved by the AHJ, a certificate of approval will be issued.

Exam Questions:

11. If good reason is given, the AHJ can extend a permit for an additional _____ days.

A. 30
B. 90
C. 180
D. 220

12. Would it be considered acceptable or a violation of this code to start a plumbing job without first obtaining a permit?

A. Acceptable
B. Violation

13. An inspector requires all work to be _____ at the time of inspection.

A. Covered
B. Encased
C. Exposed
D. Buried

14. How many hours' notice should be given when requesting an inspection?

A. 48
B. 72
C. 16
D. 24

15. If a violation is not corrected within 10 days, additional _____ may be assessed.

A. Days
B. Fees
C. Times
D. Locations

16. Work being inspected should be _____ before scheduling an inspection.

A. Tested
B. Covered
C. Demoed
D. Gutted

17. Work must begin on a project within _____ days after a permit has been issued.

A. 180
B. 190
C. 200
D. 210

18. If an inspection fails, a reinspection _____ and form must be completed and turned in before anymore inspections will be done.

A. Counter
B. Time
C. Place
D. Fee

19. The AHJ can extend a permit _____.

A. Twice
B. Once
C. Three times
D. Never

20. There are _____ basic types of inspections.

A. 2
B. 3
C. 4
D. 5

21. A violation or correction needs to be taken care of within _____ days.

A. 4
B. 10
C. 6
D. 5

Chapter 2 Definitions:

Accessible. Where applied to a fixture, connection, appliance, or equipment, "accessible" means having access thereto, but which first may require the removal of an access panel, door, or similar obstruction.

Accessible, Readily. Having a direct access without the necessity of removing a panel, door, or similar obstruction.

Air Break. A physical separation which may be a low inlet into the indirect waste receptor from the fixture, appliance, or device indirectly connected.

Air Gap, Drainage. The unobstructed vertical distance through the free atmosphere between the lowest opening from a pipe, plumbing fixture, appliance, or appurtenance conveying waste to the flood-level rim of the receptor.

Air Gap, Water Distribution. The unobstructed vertical distance through the free atmosphere between the lowest opening from a pipe or faucet conveying potable water to the flood-level rim of a tank, vat, or fixture.

Alternate Water Source. Nonpotable source of water that includes but not limited to gray water, on-site treated nonpotable water, rainwater, and reclaimed (recycled) water.

Anchors. See Supports.

Approved. Acceptable to the Authority Having Jurisdiction.

Approved Testing Agency. An organization primarily established for purposes of testing to approved standards and approved by the Authority Having Jurisdiction.

Area Drain. A receptor designed to collect surface or storm water from an open area.

Exam Questions:

22. Where applied to a fixture, connection, appliance, or equipment, having access thereto, but which first may require the removal of an access panel, door, or similar obstruction would be defined as?

A. Accessible
B. Accessible, Readily
C. Guarded
D. Concealed

23. What best defines having direct access without the necessity of removing a panel, door, or similar obstruction?

A. Accessible
B. Accessible, Readily
C. Guarded
D. Concealed

24. This is best defined as a physical separation which may be a low inlet into the indirect waste receptor from the fixture, appliance, or device indirectly connected.

A. Air Gap
B. Gap Break
C. Air Break
D. Air Gap, Drainage

25. The unobstructed vertical distance through the free atmosphere between the lowest opening from a pipe, plumbing fixture, appliance, or appurtenance conveying waste to the flood-level rim of the receptor is defined as?

A. Air Space
B. Air Break
C. Air Gap, Drainage
D. Gap Break

26. This is the unobstructed vertical distance through the free atmosphere between the lowest opening from a pipe or faucet conveying potable water to the flood-level rim of a tank, vat, or fixture.

A. Air Gap, Drainage
B. Air Gap, Water Distribution
C. Air Break
D. Air Space

301.4.1 Coastal High hazard Areas. Plumbing systems in buildings located in costal high hazard areas shall be in accordance with the requirements of Section 301.4, and plumbing systems, pipes, and fixtures shall not be mounted on or penetrate through walls that are intended to breakaway under flood loads as required by the Building Code.

304.1 (General) Connections to plumbing system Required: This section requires the liquid waste from plumbing fixtures, appliances, and appurtenances be properly connected to a buildings drainage system and must be in compliance with other sections of this code.

306.1 Detrimental Wastes: Wastes detrimental to the public sewer system or detrimental to the functioning of the sewage treatment plant shall be treated and disposed of as found necessary and directed by the Authority Having Jurisdiction. The UPC requires the pretreatment of materials that could cause damage to the drainage or sewer system. Catch basins and sand traps can be used to remove suspended solids. Installing a quarter

bend that faces downward in a catch basin can eliminate Floating solids like brush and bark dust from entering a drainage system.

306.2 Safe Discharge. Sewage or other waste from a plumbing system that is capable of being deleterious to surface or subsurface waters shall not be discharged into the ground or into a waterway unless it has first been rendered safe by some acceptable form of treatment in accordance with the Authority Having Jurisdiction. For example: chemical waste must be cleaned and treated before they enter any part of the domestic drainage system. Any piping used for this purpose must be of an approved material. These materials include glass, lead, vitrified clay, some plastics and stainless steel. A risk of combustion exists if petroleum products are introduced into the drainage system; therefore, they are not allowed. Chemicals could also impair the proper functioning of a waste treatment plant by killing the needed organic bacteria.

307.1 System. Except as otherwise provided in this code, no plumbing system, drainage system, building sewer, private sewage disposal system, or parts thereof shall be located in a lot other than the lot that is the site of the building, structure, or premises served by such facilities.

308.1 Improper Location (General): Any piping or plumbing fixtures shall not be so located as to prevent the normal operation and function of windows, doors, or any other part of a functioning structure. This type of violation often occurs during re-models and renovations of existing buildings.

309.1 Workmanship (Engineering Practices): A professional and neat appearing installation of plumbing fixtures and piping is required by this section. The AHJ with years of experience is qualified to make the determination of what is neat and professional. A safe and proper installation of a plumbing system that complies with this Code goes hand in hand with quality workmanship. This will ensure a plumbing system that lasts as long as the materials with which it was installed.

309.2 Concealing Imperfections: This code requires an installer to never conceal or cover cracks in a plumbing system using welding, brazing, wax, or other leak sealing agents. Trying to hide such damage could result in more damage, or even in some cases, disease.

309.3 Burred ends: Anytime a pipe or piece of tubing is cut, the ends need to be reamed and de-burred. Burrs and chips could come loose and damage valves or the system itself if not removed. Build up along un-burred edges could cause blockages and damage to the plumbing system. A cause of excessive burrs could be too much pressure applied to the cutting wheel or a dull cutting wheel.

310.3 Waste connection: This code prohibits connecting a trap arm before its vent. This type of installation practice could cause venting problems. A closet bend is an approved fitting receiving vertically discharged waste from a water closet and changes its direction of flow. Additionally, a closet bend is a trap arm and connects up to the point of the fixture vent.

310.6 Dissimilar Metals: Galvanic action can occur when dissimilar metals are in contact. This code requires when 2 dissimilar metals are connected, the connection needs to be in an exposed and accessible location. Over time a breakdown of one of the metals can occur. It is critical to make sure this connection is exposed so any problem can be seen and corrected. Galvanic action occurs because of the difference in potential of the 2 metals.

Exam Questions:

27. If you were to connect a trap arm before its vent, it could cause improper _____.
A. Water flow
B. Pressure
C. Venting
D. Drainage

28. All buildings are required to have a _____ connection to the sewer system.
A. Joint
B. Separate
C. Joined
D. Common

29. Rain water drains should not be connected to the _____ sewer system.
A. Solid
B. Drinking
C. Existing
D. Sanitary

30. A possible cause of excessive burrs could be a _____ cutting wheel.
A. Dull
B. Concaved
C. Elongated
D. Ridged

31. Petroleum products that enter a drainage system run the risk of _____ in the piping system.
A. Melting
B. Clogging
C. Searing
D. Combusting

32. A good quality installation can affect the _____ of the plumbing system installed.
A. Longevity
B. Appearance
C. Acceptance
D. All listed answers

33. Suspended solids can be removed from the drainage or sewer system by installing _____ traps or catch basins.
A. Wire
B. Basket
C. Lead
D. Sand

34. The UPC considers concealing or hiding cracks in a plumbing system _____.
A. Acceptable
B. Normal
C. Unlawful
D. Encouraged

35. In flood hazard areas, plumbing systems subject to high-velocity wave action are required to meet the requirements of Section _____.
A. 301.3.1
B. 310.3.1
C. 301.3.3
D. 303.3.1

36. A trap arm up to the point of a fixture vent connection is known as a _____?
A. Flush valve
B. Closet bend
C. Soil pipe
D. Shock arrestor

37. The liquid waste from a dishwasher in an apartment building is _____ to be connected to the buildings drainage system.
A. Suggested
B. Allowed
C. Required
D. Not Required

38. The term "_____" is used when 2 dissimilar metals are in contact with each other.
A. Galvanic action
B. Pluribus Unum
C. Rock action
D. Top set

39. A time when you might see a plumbing fixture or pipe blocking the normal operation of a door or window would be during a _____.
A. Remodel
B. Slab rough in
C. Wall rough in
D. Meeting

310.8 Screwed Fittings: This code allows screwed fittings to be used for ABS, PVC, steel, copper, or any other approved material. The threads must be tapped out of solid PVC, ABS, or metal. Any piping product that contains threads need to be schedule 10 or above. These pipes are sized using the IPS system. IPS stands for Iron Pipe Size. The IPS system is primarily used in the US and UK. The IPS standard was combines with the Copper Tube Size "CTS" in the 1920's.

311.0 Independent Systems (General): The UPC requires all buildings to have their own independent drainage connection to a private or public sewer system. This is a pretty straight forward requirement and its purpose is to ensure that if a blockage occurs in the drainage system of one building, it will not affect the drainage system of other buildings. However, the UPC does allow an exception to this rule. This exception allows an existing building drainage system to extend to a new building ONLY if there is no alternative due to structural conditions.

312.1 Protection of Piping, Materials, and Structure (General): When piping goes through or under walls, the UPC requires it be protected from breakages. Drainage or sewer piping installed directly in acidic soil must be protected from corrosion. Soil that contains cinders or sulfur must have special attention paid to the protection of all piping contained as this is the most corrosive of all soils. Any piping penetrating up through a slab must adequately sealed as to prevent insects or vermin from entering.

312.2 (Installation) and 312.3 (Building Sewer and Drainage Piping) Protection of Piping, Materials, and Structures: When plumbing systems are installed, care must be taken to make sure these systems can move freely and the structure for which they serve do not cause them damage. Damage often occurs when a building or structure settles and the piping system is secured too tightly to its support hangars. Piping systems directly embedded in concrete are never acceptable under any condition. When materials are used for building sewers that are not approved for use in a building, they cannot be installed within 2' of the building and not less than 1' below the surface of the ground. Only materials approved for use in buildings can be within this 2' limit.

312.4 Corrosion, Erosion, and Mechanical Damage: The protection of plumbing piping above or below ground in corrosive environments is critical to ensure the integrity of such systems. Some of these methods include painting, asphalt coating, factory wrapped piping, and PVC sleeving. Ferrous Piping installed above ground would require a galvanized coating for protection as well.

312.8 Water Proofing Of Openings: Any penetration to a roof or wall needs to be water proofed as to prevent the entrance of moisture. An approved flashing material could include copper, lead, or galvanized steel. When counter flashing is used, the UPC requires no restrictions are made to the interior dimension of the vent pipe.

312.9 Steel Nail Plates: When using copper or plastic piping within 1" of the exposed framing side, it shall be protected by a steel nail plate. Steel nail plates shall not be made of less than 18 gauge steel. When using steel nail plates, they shall not extend less than one and one half inches beyond the outside diameter of the pipe.

312.11 Structural Members: In the course of installing plumbing systems, often walls, floor joists, and headers must be drilled or notched in order to make the installation. Section 312.11 requires that those structures be reinforced, replaced, or repaired and left structurally sound when notching or drilling occurs.

Exam Questions:

40. Materials not approved for use in buildings must be installed no less than _____ below finish grade.
A. 1′
B. 2′
C. 3′
D. 4′

41. The preferred method when connecting a buildings sewer system is to have it _____ with other buildings' systems.
A. Shared
B. Common
C. Independent
D. Oversized

42. Ferrous pipe installed above ground in an environment that may be corrosive require a _____ coating.
A. Steel
B. Copper
C. Galvanized
D. Zinc

43. Plumbing pipe must be adequately protected from _____ soil as to prevent corrosion.
A. Acidic
B. Dark
C. Brown
D. Sandy

44. Plumbing systems need to be installed so they can move _____ in a structure or building.
A. Annually
B. Freely
C. Partially
D. Under no circumstance

45. Hangars for plumbing systems should not be so tight around the pipe for which they serve so the pipe can move _____ as the structure settles.
A. Vertically
B. Laterally
C. Horizontally
D. All listed answers

46. When using screwed fittings, the material needs to be of schedule _____ or above.
A. 10
B. 11
C. 12
D. 20

47. All penetrations of plumbing systems to the outside need to be made _____.
A. Airtight
B. UV resistant
C. Watertight
D. Carefully

48. What section of the UPC requires leaving all structural elements sound after installing a plumbing system?
A. 311.13
B. 313.21
C. 312.11
D. 313.11

49. Having dedicated drainage systems will ensure _____ of one building do not affect other buildings' drainage systems.
A. Failures
B. Blockages
C. Problems
D. All listed answers

50. A steel nail plate is required to extend a minimum of _____ past the outside edge of the pipe or tubing for which it is protecting.
A. 1″
B. 1 ¼″
C. 1 ½″
D. 2″

51. The UPC uses the _____ system for sizing pipes.
A. USO
B. ISP
C. IPS
D. AON

313.1-313.2 Hangars and Supports (General/ Material): Selecting hangars based on a pipes thickness and content weight can be found in the manufacturers literature or engineering manuals. Additionally, the structure to which the plumbing system is attached must be of sufficient strength to support the weight of the pipe and its content as well. Supports for plumbing systems need to be compatible materials as to avoid corrosion due to "Galvanic Action". This could cause a failure in the plumbing system.

314.3 Open Trenches: Trenches shall be used for the installation of a building drainage system installed under a building. All trenches are required to be left open until the piping system is inspected, tested and approved by the AHJ.

314.4 Excavations: Once inspected, a trench needs to be backfilled as soon as possible. The material needs to be adequately compacted to ensure permanent stability and no damage will occur to the piping system. The code requires that the trench be hand filled until 12 inches of cover are above the buried pipe. Once 12 inches of cover occur, mechanical compaction can then begin. The code calls for "Clean Earth" to be used for backfilling the trench. This is a requirement as earth with construction debris or large stones could damage the piping system.

315.1 Unions. Approved unions shall be permitted to be used in drainage piping where accessibly located in the trap seal or between a fixture and its trap in the vent system, except underground or in wet vents, at a point in the water supply system, and in gas piping as permitted by Section 1212.5.

315.2 Prohibited Joints and Connections. A fitting or connection that has an enlargement, chamber, or recess with a ledge, shoulder, or reduction of pipe area that offers an obstruction to flow through the drain shall be prohibited.

316.1 Increasers and Reducers (General): Where different sizes of pipes and fittings are to be connected, the proper size increasers or reducers or reducing fittings shall be used between the two sizes. Brass or cast-iron body cleanouts shall not be used as a reducer or adapter from cast-iron drainage pipe to iron pipe size (IPS) pipe. As with any job, pipe sizes will increase or decrease based on needs of the system. This reduction typically takes place with the use of a reducing tee at the point where the size changes. The UPC does allow using a pipe reducer downstream of the tee branch as well. Reducers are designed to allow the even flow of gasses or liquids at this transition. The 2 standard types of reducers are concentric and eccentric.

317.1 Food Handling Establishments (General): As industry professionals, special attention needs to be given to areas used for food handling and storage. If contamination occurs, the spread of disease or even death could occur. Any opening through the floor in these areas needs to be sealed water-tight to the floor. Any shower or floor drain in these areas must be equipped with integral seepage pans. If installing clean outs, they shall extend through the floor construction above. If pipes in these areas are subject to condensation, they shall be thermally insulated. If overhead pipes are installed in these areas, the ceiling needs to be of the removable type (T-Bar), or if in a hard lid, they shall contain access panels for easy access and inspection.

Exam Questions:

52. A trench needs to be hand backfilled to a depth of _____ above the pipes.
A. 6 in
B. 9 in
C. 11 in
D. 12 in

53. Reducers are designed to allow the _____ flow of gasses or liquids at the point of reduction.
A. Turbulent
B. Even
C. Erratic
D. No listed answer

54. If a floor or shower drain is installed in a food storage or handling area, it must contain a _____ pan.
A. Solid
B. Corrugated
C. Seepage
D. Smooth

55. A trench needs to be backfilled and _____ adequately as to prevent any damage to the piping system.
A. Used
B. Tapered
C. Grouted
D. Compacted

56. Mechanical compaction of a trench can occur once _____ of cover have been achieved over the pipes.
A. 11 inches
B. 12 inches
C. 9 inches
D. 6 inches

57. Plumbing pipes installed in food storage or handling areas that may be subject to condensation, must be thermally _____.
A. Insulated
B. Resistant
C. Conductive
D. Coated

58. When selecting hangars for a piping system, the _____ should be used.
A. Engineering manuals
B. Manufacturer's literature
C. Jobs Specifications
D. All listed answers

59. Approved unions are allowed to be used in drainage piping where accessibly located in the _____ or between a fixture and its trap in the vent system.
A. Trap seal
B. Closet bend
C. Y Fitting
D. T

60. Brass or cast-iron body cleanouts _____be used as a reducer or adapter from cast-iron drainage pipe to iron pipe size.
A. May
B. Can
C. Shall not
D. Must

61. A union used in gas piping needs to comply with Section _____of the UPC.
A. 1121.5
B. 1601
C. 1211.5
D. 1354.3

62. A common practice for reducing a pipe size is using a reducing _____ where the pipe size changes.
A. Y
B. L
C. U
D. Tee

63. A fitting or connection that offers an obstruction to flow through the drain is described by this code to be_____.
A. Approved
B. Prohibited
C. Listed
D. Rated

64. The two standard types of reducers seen in the industry are _____.
A. Square and round
B. Concentric and eccentric
C. Oval and circular
D. All listed answers

(Moved) 407.4 Metering Valves. Lavatory faucets located in restrooms intended for use by the general public shall be equipped with a metering valve designed to close by spring or water pressure when left unattended (self-closing).

EXCEPTIONS:

1. Where designed and installed for use by persons with a disability.
2. Where installed in day care centers, for use primarily by children under 6 years of age.

403.2 Fixtures and Fixture fittings for persons with disabilities. Plumbing Fixtures and fixture fittings for persons with disabilities shall comply with ICC A117.1 and the applicable standards referenced in Chapter 4.

403.3 Exposed Pipes and Surfaces. Water supply and drain pipes under accessible lavatories and sinks shall be insulated or otherwise be configured to protect against contact. Protectors, insulators, or both shall comply with ASME A112.18.9.

(Moved) 412.1.1 Non Water Urinals. This system is designed to allow urine to pass through the trap without the use of water. As you can imagine, this drastically cuts down on water usage and is ideal for areas where water shortages are a real concern; additionally, the UPC does require that a water line still be roughed in for the possibility of installing a normal urinal in its place. Non water urinals must have a barrier liquid sealant to maintain a trap seal.

(Moved/Revised) 408.7.3 Sheet Lead. The use of sheet lead is allowed to form a safe pan under or around a fixture. This safe pan is installed to ensure that all waste enters the drain system. When installing a safe pan using sheet lead, it shall be no less than 4 pounds per square foot and shall be insulated from conducting substances other than their connecting drain by 15 pound (6.8 kg) asphalt felt or its equivalent. Sheet lead is required to be joined by burning.

Exam Questions:

65. What is the maximum age of children where a metering faucet is not required to be installed in a daycare center?

A. 8
B. 7
C. 6
D. 5

66. What ICC are plumbing fixtures and fixture fittings for persons with disabilities required to comply with?

A. ICC 112.18.9
B. A112.18.9
C. A18.106
D. A117.1

67. A non-water urinal is designed to work without the use of _____.

A. Solids
B. Waste
C. Water
D. All listed answers

68. How are the water supply and drain pipes under accessible lavatories used for persons with disabilities required to be installed?

A. To protect against contact
B. Oversized
C. In a chase
D. Exposed

69. In order for a non-waterless urinal to maintain its trap seal, it must use a barrier _____ sealant.

A. Liquid
B. Solid
C. Caulk
D. No listed answer

70. What is the minimum allowable lb/ft2 that sheet lead must weigh?

A. 3
B. 4
C. 2
D. 19

71. What is the minimum insulation thickness that sheet lead must be protected from conducting substances?

A. 15 pound
B. 6.8 pound
C. ¼" Inch
D. R22

(Moved) 407.2.2 Metering Faucets. In 1992, an energy policy act required that all water closets have a maximum of 1.6 gallons per flush. This was mandated to help conserve our water resources. A metered faucet is required for all public use areas and has a preset water limit of 0.25 gallons and then shuts off. These faucets can be electronic or spring loaded. Self-closing or self-closing metering faucets shall be installed on lavatories intended to serve the transient public, such as those in, but not limited to, service stations, train stations, airports, restaurants, and convention halls. Metered faucets shall deliver a maximum of 0.25 gallons (1.0 L) per metering cycle.

416.4 Emergency Eyewash and Shower Equipment (Location). An emergency safety shower is designed to run until the user releases the flow handle. These showers are used to wash off any contaminants or toxins from a worker. An emergency safety shower is not subject to water conservation laws or acts. Emergency eyewash and shower equipment shall be located on the same level as the hazard and accessible for immediate use. The path of travel shall be free of obstructions and shall be clearly identified with signage.

404.1 Overflows (General): An overflow is not required on a plumbing fixture; however, if one is installed, the fixture waste must be so arranged that the standing water in the fixture cannot rise in the overflow when the stopper is closed or remain in the overflow when the fixture is empty. Overflow connections are made on the inlet or house side of a fixture trap only. A flush tank overflow is allowed to discharge in the urinal or water closet that it serves. Overflows are not allowed to bypass the trap for which it serves. It shall be unlawful to connect such overflows with any other part of the drainage system.

418.2 Strainer: Plumbing fixtures other than urinals and water closets shall be equipped with approved strainers. Strainers are used to protect drainage systems from solids that could clog or damage the system. Strainers used for shower drains are required to equal the area of the tailpiece.

(Moved) 402.10 Slip Joint Connections: If a fixture has a concealed slip joint connection, it shall have an access panel installed so the joint can be repaired and inspected. This access panel needs to be a minimum of 12" at its least dimension. A "joint" is defined as a three piece assembly involving the use of a friction ring and compression washer. This washer is prone to failure and can lose its water or gas tight seal and leak.

(Moved) 405.1 Prohibited Fixtures (Prohibited Water Closets): Water closets having an invisible seal or an unventilated space or having walls which are not thoroughly washed at each discharge shall be prohibited. A water closet that might permit siphonage of the contents of the bowl back into the tank shall be prohibited. Since water closets receive very hazardous waste, they shall have their interior washed down after each flush. Additionally, a water closet's water seal must be visible so it can be verified that it is functioning properly. A drinking fountain is not allowed to be installed in a public restroom under no circumstance otherwise improper cleaning and the spread of disease could result.

(Moved) 405.2 Prohibited Urinals: Urinals that have an invisible water seal including a trough style urinal are prohibited. A trough urinal provides partial flushing and could possible pose a health hazard. The Code does allow an exception to this by allowing the use of a non-water type urinal.

(Moved) 701.4 Continuous wastes: For use in drainage piping, these need to be constructed of materials that are specified in section 701.0 of this code. If the connections to these are accessible and exposed, they shall be a minimum of 20 B&S Gauge and may be made of seamless drawn brass. Each tail piece, continuous waste, or waste and overflow shall not be less than 1 ¼" O.D for lavatories, drinking fountains, and similar small fixtures.

Exam Questions:

72. A (an)_____ pipe from a fixture must connect only to the house or inlet side of the fixture trap.
A. Overage
B. Inlet
C. Overflow
D. Outlet

73. A (an)_____ is required when a slip joint is installed in concealed location.
A. Access panel
B. Flow reducer
C. Retarder
D. Opener

74. When installing a slip joint that needs to be concealed, a _____ access panel needs to be installed for inspection and repairs.
A. 9"
B. 11"
C. 10"
D. 12"

75. It is _____to connect overflows with any other part of the drainage system.
A. Required
B. Unlawful
C. Acceptable
D. No listed answer

76. What is the minimum allowed O.D. size for a tail piece used in drinking fountains?
A. 2"
B. 1 5/8"
C. 1 3/8"
D. 1 1/4"

77. Safety showers are _____ subject to any conservation laws.
A. Always
B. Not
C. Sometimes
D. All listed answers

78. The _____ seal of a water closet must be visible to ensure it's functioning properly.
A. Bowl
B. Back splash
C. Water
D. No listed answer

79. Accessible and exposed connections to continuous waste and fixture tailpieces need to be at least _____ in thickness.
A. 12 gauge
B. 15 gauge
C. 10 gauge
D. 20 gauge

80. A shower strainer needs to be equivalent to the area of the _____.
A. Tail pipe
B. Tailpiece
C. Trap
D. Fixture

81. If a water fountain was installed a public restroom, the spread of _____ could result.
A. Germs
B. Disease
C. Sickness
D. All listed answers

82. A metered faucet allows _____ gallons to flow before it shuts off.
A. 0.25
B. 0.23
C. 0.27
D. 25

402.6.1 Closet Rings (Closet Flanges). Closet rings (closet flanges) for water closets or similar fixtures shall be of an approved type and shall be bronze, copper, hard lead, cast-iron, galvanized malleable iron, ABS, PVC, or other approved materials. Each such closet ring (closet flange) shall be approximately 7 inches (178 mm) in diameter and, where installed, shall, together with the soil pipe, present a 1½ inch (38 mm) wide flange or face to receive the fixture gasket or closet seal.

Caulked-on closet rings (closet flanges) shall be not less than ¼ of an inch (6.4 mm) thick and not less than 2 inches (51 mm) in overall depth.

Closet rings (closet flanges) shall be burned or soldered to lead bends or stubs, shall be caulked to cast-iron soil pipe, shall be solvent cemented to ABS and PVC, and shall be screwed or fastened in an approved manner to other materials.

Closet bends or stubs shall be cut off so as to present a smooth surface even with the top of the closet ring before rough inspection is called.

Closet rings (closet flanges) shall be adequately designed and secured to support fixtures connected thereto.

402.4 Wall Hung Fixtures. A wall hung fixture needs to be rigidly supported using an approved carrier. The fixture needs to be so supported that no strain is on the connections. Fixture flush tanks are required to be attached or installed using corrosion resistant screws or bolts.

(Moved) 402.7 Supply Fittings. Plumbing fixture supply lines and fittings are required to be installed to prevent backflow. This is required as per chapter 6 of this code. Backflow can be prevented by using an approved back flow protection device or an air gap.

(Moved) 405.3 Miscellaneous Fixtures: The use of wooden fixtures is not allowed by this code as they are not smooth or impervious to waste and cannot be fully cleaned after each use. The use of a chemical or dry type closet can be used only if approved by the local Health Officer.

(Revised/Moved) 406.2 Special Use Sinks: Special use sinks for restaurant kitchens or other areas shall be permitted to be made of approved galvanized or bonderized sheet metal with a minimum thickness of 16 US gauge. These specialty sinks are the plumber's responsibility to install.

(Revised) 411.1 Application. A water closet bowl used for public use is required to be of the elongated type. When plumbing fixtures are so installed that children 6 years of age or less use them in places like schools or nurseries, the water closets in these places are required to be of a height and size that children can use.

(Moved) 411.3 Water closet seats. Public use water closet seats shall be made of a non-absorbent material and smooth. Plastic seats are required to comply with IAMPO Z124.5. Water closet seats shall be of the open front type or also have an automatic seat cover dispenser as to cut down on the possibility of contamination or disease. Additionally, they shall be sized appropriately for the water closet bowl.

(Moved) 407.3 Limitation of Hot Water Temperature for Public Lavatories: Hot water delivered from public use lavatories shall be limited to a maximum temperature of 120˚F (49˚C)

409.6 Bathtubs and Whirlpool Bathtubs: A removable panel shall be provided to access and remove the pump. Whirlpool pump access located in the crawl space shall be located no more than twenty (20) feet (6,096 mm)

from an access door, trap door, or crawl hole. The circulation pump shall be located above the crown weir of the trap. The pump and the circulation piping shall be self-draining to minimize water retention.

Exam Questions:

83. A water closet bowl seat needs to be _____ for use by the public.
- A. Smooth
- B. Non-absorbent
- C. Easily cleaned
- D. All listed answers

84. How many conditions are listed under the broader definition Insanitary?
- A. 7
- B. 6
- C. 8
- D. 5

85. The proper supporting of a fixture is such that no _____ is placed on the connections.
- A. Moisture
- B. Piping
- C. Strain
- D. Cabinet

86. School water closets that have children _____ years old or less are required have the water closets installed at a size and height for their use.
- A. 6
- B. 5
- C. 7
- D. 8

87. The use of a dry or chemical type toilet is acceptable if approved by a _____.
- A. Plumber
- B. BCD
- C. General Contractor
- D. Health officer

88. What is the minimum gauge of metal that a specialized sink used for a restaurant is required to be made of?
- A. 12
- B. 16
- C. 18
- D. 20

89. A closet ring is required to be approximately _____ in diameter.
- A. 7 inches
- B. 5 inches
- C. 6 inches
- D. 8 inches

90. A Whirlpool pump located in a crawl space can be located no more than _____from an access door.
- A. 20 feet
- B. 15 feet
- C. 25 feet
- D. 18 feet

91. A flush tank is required to be connected using _____ resistant bolts or screws.
- A. Torque
- B. Strip
- C. Corrosion
- D. Moisture

92. The hot water in public use lavatories is required to be set to a maximum temperature of _____˚F
- A. 120
- B. 134
- C. 160
- D. 100

93. All plumbing fixture supply lines must be installed to prevent _____.
- A. Air gaps
- B. Back wash
- C. Backflow
- D. All listed answers

94. What chapter of this code requires how fittings and supply lines are to be installed?
- A. 6
- B. 5
- C. 6
- D. 7

402.6.3 Securing Floor-Mounted, Back Outlet Water Closet Bowls. This code provides specific instructions as to how to install floor mounted back outlet water closets. Mounting these fixtures can be tricky as there are two surfaces to mount to, the wall and the floor. Floor mounted, back-outlet water closet bowls are required to be set level and 90 degrees between the wall and floor at the centerline of the fixture outlet. The floor and wall are required to have a flat mounting surface no less than 5 inches to the left and right of the fixture outlet centerline. These fixtures are required to be secured to the floor or wall using corrosion resistant screws or bolts. If installing a floor mounted back outlet water closet, the soil pipe cannot be less than 3" in diameter. Offset or other types of floor flanges are not allowed to be used as they will not provide a rigid connection.

408.3 Shower and Tub-Shower Combination Control Valves: Showers and tub-shower combinations in buildings shall be provided with individual control valves of the pressure balance, thermostatic, or combination pressure balance/thermostatic mixing valve type that provide scald and thermal shock protection. These valves shall conform to ASSE 1016 or ASME A112.18.1/CSA B125.1. Gang showers, when supplied with a single temperature-controlled water supply pipe, shall be controlled by a mixing valve that conforms to ASSE 1069. Handle position stops shall be provided on such valves and shall be adjusted per the manufacturer's instructions to deliver a maximum mixed water setting of 120°F (49°C). The water heater thermostat shall not be considered a suitable control for meeting this provision.

(Moved) 412.2 Urinals (Backflow protection): All water supplies to urinals shall be protected by a vacuum break, back flow preventer, or other approved device. Descriptions of these devices can be found in section 603.5 of this code. Siphonage can occur up the side walls of a urinal so they are required to be protected by an approved vacuum breaker.

416.4 Location. Emergency eyewash and shower equipment shall be located on the same level as the hazard and accessible for immediate use. The path of travel shall be free of obstructions and shall be clearly identified with signage.

418.5 Floor Slope. All floors that contain a floor drain are required to be sloped as to allow all liquids to drain. When installing a floor drain, the strainer top should not be raised level to the floor. Special care needs to be taken when installing a floor drain in a concrete slab as to ensure proper elevation is maintained.

408.10 Water Supply Riser: A water supply riser from the shower valve to the showerhead outlet, whether exposed or not, shall be securely attached to the structure.

Exam Questions:

95. A floor mounted back-outlet water closet bowl is required to be set _____degrees between the wall and floor at the centerline of the fixture outlet.

A. 45
B. 22.5
C. 30
D. 90

96. The floor and wall for mounting a floor-mounted, back outlet water closet bowl is required to be _____ and no less than 5 inches to the left and right of the fixture outlet centerline.

A. Flat
B. Sturdy
C. Rigid
D. All listed answers

97. The soil pipe for a floor mounted back outlet water closet cannot be less than _____ in diameter.

A. 1.5″
B. 2″
C. 2.5″
D. 3″

98. Showers and tub-shower scald and thermal shock protection valves that have a single temperature-controlled water supply pipe are required be controlled by a mixing valve that conforms to what ASSE?

A. 1069
B. 1065
C. 1067
D. 1697

99. Vacuum breaks and back flow descriptions can be found in section _____ of this code.

A. 603.3
B. 602.4
C. 603.5
D. 306.3

100. A floor that contains a drain is required to be _____.

A. Sloped
B. Level
C. Angled
D. Perpendicular

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ADA Plumbing Standards

ADA PLUMBING ELEMENTS AND FACILITIES

The Department of Justice published revised regulations for Titles II and III of the Americans with Disabilities Act of 1990 "ADA" in the *Federal Register* on September 15, 2010. These regulations adopted revised, enforceable accessibility standards called the 2010 ADA Standards for Accessible Design "2010 Standards" or "Standards". The 2010 Standards set minimum requirements – both scoping and technical – for newly designed and constructed or altered State and local government facilities, public accommodations, and commercial facilities to be readily accessible to and usable by individuals with disabilities.

This course focuses on chapter 6 of the standards, which relates to plumbing elements and facilities.

602 Drinking Fountains

602.1 General. Drinking fountains shall comply with 307 and 602.

602.2 Clear Floor Space. Units shall have a clear floor or ground *space* complying with 305 positioned for a forward approach and centered on the unit. Knee and toe clearance complying with 306 shall be provided.

EXCEPTION: A parallel approach complying with 305 shall be permitted at units for *children's use* where the spout is 30 inches (760 mm) maximum above the finish floor or ground and is 3½ inches (90 mm) maximum from the front edge of the unit, including bumpers.

602.3 Operable Parts. *Operable parts* shall comply with 309.

602.4 Spout Height. Spout outlets shall be 36 inches (915 mm) maximum above the finish floor or ground.

602.5 Spout Location. The spout shall be located 15 inches (380 mm) minimum from the vertical support and 5 inches (125 mm) maximum from the front edge of the unit, including bumpers.

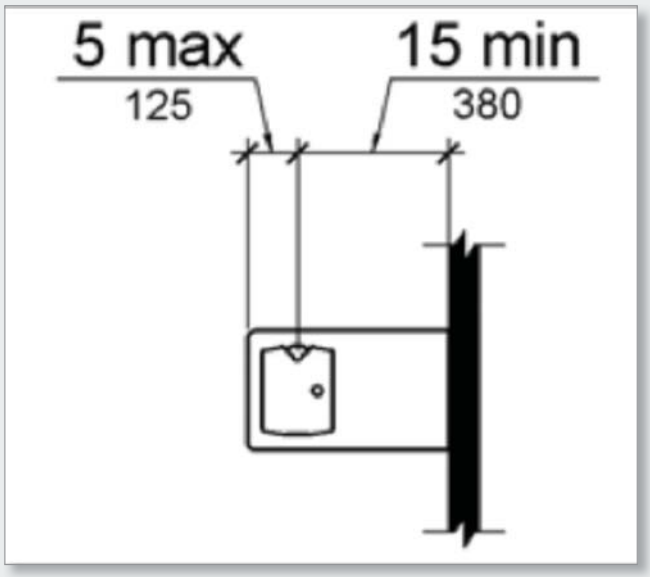


Figure 602.5 - Drinking Fountain Spout Location

602.6 Water Flow. The spout shall provide a flow of water 4 inches (100 mm) high minimum and shall be located 5 inches (125 mm) maximum from the front of the unit. The angle of the water stream shall be measured horizontally relative to the front face of the unit. Where spouts are located less than 3 inches (75 mm) of the front of the unit, the angle of the water stream shall be 30 degrees maximum. Where spouts are located between 3 inches (75 mm) and 5 inches (125 mm) maximum from the front of the unit, the angle of the water stream shall be 15 degrees maximum.

Advisory 602.6 Water Flow. The purpose of requiring the drinking fountain spout to produce a flow of water 4 inches (100 mm) high minimum is so that a cup can be inserted under the flow of water to provide a drink of water for an individual who, because of a disability, would otherwise be incapable of using the drinking fountain.

602.7 Drinking Fountains for Standing Persons. Spout outlets of drinking fountains for standing persons shall be 38 inches (965 mm) minimum and 43 inches (1090 mm) maximum above the finish floor or ground.

EXAM QUESTIONS

1. For drinking fountains, the spout outlets should be _____ inches maximum above the floor.

a. 30
b. 36
c. 42
d. 48

2. The spout of a drinking fountain should be located ____ inches maximum for the front edge of the unit.

a. 5
b. 10
c. 15
d. 20

3. The spout of a water fountain shall provide a flow of water ____ inches high minimum.

a. 2
b. 3
c. 4
d. 5

4. Where spouts are located less than 3 inches of the front of the unit, the angle of the water stream shall be _____ degrees maximum.

a. 4
b. 5
c. 15
d. 30

5. The purpose of requiring the drinking fountain spout to produce a flow of water 4 inches high minimum is so that a cup can be inserted under the flow of water to provide a drink of water for an individual who, because of a disability, would otherwise be incapable of using the drinking fountain.

a. True
b. False

6. Spout outlets of drinking fountains for standing persons shall be ____ maximum above the floor.

a. 38
b. 40
c. 43
d. 45

7. Spout outlets of drinking fountains for standing persons shall be ____ minimum above the floor.

a. 38
b. 40
c. 43
d. 45

8. What chapter of the 2010 ADA Standards for Accessible Design deals with plumbing elements?

a. Chapter 5
b. Chapter 6
c. Chapter 7
d. Chapter 8

9. ADA stands for:

a. Accessible Design Administration
b. Accessible Design Association
c. American Disabilities Act
d. American Disabilities Administration

603 Toilet and Bathing Rooms

603.1 General. Toilet and bathing rooms shall comply with 603.

603.2 Clearances. Clearances shall comply with 603.2.

603.2.1 Turning Space. Turning *space* complying with 304 shall be provided within the room.

603.2.2 Overlap. Required clear floor *spaces*, clearance at fixtures, and turning *space* shall be permitted to overlap.

603.2.3 Door Swing. Doors shall not swing into the clear floor *space* or clearance required for any fixture. Doors shall be permitted to swing into the required turning *space*.

EXCEPTIONS:

1. Doors to a toilet room or bathing room for a single occupant accessed only through a private office and not for *common use* or *public use* shall be permitted to swing into the clear floor *space* or clearance provided the swing of the door can be reversed to comply with 603.2.3.
2. Where the toilet room or bathing room is for individual use and a clear floor *space* complying with 305.3 is provided within the room beyond the arc of the door swing, doors shall be permitted to swing into the clear floor *space* or clearance required for any fixture.

Advisory 603.2.3 Door Swing Exception 1. At the time the door is installed, and if the door swing is reversed in the future, the door must meet all the requirements specified in 404. Additionally, the door swing cannot reduce the required width of an accessible route. Also, avoid violating other building or life safety codes when the door swing is reversed.

603.3 Mirrors. Mirrors located above lavatories or countertops shall be installed with the bottom edge of the reflecting surface 40 inches (1015 mm) maximum above the finish floor or ground. Mirrors not located above lavatories or countertops shall be installed with the bottom edge of the reflecting surface 35 inches (890 mm) maximum above the finish floor or ground.

Advisory 603.3 Mirrors. A single full-length mirror can accommodate a greater number of people, including children. In order for mirrors to be usable by people who are ambulatory and people who use wheelchairs, the top edge of mirrors should be 74 inches (1880 mm) minimum from the floor or ground.

603.4 Coat Hooks and Shelves. Coat hooks shall be located within one of the reach ranges specified in 308. Shelves shall be located 40 inches (1015 mm) minimum and 48 inches (1220 mm) maximum above the finish floor.

EXAM QUESTIONS

10. Mirrors located above lavatories or countertops shall be installed with the bottom edge of the reflecting surface _____ inches maximum above the floor.

a. 10
b. 20
c. 30
d. 40

11. Shelves shall be located ____ inches maximum above the finish floor.

a. 40
b. 44
c. 48
d. 52

12. True or False, a single full-length mirror can accommodate a greater number of people, including children.

a. True
b. False

13. Shelves shall be located ____ inches minimum above the finish floor.

a. 40
b. 44
c. 48
d. 52

14. Bathroom doors shall be permitted to swing into the required turning space.

a. True
b. False

15. In order for mirrors to be usable by people who are ambulatory and people who use wheelchairs, the top edge of mirrors should be ____ inches minimum from the floor or ground.

a. 35
b. 40
c. 48
d. 74

16. Mirrors not located above lavatories or countertops shall be installed with the bottom edge of the reflecting surface ____ inches maximum above the finish floor or ground.

a. 35
b. 40
c. 48
d. 74

604 Water Closets and Toilet Compartments

604.1 General. Water closets and toilet compartments shall comply with 604.2 through 604.8.

EXCEPTION: Water closets and toilet compartments for *children's use* shall be permitted to comply with 604.9.

604.2 Location. The water closet shall be positioned with a wall or partition to the rear and to one side. The centerline of the water closet shall be 16 inches (405 mm) minimum to 18 inches (455 mm) maximum from the side wall or partition, except that the water closet shall be 17 inches (430 mm) minimum and 19 inches (485 mm) maximum from the side wall or partition in the ambulatory *accessible* toilet compartment specified in 604.8.2. Water closets shall be arranged for a left-hand or right-hand approach.

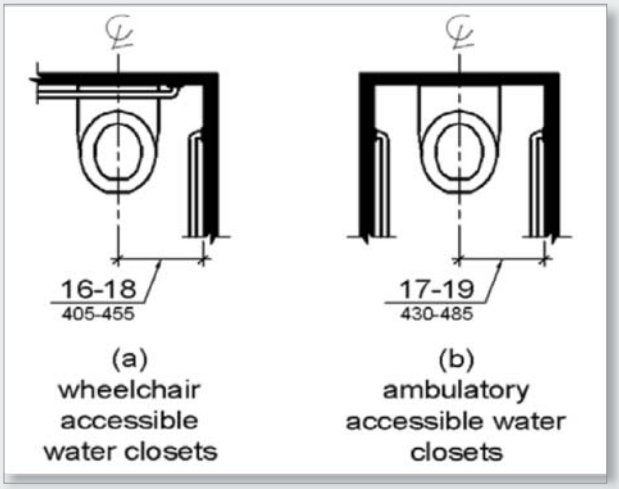


Figure 604.2 - Water Closet Location

604.3 Clearance. Clearances around water closets and in toilet compartments shall comply with 604.3.

604.3.1 Size. Clearance around a water closet shall be 60 inches (1525 mm) minimum measured perpendicular from the side wall and 56 inches (1420 mm) minimum measured perpendicular from the rear wall.

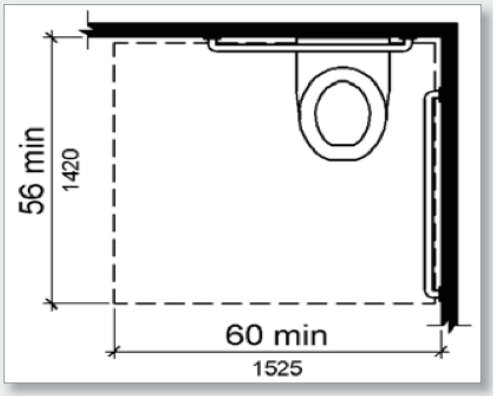


Figure 604.3.1
Size of Clearance at Water Closets

604.3.2 Overlap. The required clearance around the water closet shall be permitted to overlap the water closet, associated grab bars, dispensers, sanitary napkin disposal units, coat hooks, shelves, *accessible* routes, clear floor *space* and clearances required at other fixtures, and the turning *space*. No other fixtures or obstructions shall be located within the required water closet clearance.

EXCEPTION: In *residential dwelling units*, a lavatory complying with 606 shall be permitted on the rear wall 18 inches (455 mm) minimum from the water closet centerline where the clearance at the water closet is 66 inches (1675 mm) minimum measured perpendicular from the rear wall.

Advisory 604.3.2 Overlap. When the door to the toilet room is placed directly in front of the water closet, the water closet cannot overlap the required maneuvering clearance for the door inside the room.

604.4 Seats. The seat height of a water closet above the finish floor shall be 17 inches (430 mm) minimum and 19 inches (485 mm) maximum measured to the top of the seat. Seats shall not be sprung to return to a lifted position.

EXCEPTIONS: 1. A water closet in a toilet room for a single occupant accessed only through a private office and not for *common use* or *public use* shall not be required to comply with 604.4.2. In *residential dwelling units*, the height of water closets shall be permitted to be 15 inches (380 mm) minimum and 19 inches (485 mm) maximum above the finish floor measured to the top of the seat.

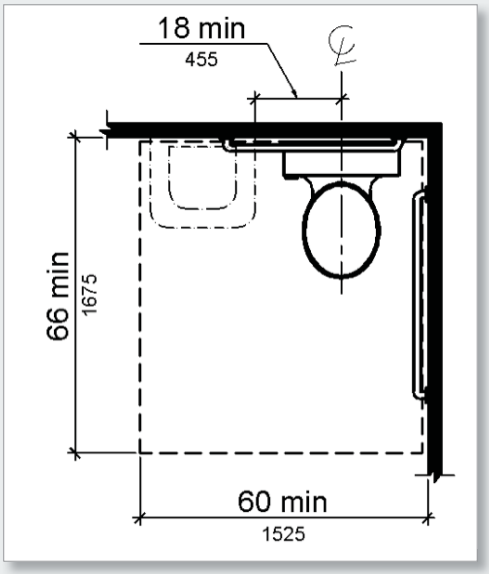


Figure 604.3.2 (Exception)
Overlap of Water Closet Clearance in Residential Dwelling Units

604.5 Grab Bars. Grab bars for water closets shall comply with 609. Grab bars shall be provided on the side wall closest to the water closet and on the rear wall.

EXCEPTIONS:

1. Grab bars shall not be required to be installed in a toilet room for a single occupant accessed only through a private office and not for *common use* or *public use* provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with 604.5.
2. In *residential dwelling units*, grab bars shall not be required to be installed in toilet or bathrooms provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with 604.5.
3. In detention or correction *facilities*, grab bars shall not be required to be installed in housing or holding cells that are specially designed without protrusions for purposes of suicide prevention.

Advisory 604.5 Grab Bars Exception 2. Reinforcement must be sufficient to permit the installation of rear and side wall grab bars that fully meet all accessibility requirements including, but not limited to, required length, installation height, and structural strength.

604.5.1 Side Wall. The side wall grab bar shall be 42 inches (1065 mm) long minimum, located 12 inches (305 mm) maximum from the rear wall and extending 54 inches (1370 mm) minimum from the rear wall.

604.5.2 Rear Wall. The rear wall grab bar shall be 36 inches (915 mm) long minimum and extend from the centerline of the water closet 12 inches (305 mm) minimum on one side and 24 inches (610 mm) minimum on the other side.

EXCEPTIONS:

1. The rear grab bar shall be permitted to be 24 inches (610 mm) long minimum, centered on the water closet, where wall *space* does not permit a length of 36 inches (915 mm) minimum due to the location of a recessed fixture adjacent to the water closet.
2. Where an *administrative authority* requires flush controls for flush valves to be located in a position that conflicts with the location of the rear grab bar, then the rear grab bar shall be permitted to be split or shifted to the open side of the toilet area.

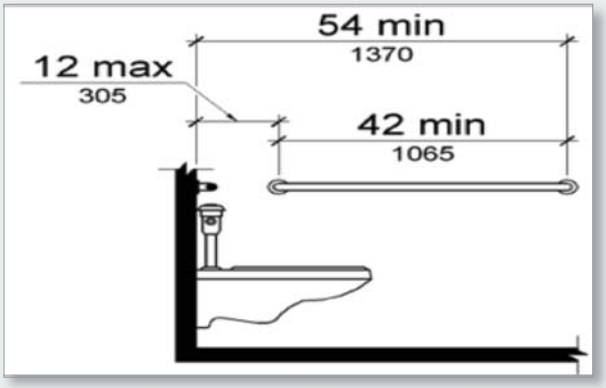


Figure 604.5.1
Side Wall Grab B ar at Water Closets

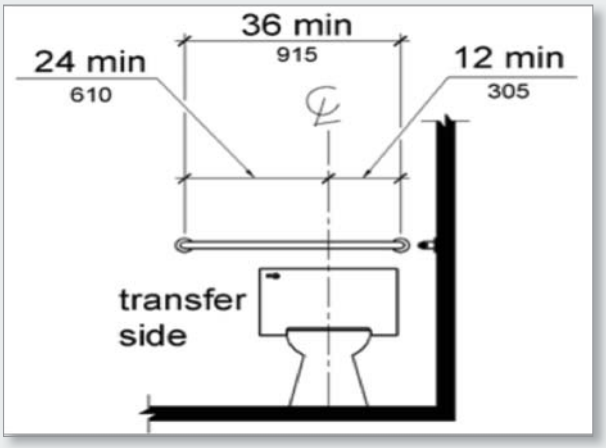


Figure 604.5.2
Rear Wall Grab Bar at Water Closets

604.6 Flush Controls. Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with 309. Flush controls shall be located on the open side of the water closet except in ambulatory *accessible* compartments complying with 604.8.2.

604.7 Dispensers. Toilet paper dispensers shall comply with 309.4 and shall be 7 inches (180 mm) minimum and 9 inches (230 mm) maximum in front of the water closet measured to the centerline of the dispenser. The outlet of the dispenser shall be 15 inches (380 mm) minimum and 48 inches (1220 mm) maximum above the finish floor and shall not be located behind grab bars. Dispensers shall not be of a type that controls delivery or that does not allow continuous paper flow.

Advisory 604.6 Flush Controls. If plumbing valves are located directly behind the toilet seat, flush valves and related plumbing can cause injury or imbalance when a person leans back against them. To prevent causing injury

or imbalance, the plumbing can be located behind walls or to the side of the toilet; or if approved by the local authority having jurisdiction, provide a toilet seat lid.

Advisory 604.7 Dispensers. If toilet paper dispensers are installed above the side wall grab bar, the outlet of the toilet paper dispenser must be 48 inches (1220 mm) maximum above the finish floor and the top of the gripping surface of the grab bar must be 33 inches (840 mm) minimum and 36 inches (915 mm) maximum above the finish floor.

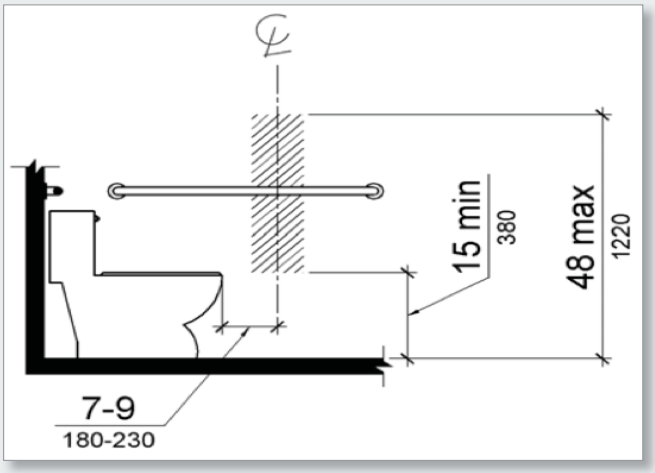


Figure 604.7 - Dispenser Outlet Location

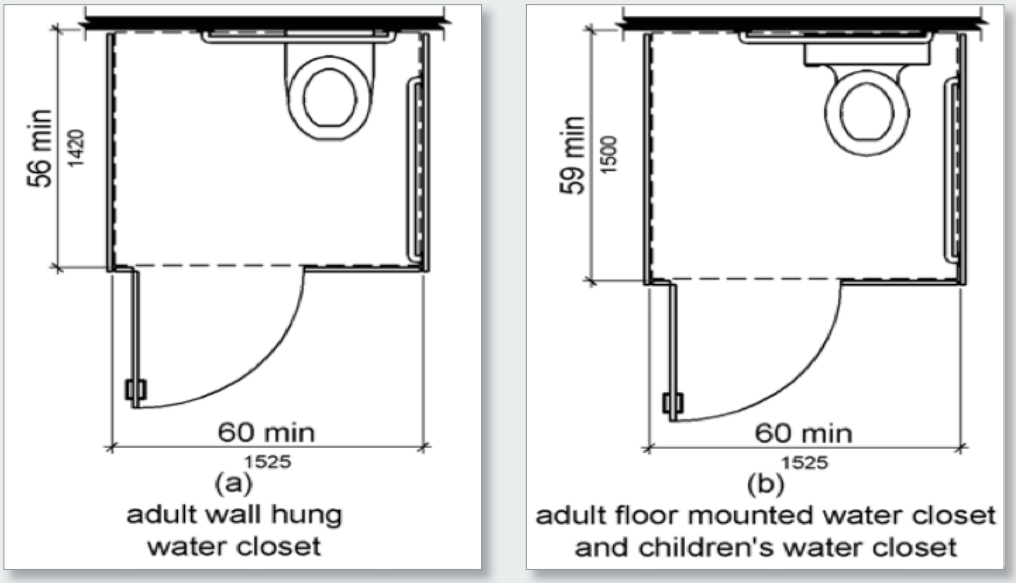
604.8 Toilet Compartments. Wheelchair *accessible* toilet compartments shall meet the requirements of 604.8.1 and 604.8.3. Compartments containing more than one plumbing fixture shall comply with 603. Ambulatory *accessible* compartments shall comply with 604.8.2 and 604.8.3.

604.8.1 Wheelchair Accessible Compartments. Wheelchair *accessible* compartments shall comply with 604.8.1.

604.8.1.1 Size. Wheelchair *accessible* compartments shall be 60 inches (1525 mm) wide minimum measured perpendicular to the side wall, and 56 inches (1420 mm) deep minimum for wall hung water closets and 59 inches (1500 mm) deep minimum for floor mounted water closets measured perpendicular to the rear wall. Wheelchair *accessible* compartments for *children's use* shall be 60 inches (1525 mm) wide minimum measured perpendicular to the side wall, and 59 inches (1500 mm) deep minimum for wall hung and floor mounted water closets measured perpendicular to the rear wall.

Advisory 604.8.1.1 Size. The minimum *space* required in toilet compartments is provided so that a person using a wheelchair can maneuver into position at the water closet. This *space* cannot be obstructed by baby changing tables or other fixtures or conveniences, except as specified at 604.3.2 (Overlap). If toilet compartments are to be used to house fixtures other than those associated with the water closet, they must be designed to exceed the minimum *space* requirements. Convenience fixtures such as baby changing tables must also be *accessible* to people with disabilities as well as to other users. Toilet compartments that are designed to meet, and not exceed, the minimum *space* requirements may not provide adequate *space* for maneuvering into position at a baby changing table.

Figure 604.8.1.1 Size of Wheelchair Accessible Toilet Compartment



604.8.1.2 Doors. Toilet compartment doors, including door hardware, shall comply with 404 except that if the approach is to the latch side of the compartment door, clearance between the door side of the compartment and any obstruction shall be 42 inches (1065 mm) minimum. Doors shall be located in the front partition or in the side wall or partition farthest from the water closet. Where located in the front partition, the door opening shall be 4 inches (100 mm) maximum from the side wall or partition farthest from the water closet. Where located in the side wall or partition, the door opening shall be 4 inches (100 mm) maximum from the front partition. The door shall be self-closing. A door pull complying with 404.2.7 shall be placed on both sides of the door near the latch. Toilet compartment doors shall not swing into the minimum required compartment area.

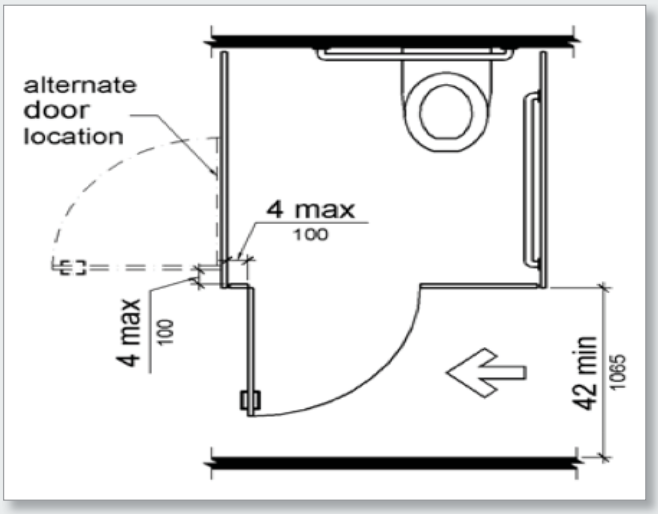


Figure 604.8.1.2 - Wheelchair Accessible Toilet Compartment Doors

604.8.1.3 Approach. Compartments shall be arranged for left-hand or right-hand approach to the water closet.

604.8.1.4 Toe Clearance. The front partition and at least one side partition shall provide a toe clearance of 9 inches (230 mm) minimum above the finish floor and 6 inches (150 mm) deep minimum beyond the compartment-side face of the partition, exclusive of partition support members. Compartments for *children's use* shall provide a toe clearance of 12 inches (305 mm) minimum above the finish floor.

EXCEPTION: Toe clearance at the front partition is not required in a compartment greater than 62 inches (1575 mm) deep with a wall-hung water closet or 65 inches (1650 mm) deep with a floor-mounted water closet. Toe clearance at the side partition is not required in a compartment greater than 66 inches (1675 mm) wide. Toe clearance at the front partition is not required in a compartment for *children's use* that is greater than 65 inches (1650 mm) deep.

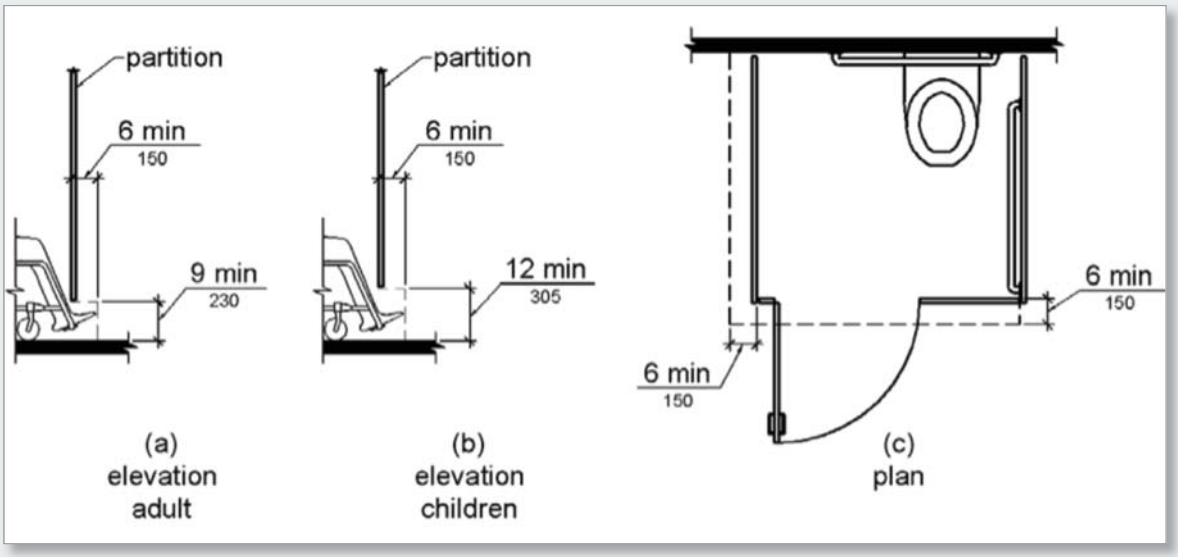


Figure 604.8.1.4 - Wheelchair Accessible Toilet Compartment Toe Clearance

604.8.1.5 Grab Bars. Grab bars shall comply with 609. A side-wall grab bar complying with 604.5.1 shall be provided and shall be located on the wall closest to the water closet. In addition, a rear-wall grab bar complying

with 604.5.2 shall be provided.

604.8.2 Ambulatory Accessible Compartments. Ambulatory *accessible* compartments shall comply with 604.8.2.

604.8.2.1 Size. Ambulatory *accessible* compartments shall have a depth of 60 inches (1525 mm) minimum and a width of 35 inches (890 mm) minimum and 37 inches (940 mm) maximum.

604.8.2.2 Doors. Toilet compartment doors, including door hardware, shall comply with 404, except that if the approach is to the latch side of the compartment door, clearance between the door side of the compartment and any obstruction shall be 42 inches (1065 mm) minimum. The door shall be self-closing. A door pull complying with 404.2.7 shall be placed on both sides of the door near the latch. Toilet compartment doors shall not swing into the minimum required compartment area.

604.8.2.3 Grab Bars. Grab bars shall comply with 609. A side-wall grab bar complying with 604.5.1 shall be provided on both sides of the compartment.

604.8.3 Coat Hooks and Shelves. Coat hooks shall be located within one of the reach ranges specified in 308. Shelves shall be located 40 inches (1015 mm) minimum and 48 inches (1220 mm) maximum above the finish floor.

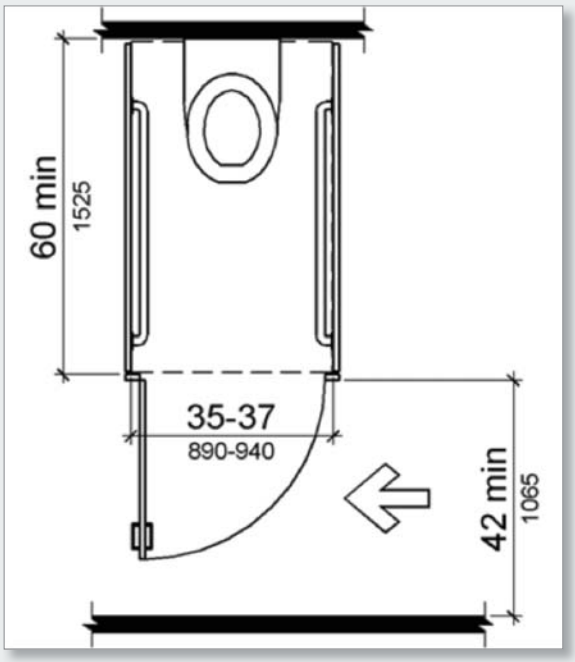


Figure 604.8.2 - Ambulatory Accessible Toilet Compartment

604.9 Water Closets and Toilet Compartments for Children's Use. Water closets and toilet compartments for *children's use* shall comply with 604.9.

Advisory 604.9 Water Closets and Toilet Compartments for Children's Use. The requirements in 604.9 are to be followed where the exception for children's water closets in 604.1 is used. The following table provides additional guidance in applying the specifications for water closets for children according to the age group served and reflects the differences in the size, stature, and reach ranges of children ages 3 through 12. The specifications chosen should correspond to the age of the primary user group. The specifications of one age group should be applied consistently in the installation of a water closet and related elements.

Advisory Specifications for Water Closets Serving Children Ages 3 through 12			
	Ages 3 & 4	Ages 5 - 8	Ages 9 -12
Water Closet Centerline	12 inches	12 to 15 inches	15 to 18 inches
Toilet Seat Height	11 to 12 inches	12 to 15 inches	15 to 17 inches
Grab Bar Height	18 to 20 inches	20 to 25 inches	25 to 27 inches
Dispenser Height	14 inches	14 to 17 inches	17 to 19 inches

604.9.1 Location. The water closet shall be located with a wall or partition to the rear and to one side. The centerline of the water closet shall be 12 inches (305 mm) minimum and 18 inches (455 mm) maximum from the side wall or partition, except that the water closet shall be 17 inches (430 mm) minimum and 19 inches (485 mm) maximum from the side wall or partition in the ambulatory *accessible* toilet compartment specified in 604.8.2. Compartments shall be arranged for left-hand or right-hand approach to the water closet.

604.9.2 Clearance. Clearance around a water closet shall comply with 604.3.

604.9.3 Height. The height of water closets shall be 11 inches (280 mm) minimum and 17 inches (430 mm) maximum measured to the top of the seat. Seats shall not be sprung to return to a lifted position.

604.9.4 Grab Bars. Grab bars for water closets shall comply with 604.5.

604.9.5 Flush Controls. Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with 309.2 and 309.4 and shall be installed 36 inches (915 mm) maximum above the finish floor. Flush controls shall be located on the open side of the water closet except in ambulatory *accessible* compartments complying with 604.8.2.

604.9.6 Dispensers. Toilet paper dispensers shall comply with 309.4 and shall be 7 inches (180 mm) minimum and 9 inches (230 mm) maximum in front of the water closet measured to the centerline of the dispenser. The outlet of the dispenser shall be 14 inches (355 mm) minimum and 19 inches (485 mm) maximum above the finish floor. There shall be a clearance of 1½ inches (38 mm) minimum below the grab bar. Dispensers shall not be of a type that controls delivery or that does not allow continuous paper flow.

604.9.7 Toilet Compartments. Toilet compartments shall comply with 604.8.

EXAM QUESTIONS

17. For a wheelchair accessible water closet, the centerline of the water closet shall be _____ inches minimum.

a. 16
b. 17
c. 18
d. 19

18. For an ambulatory accessible water closet, the centerline of the water closet shall be _____ inches maximum.

a. 16
b. 17
c. 18
d. 19

19. Clearance around a water closet shall be _____ inches minimum measured perpendicular from the side wall.

a. 56
b. 60
c. 64
d. 68

20. When the door to the toilet room is placed directly in front of the water closet, the water closet cannot overlap the required maneuvering clearance for the door inside the room.

a. True
b. False

21. Seats in a water closet are required to be sprung to return to a lifted position.

a. True
b. False

22. The seat height of a water closet above the finish floor shall be ___ inches minimum.

a. 16
b. 17
c. 18
d. 20

23. Grab bars shall be provided on the side wall closest to the water closet and on the rear wall.

a. True
b. False

24. The side wall grab bar shall be located ___ inches maximum from the rear wall.

a. 12
b. 36
c. 42
d. 54

25. The side wall grab bar shall be ___ inches long minimum.

a. 12
b. 36
c. 42
d. 54

26. The rear wall grab bar shall be ___ inches long minimum.

a. 12
b. 24
c. 36
d. 48

27. The rear grab bar shall be permitted to be 24 inches long minimum, centered on the water closet, where wall space does not permit a length of 36 inches minimum due to the location of a recessed fixture adjacent to the water closet.

a. True
b. False

28. Flush controls shall be hand operated or automatic.

a. True
b. False

29. Toilet paper dispensers shall be ___ inches minimum in front of the water closet measured to the centerline of the dispenser.

a. 6
b. 7
c. 8
d. 10

30. If toilet paper dispensers are installed above the side wall grab bar, the outlet of the toilet paper dispenser must be ___ inches maximum above the floor.

a. 33
b. 36
c. 42
d. 48

31. Wheelchair accessible compartments shall be ___ inches wide minimum measured perpendicular to the side wall.

a. 56
b. 60
c. 64
d. 68

32. The minimum space required in toilet compartments is provided so that a person using a wheelchair can maneuver into position at the water closet.

a. True
b. False

33. Wheelchair accessible compartments for children's use shall be 59 inches deep _____ for wall hung and floor mounted water closets measured perpendicular to the rear wall.

a. Minimum
b. Maximum
c. Both a & b
d. None of the above

34. Water closet doors shall be located in the front partition or in the side wall or partition closest to the water closet.

a. True
b. False

35. Where located in the side wall or partition, the water closet door opening shall be ____ inches maximum from the front partition.

a. 2
b. 3
c. 4
d. 5

36. The front partition and at least one side partition for adults shall provide a toe clearance of ____ inches minimum above the floor.

a. 6
b. 9
c. 12
d. 15

37. Ambulatory accessible toilet compartments shall have a depth of 35 inches minimum.

a. True
b. False

38. Shelves shall be located 40 inches minimum and 48 inches maximum above the finish floor.

a. True
b. False

39. According to the advisory specifications for children ages 3 and 4, the grab bar height should be _____.

a. 18 to 20 inches
b. 20 to 25 inches
c. 25 to 27 inches
d. None of the above

40. According to the advisory specifications for children ages 9 through 12, the toilet seat height should be _____.

a. 11 to 12 inches
b. 12 to 15 inches
c. 15 to 17 inches
d. 18 to 20 inches

41. According to the advisory specifications for children 5 through 8, the dispenser height should be _____.

a. 12 to 15 inches
b. 14 to 17 inches
c. 17 to19 inches
d. None of the above

42. The height of water closets shall be 11 inches minimum and 17 inches maximum measured to the top of the seat.

a. True
b. False

43. Hand operated flush controls shall be installed ___ inches maximum above the finish floor.

a. 36
b. 40
c. 44
d. 48

44. The outlet of the toilet paper dispenser shall be ____ inches maximum above the finish floor.

a. 14
b. 16
c. 19
d. 24

605 Urinals

605.1 General. Urinals shall comply with 605.

Advisory 605.1 General. Stall-type urinals provide greater accessibility for a broader range of persons, including people of short stature.

605.2 Height and Depth. Urinals shall be the stall-type or the wall-hung type with the rim 17 inches (430 mm) maximum above the finish floor or ground. Urinals shall be 13½ inches (345 mm) deep minimum measured from the outer face of the urinal rim to the back of the fixture.

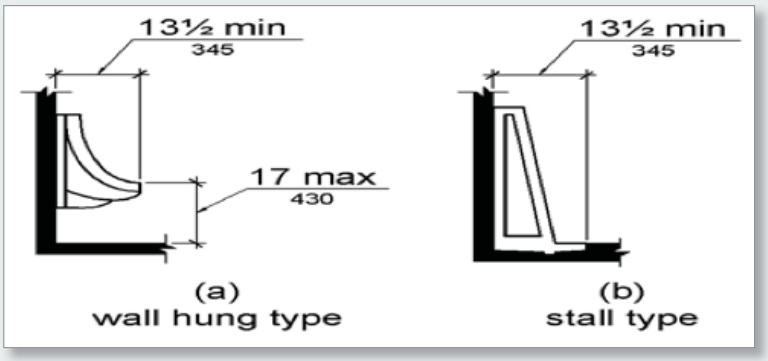


Figure 605.2 - Height and Depth of Urinals

605.3 Clear Floor Space. A clear floor or ground *space* complying with 305 positioned for forward approach shall be provided.

605.4 Flush Controls. Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with 309.

EXAM QUESTIONS

45. Urinals shall be the stall-type or the wall-hung type with the rim _____ inches maximum above the finish floor or ground.

a. 13
b. 15
c. 17
d. 19

46. Urinals shall be 12 inches deep minimum measured from the outer face of the urinal rim to the back of the fixture.

a. True
b. False

47. Urinals shall be __ inches deep minimum measured from the outer face of the urinal rim to the back of the fixture.

a. 12
b. 13 ½
c. 17
d. 24

48. Flush controls for urinals shall be hand operated or automatic.

a. True
b. False

606 Lavatories and Sinks

606.1 General. Lavatories and sinks shall comply with 606.

Advisory 606.1 General. If soap and towel dispensers are provided, they must be located within the reach ranges specified in 308. Locate soap and towel dispensers so that they are conveniently usable by a person at the *accessible* lavatory.

606.2 Clear Floor Space. A clear floor *space* complying with 305, positioned for a forward approach, and knee and toe clearance complying with 306 shall be provided.

EXCEPTIONS:

1. A parallel approach complying with 305 shall be permitted to a kitchen sink in a *space* where a cook top or conventional range is not provided and to wet bars.
2. A lavatory in a toilet room or bathing *facility* for a single occupant accessed only through a private office and not for *common use* or *public use* shall not be required to provide knee and toe clearance complying with 306.
3. In *residential dwelling units*, cabinetry shall be permitted under lavatories and kitchen sinks provided that all of the following conditions are met:(a) the cabinetry can be removed without removal or replacement of the fixture;(b) the finish floor extends under the cabinetry; and(c) the walls behind and surrounding the cabinetry are finished.
4. A knee clearance of 24 inches (610 mm) minimum above the finish floor or ground shall be permitted at lavatories and sinks used primarily by children 6 through 12 years where the rim or counter surface is 31 inches (785 mm) maximum above the finish floor or ground.
5. A parallel approach complying with 305 shall be permitted to lavatories and sinks used primarily by children 5 years and younger.
6. The dip of the overflow shall not be considered in determining knee and toe clearances.
7. No more than one bowl of a multi-bowl sink shall be required to provide knee and toe clearance complying with 306.

606.3 Height. Lavatories and sinks shall be installed with the front of the higher of the rim or counter surface 34 inches (865 mm) maximum above the finish floor or ground.

EXCEPTIONS:

1. A lavatory in a toilet or bathing *facility* for a single occupant accessed only through a private office and not for *common use* or *public use* shall not be required to comply with 606.3.
2. In *residential dwelling unit* kitchens, sinks that are adjustable to variable heights, 29 inches (735 mm) minimum and 36 inches (915 mm) maximum, shall be permitted where rough-in plumbing permits connections of supply and drain pipes for sinks mounted at the height of 29 inches (735 mm).

606.4 Faucets. Controls for faucets shall comply with 309. Hand-operated metering faucets shall remain open for 10 seconds minimum.

606.5 Exposed Pipes and Surfaces. Water supply and drain pipes under lavatories and sinks shall be insulated or otherwise configured to protect against contact. There shall be no sharp or abrasive surfaces under lavatories and sinks.

EXAM QUESTIONS

49. Lavatories and sinks shall be installed with the front of the higher of the rim or counter surface ____ inches maximum above the floor.

a. 30
b. 34
c. 38
d. 42

50. True of False, soap and towel dispensers should be located so that they are conveniently usable by a person at the accessible lavatory.

a. True
b. False

51. In residential dwelling unit kitchens, sinks that are adjustable to variable heights, 29 inches minimum and 36 inches maximum, shall be permitted where rough-in plumbing permits connections of supply and drain pipes for sinks mounted at the height of 29 inches.

a. True
b. False

52. A knee clearance of 24 inches minimum above the finish floor or ground shall be permitted at lavatories and sinks used primarily children where the rim or counter surface is _____ inches maximum above the finish floor or ground.

a. 12
b. 24
c. 29
d. 31

53. Hand-operated metering faucets shall remain open for ____ seconds minimum.

a. 10
b. 15
c. 20
d. 30

54. Lavatories and sinks shall be installed with the front of the higher of the rim or counter surface _____ inches maximum above the finish floor or ground.

a. 29
b. 31
c. 34
d. 36

55. Water supply and drain pipes under lavatories and sinks shall be insulated or otherwise configured to protect against contact.

a. True
b. False

607 Bathtubs

607.1 General. Bathtubs shall comply with 607.

607.2 Clearance. Clearance in front of bathtubs shall extend the length of the bathtub and shall be 30 inches (760 mm) wide minimum. A lavatory complying with 606 shall be permitted at the control end of the clearance. Where a permanent seat is provided at the head end of the bathtub, the clearance shall extend 12 inches (305 mm) minimum beyond the wall at the head end of the bathtub.

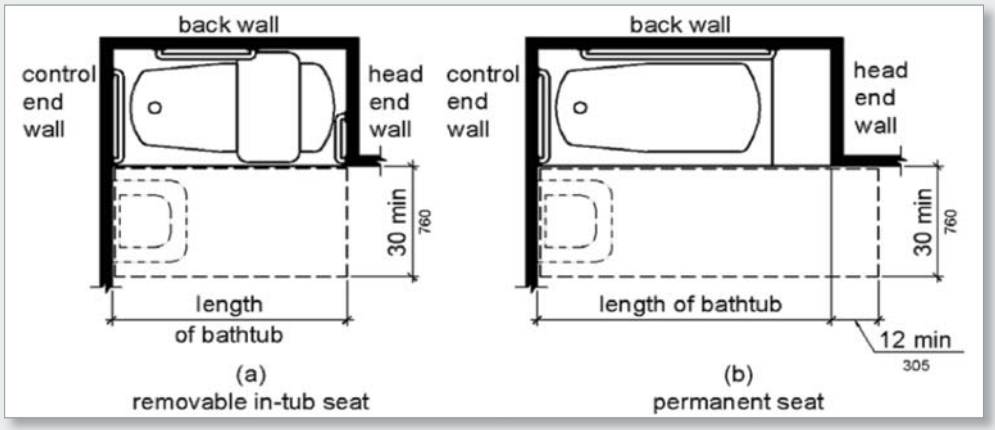


Figure 607.2 - Clearance for Bathtubs

607.3 Seat. A permanent seat at the head end of the bathtub or a removable in-tub seat shall be provided. Seats shall comply with 610.

607.4 Grab Bars. Grab bars for bathtubs shall comply with 609 and shall be provided in accordance with 607.4.1 or 607.4.2.

EXCEPTIONS:

1. Grab bars shall not be required to be installed in a bathtub located in a bathing *facility* for a single occupant accessed only through a private office and not for *common use* or *public use* provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with 607.4.
2. In *residential dwelling units*, grab bars shall not be required to be installed in bathtubs located in bathing *facilities* provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with 607.4.

607.4.1 Bathtubs with Permanent Seats. For bathtubs with permanent seats, grab bars shall be provided in accordance with 607.4.1.

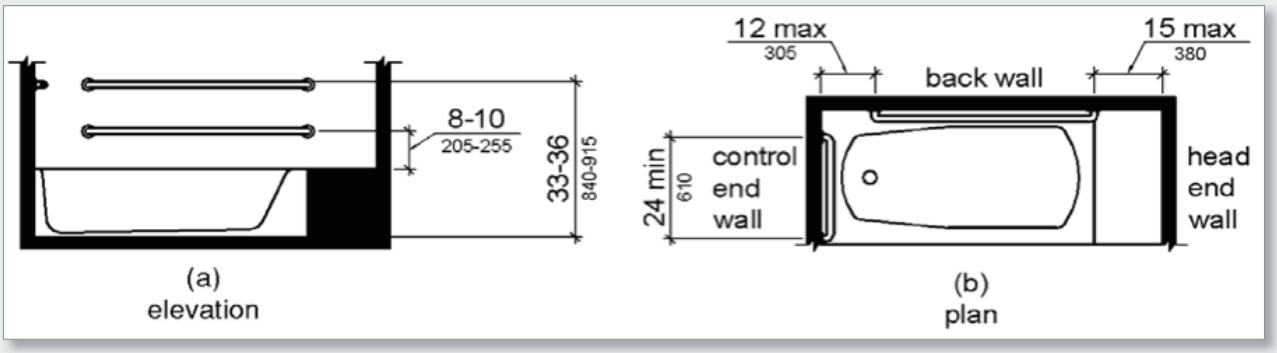


Figure 607.4.1 - Grab Bars for Bathtubs with Permanent Seats

607.4.1.1 Back Wall. Two grab bars shall be installed on the back wall, one located in accordance with 609.4 and the other located 8 inches (205 mm) minimum and 10 inches (255 mm) maximum above the rim of the bathtub. Each grab bar shall be installed 15 inches (380 mm) maximum from the head end wall and 12 inches (305 mm) maximum from the control end wall.

607.4.1.2 Control End Wall. A grab bar 24 inches (610 mm) long minimum shall be installed on the control end wall at the front edge of the bathtub.

607.4.2 Bathtubs without Permanent Seats. For bathtubs without permanent seats, grab bars shall comply with 607.4.2.

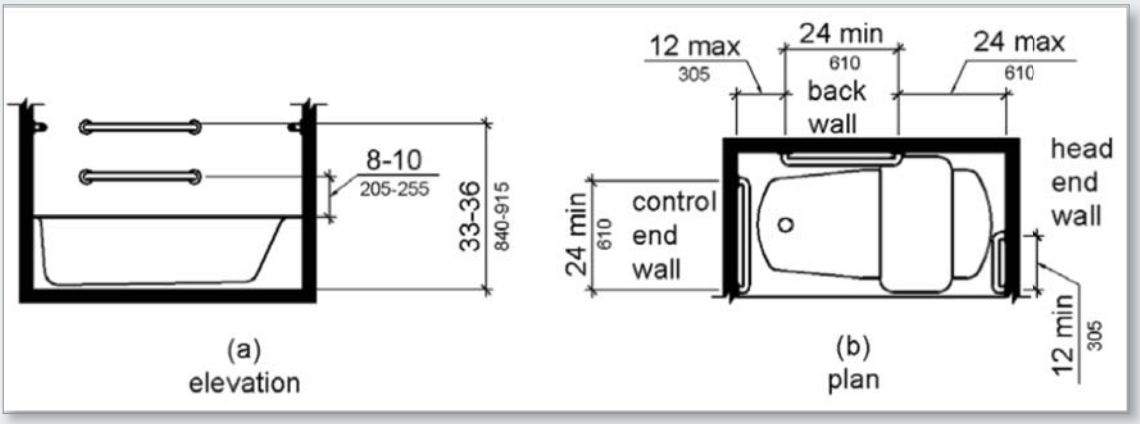


Figure 607.4.2 Grab Bars for Bathtubs with Removable In-Tub Seats

607.4.2.1 Back Wall. Two grab bars shall be installed on the back wall, one located in accordance with 609.4 and other located 8 inches (205 mm) minimum and 10 inches (255 mm) maximum above the rim of the bathtub. Each grab bar shall be 24 inches (610 mm) long minimum and shall be installed 24 inches (610 mm) maximum from the head end wall and 12 inches (305 mm) maximum from the control end wall.

607.4.2.2 Control End Wall. A grab bar 24 inches (610 mm) long minimum shall be installed on the control end wall at the front edge of the bathtub.

607.4.2.3 Head End Wall. A grab bar 12 inches (305 mm) long minimum shall be installed on the head end wall at the front edge of the bathtub.

607.5 Controls. Controls, other than drain stoppers, shall be located on an end wall. Controls shall be between the bathtub rim and grab bar, and between the open side of the bathtub and the centerline of the width of the bathtub. Controls shall comply with 309.4.

607.6 Shower Spray Unit and Water. A shower spray unit with a hose 59 inches (1500 mm) long minimum that can be used both as a fixed-position shower head and as a hand-held shower shall be provided. The shower spray unit shall have an on/off control with a non-positive shut-off. If an adjustable-height shower head on a vertical bar is used, the bar shall be installed so as not to obstruct the use of grab bars. Bathtub shower spray units shall deliver water that is 120°F (49°C) maximum.

Advisory 607.6 Shower Spray Unit and Water. Ensure that hand-held shower spray units are capable of delivering water pressure substantially equivalent to fixed shower heads.

607.7 Bathtub Enclosures. Enclosures for bathtubs shall not obstruct controls, faucets, shower and spray units or obstruct transfer from wheelchairs onto bathtub seats or into bathtubs. Enclosures on bathtubs shall not have tracks installed on the rim of the open face of the bathtub.

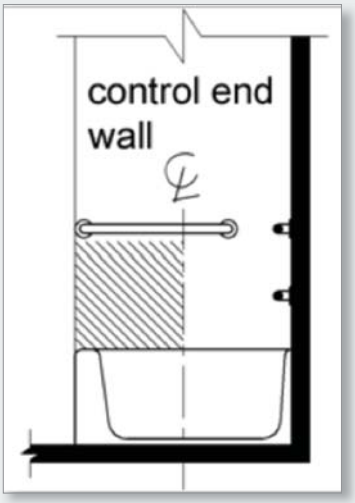


Figure 607.5
Bathtub Control Location

EXAM QUESTIONS

56. Clearance in front of bathtubs shall extend the length of the bathtub and shall be 30 inches wide minimum.
a. True
b. False

57. A grab bar ___ inches long minimum shall be installed on the control end wall at the front edge of the bathtub.
a. 12
b. 15
c. 18
d. 24

58. A grab bar 12 inches long minimum shall be installed on the control end wall at the front edge of the bathtub.
a. True
b. False

59. A grab bar 12 inches long minimum shall be installed on the head end wall at the front edge of the bathtub.
a. True
b. False

60. Bathtub controls, other than drain stoppers, shall be located on an end wall.
a. True
b. False

61. A shower spray unit with a hose ___ inches long minimum that can be used both as a fixed-position shower head and as a hand-held shower shall be provided.
a. 49
b. 59
c. 69
d. 79

62. Bathtub shower spray units shall deliver water that is ____°F maximum.

a. 120
b. 140
c. 160
d. 212

608 Shower Compartments

608.1 General. Shower compartments shall comply with 608.

Advisory 608.1 General. Shower stalls that are 60 inches (1525 mm) wide and have no curb may increase the usability of a bathroom because the shower area provides additional maneuvering *space*.

608.2 Size and Clearances for Shower Compartments. Shower compartments shall have sizes and clearances complying with 608.2.

608.2.1 Transfer Type Shower Compartments. Transfer type shower compartments shall be 36 inches (915 mm) by 36 inches (915 mm) clear inside dimensions measured at the center points of opposing sides and shall have a 36 inch (915 mm) wide minimum entry on the face of the shower compartment. Clearance of 36 inches (915 mm) wide minimum by 48 inches (1220 mm) long minimum measured from the control wall shall be provided.

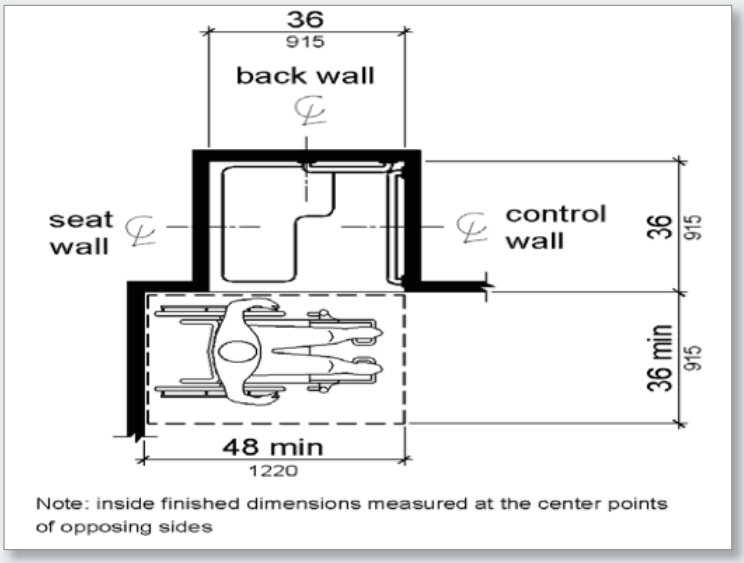


Figure 608.2.1 - Transfer Type Shower Compartment Size and Clearance

608.2.2 Standard Roll-In Type Shower Compartments. Standard roll-in type shower compartments shall be 30 inches (760 mm) wide minimum by 60 inches (1525 mm) deep minimum clear inside dimensions measured at center points of opposing sides and shall have a 60 inches (1525 mm) wide minimum entry on the face of the shower compartment.

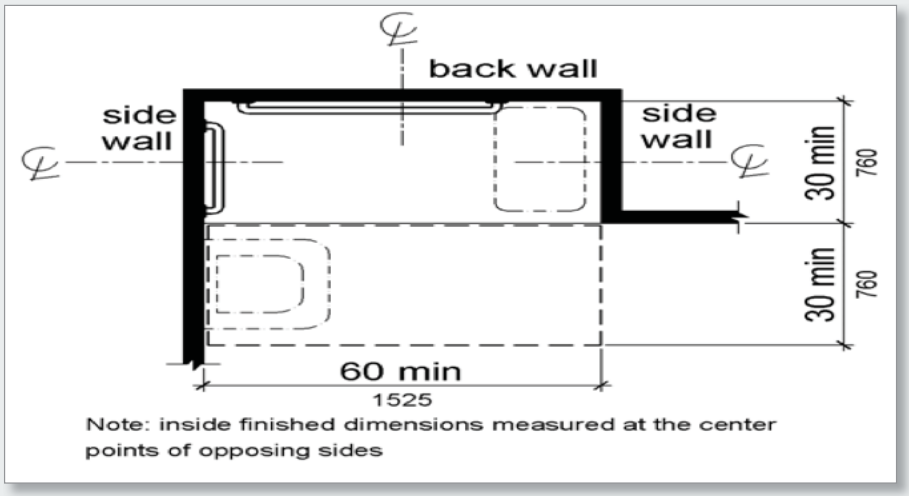


Figure 608.2.2 - Standard Roll-In Type Shower Compartment Size and Clearance

608.2.2.1 Clearance. A 30 inch (760 mm) wide minimum by 60 inch (1525 mm) long minimum clearance shall be provided adjacent to the open face of the shower compartment.

EXCEPTION: A lavatory complying with 606 shall be permitted on one 30 inch (760 mm) wide minimum side of the clearance provided that it is not on the side of the clearance adjacent to the controls or, where provided, not on the side of the clearance adjacent to the shower seat.

608.2.3 Alternate Roll-In Type Shower Compartments. Alternate roll-in type shower compartments shall be 36 inches (915 mm) wide and 60 inches (1525 mm) deep minimum clear inside dimensions measured at center points of opposing sides. A 36 inch (915 mm) wide minimum entry shall be provided at one end of the long side of the compartment.

608.3 Grab Bars. Grab bars shall comply with 609 and shall be provided in accordance with 608.3. Where multiple grab bars are used, required horizontal grab bars shall be installed at the same height above the finish floor.

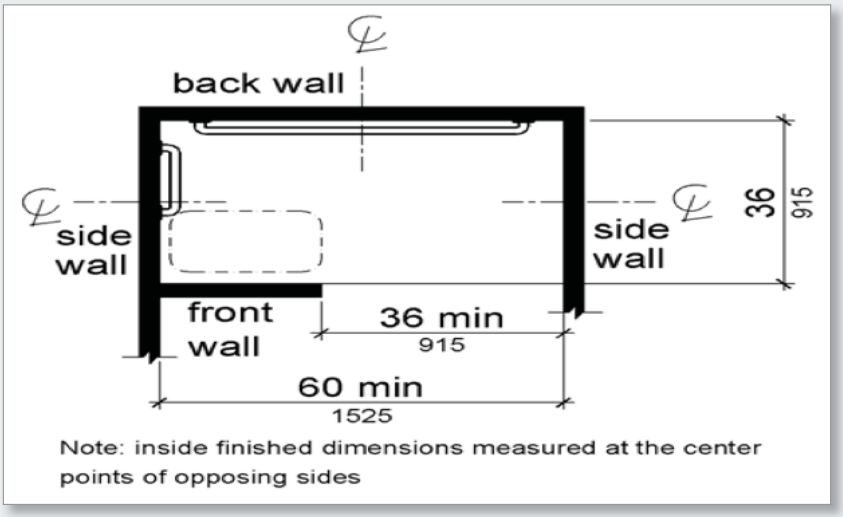


Figure 608.2.3 - Alternate Roll-In Type Shower Compartment Size and Clearance

EXCEPTIONS:

1. Grab bars shall not be required to be installed in a shower located in a bathing *facility* for a single occupant accessed only through a private office, and not for *common use* or *public use* provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with 608.3.
2. In *residential dwelling units*, grab bars shall not be required to be installed in showers located in bathing *facilities* provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with 608.3.

608.3.1 Transfer Type Shower Compartments. In transfer type compartments, grab bars shall be provided across the control wall and back wall to a point 18 inches (455 mm) from the control wall.

608.3.2 Standard Roll-In Type Shower Compartments. Where a seat is provided in standard roll-in type shower compartments, grab bars shall be provided on the back wall and the side wall opposite the seat. Grab bars shall not be provided above the seat. Where a seat is not provided in standard roll-in type shower compartments, grab bars shall be provided on three walls. Grab bars shall be installed 6 inches (150 mm) maximum from adjacent walls.

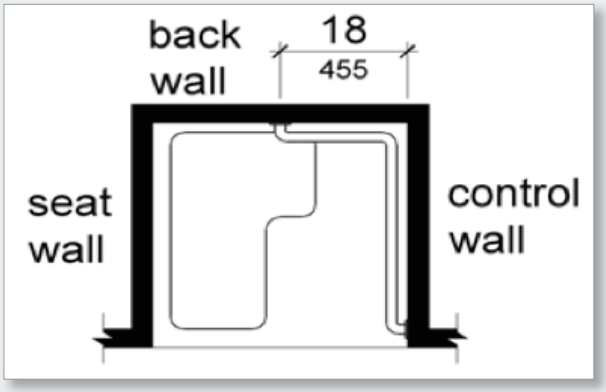


Figure 608.3.1
Grab Bars for Transfer Type Showers

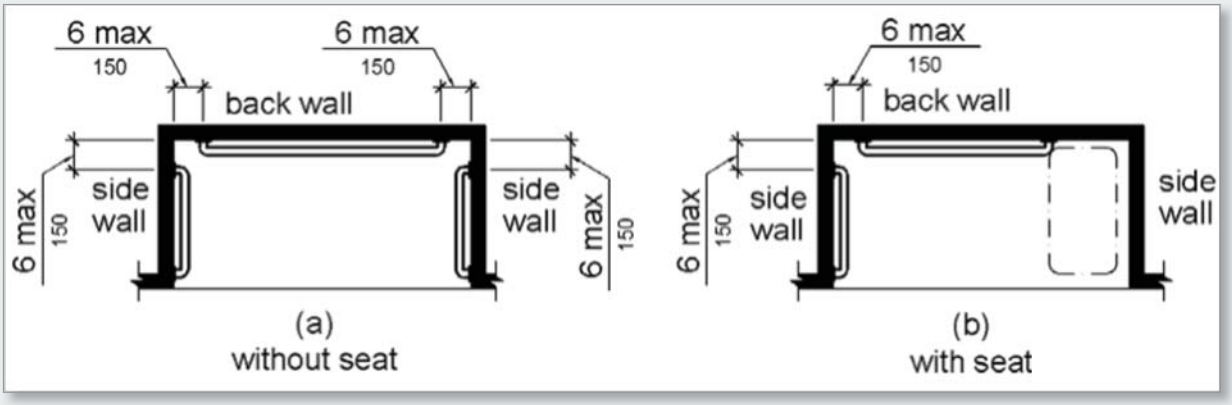


Figure 608.3.2 - Grab Bars for Standard Roll-In Type Showers

608.3.3 Alternate Roll-In Type Shower Compartments. In alternate roll-in type shower compartments, grab bars shall be provided on the back wall and the side wall farthest from the compartment entry. Grab bars shall not be provided above the seat. Grab bars shall be installed 6 inches (150 mm) maximum from adjacent walls.

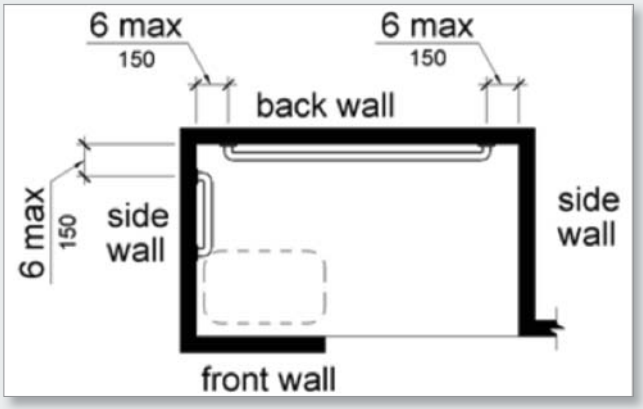


Figure 608.3.3 - Grab Bars for Alternate Roll-In Type Showers

608.4 Seats. A folding or non-folding seat shall be provided in transfer type shower compartments. A folding seat shall be provided in roll-in type showers required in *transient lodging* guest rooms with mobility features complying with 806.2. Seats shall comply with 610.

EXCEPTION: In *residential dwelling units,* seats shall not be required in transfer type shower compartments provided that reinforcement has been installed in walls so as to permit the installation of seats complying with 608.4.

608.5 Controls. Controls, faucets, and shower spray units shall comply with 309.4.

608.5.1 Transfer Type Shower Compartments. In transfer type shower compartments, the controls, faucets, and shower spray unit shall be installed on the side wall opposite the seat 38 inches (965 mm) minimum and 48 inches (1220 mm) maximum above the shower floor and shall be located on the control wall 15 inches (380 mm) maximum from the centerline of the seat toward the shower opening.

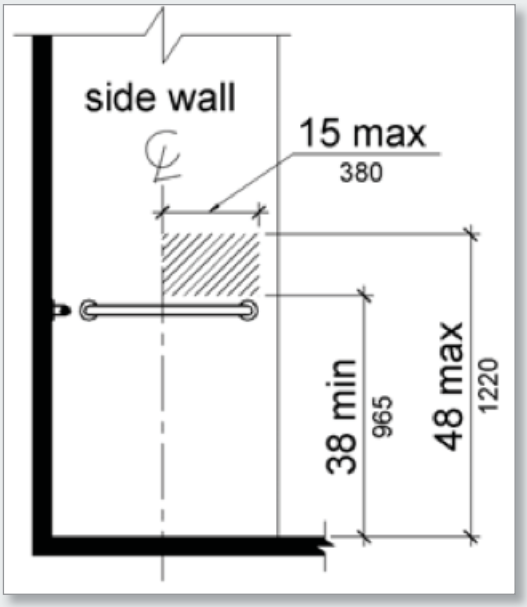
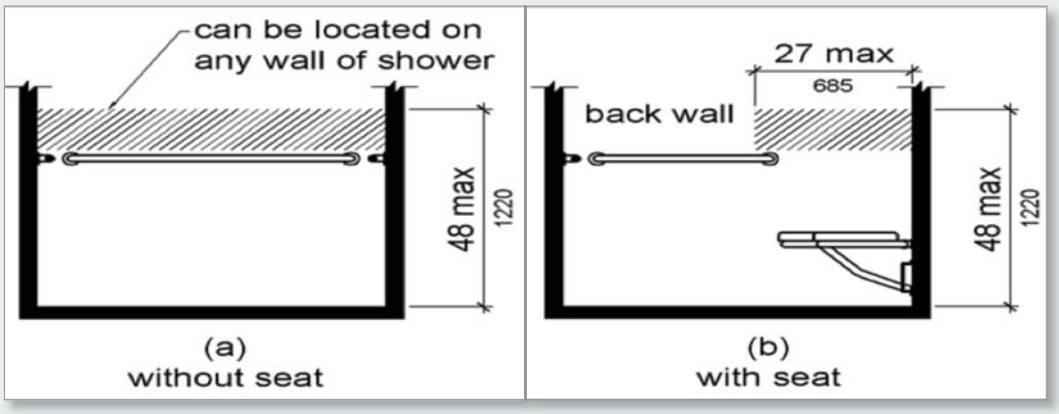


Figure 608.5.1 - Transfer Type Shower Compartment Control Location

608.5.2 Standard Roll-In Type Shower Compartments. In standard roll-in type shower compartments, the controls, faucets, and shower spray unit shall be located above the grab bar, but no higher than 48 inches (1220 mm) above the shower floor. Where a seat is provided, the controls, faucets, and shower spray unit shall be installed on the back wall adjacent to the seat wall and shall be located 27 inches (685 mm) maximum from the seat wall.

Advisory 608.5.2 Standard Roll-in Type Shower Compartments. In standard roll-in type showers without seats, the shower head and operable parts can be located on any of the three walls of the shower without adversely affecting accessibility.

Figure 608.5.2 Standard Roll-In Type Shower Compartment Control Location



608.5.3 Alternate Roll-In Type Shower Compartments. In alternate roll-in type shower compartments, the controls, faucets, and shower spray unit shall be located above the grab bar, but no higher than 48 inches (1220 mm) above the shower floor. Where a seat is provided, the controls, faucets, and shower spray unit shall be located on the side wall adjacent to the seat 27 inches (685 mm) maximum from the side wall behind the seat or shall be located on the back wall opposite the seat 15 inches (380mm)maximum, left or right, of the centerline of the seat. Where a seat is not provided, the controls, faucets, and shower spray unit shall be installed on the side wall farthest from the compartment entry.

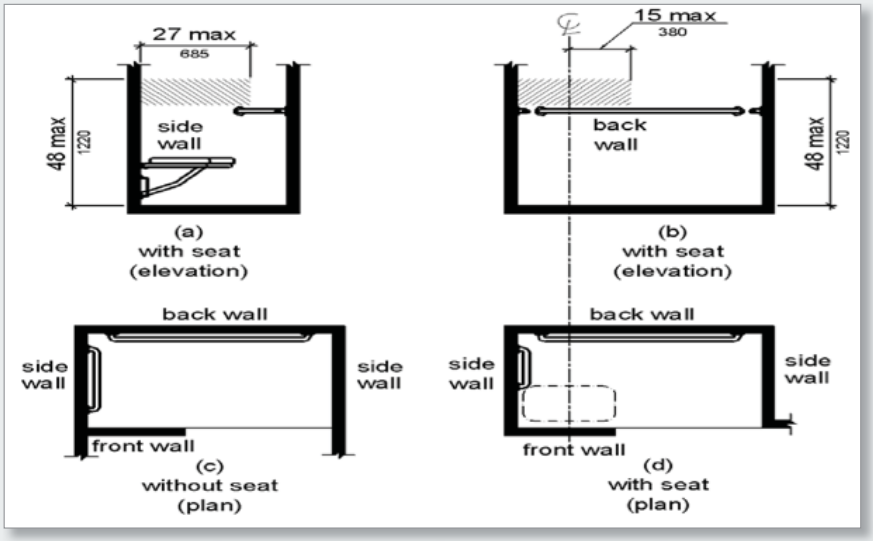


Figure 608.5.3 - Alternate Roll-In Type Shower Compartment Control Location

608.6 Shower Spray Unit and Water. A shower spray unit with a hose 59 inches (1500 mm) long minimum that can be used both as a fixed-position shower head and as a hand-held shower shall be provided. The shower spray unit shall have an on/off control with a non-positive shut-off. If an adjustable-height shower head on a vertical bar is used, the bar shall be installed so as not to obstruct the use of grab bars. Shower spray units shall deliver water that is 120°F (49°C) maximum.

EXCEPTION: A fixed shower head located at 48 inches (1220 mm) maximum above the shower finish floor shall be permitted instead of a hand-held spray unit in *facilities* that are not medical care *facilities*, long-term care *facilities, transient lodging* guest rooms, or *residential dwelling units*.

Advisory 608.6 Shower Spray Unit and Water. Ensure that hand-held shower spray units are capable of delivering water pressure substantially equivalent to fixed shower heads.

608.7 Thresholds. Thresholds in roll-in type shower compartments shall be ½ inch (13 mm) high maximum in accordance with 303. In transfer type shower compartments, thresholds ½ inch (13 mm) high maximum shall be beveled, rounded, or vertical.

EXCEPTION: A threshold 2 inches (51 mm) high maximum shall be permitted in transfer type shower compartments in existing *facilities* where provision of a ½ inch (13 mm) high threshold would disturb the structural reinforcement of the floor slab.

608.8 Shower Enclosures. Enclosures for shower compartments shall not obstruct controls, faucets, and shower spray units or obstruct transfer from wheelchairs onto shower seats.

EXAM QUESTIONS

63. Transfer type shower compartments shall be _____ clear inside dimensions measured at the center points of opposing sides.

a. 24 inches by 24 inches
b. 30 inches by 30 inches
c. 36 inches by 36 inches
d. 42 inches by 42 inches

64. Standard roll-in type shower compartments shall have a 60 inches wide minimum entry on the face of the shower compartment.

a. True
b. False

65. In transfer type compartments, grab bars shall be provided across the control wall and back wall to a point ____ inches from the control wall.

a. 12 inches
b. 18 inches
c. 24 inches
d. 30 inches

66. In transfer type shower compartments, the controls, faucets, and shower spray unit shall be located on the control wall _____ inches maximum from the centerline of the seat toward the shower opening.

a. 15 inches
b. 24 inches
c. 27 inches
d. 38 inches

67. In standard roll-in type showers without seats, the shower head and operable parts can be located on any of the three walls of the shower without adversely affecting accessibility.

a. True
b. False

68. In alternate roll-in type shower compartments, the controls, faucets, and shower spray unit shall be located above the grab bar, but no higher than _____ inches above the shower floor.

a. 15 inches
b. 24 inches
c. 27 inches
d. 48 inches

69. Enclosures for shower compartments shall not obstruct controls, faucets, and shower spray units or obstruct transfer from wheelchairs onto shower seats.

a. True
b. False

609 Grab Bars

609.1 General. Grab bars in toilet *facilities* and bathing *facilities* shall comply with 609.

609.2 Cross Section. Grab bars shall have a cross section complying with 609.2.1 or 609.2.2.

609.2.1 Circular Cross Section. Grab bars with circular cross sections shall have an outside diameter of 1¼ inches (32 mm) minimum and 2 inches (51 mm) maximum.

609.2.2 Non-Circular Cross Section. Grab bars with non-circular cross sections shall have a cross-section dimension of 2 inches (51 mm) maximum and a perimeter dimension of 4 inches (100 mm) minimum and 4.8 inches (120 mm) maximum.

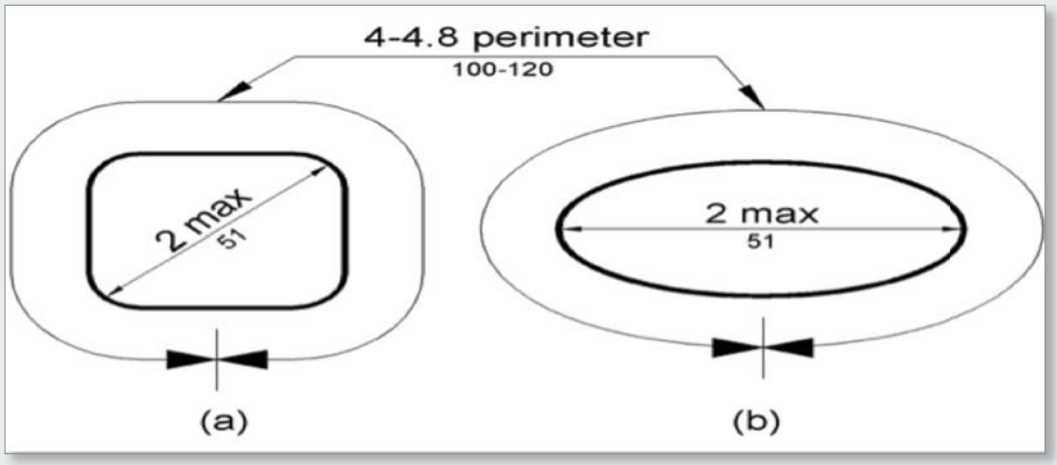


Figure 609.2.2 - Grab Bar Non-Circular Cross Section

609.3 Spacing. The *space* between the wall and the grab bar shall be 1½ inches (38 mm). The *space* between the grab bar and projecting objects below and at the ends shall be 1½ inches (38 mm) minimum. The *space* between the grab bar and projecting objects above shall be 12 inches (305 mm) minimum.

EXCEPTION: The *space* between the grab bars and shower controls, shower fittings, and other grab bars above shall be permitted to be 1½ inches (38 mm) minimum.

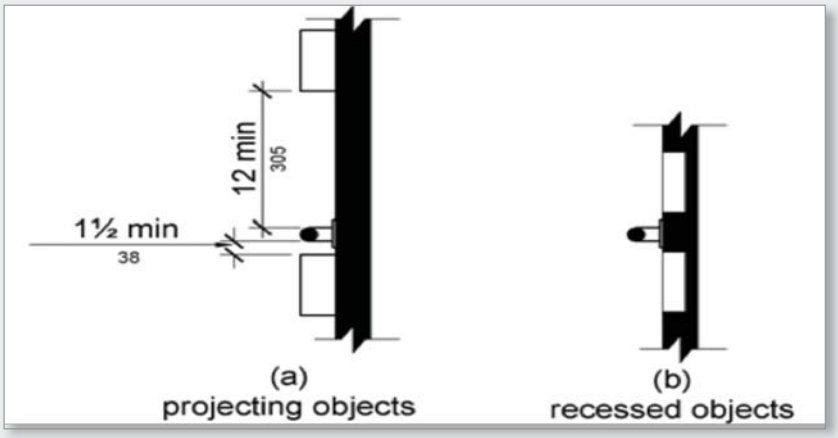


Figure 609.3 - Spacing of Grab Bars

609.4 Position of Grab Bars. Grab bars shall be installed in a horizontal position, 33 inches (840 mm) minimum and 36 inches (915 mm) maximum above the finish floor measured to the top of the gripping surface, except that at water closets for *children's use* complying with 604.9, grab bars shall be installed in a horizontal position 18 inches (455 mm) minimum and 27 inches (685 mm) maximum above the finish floor measured to the top of the gripping surface. The height of the lower grab bar on the back wall of a bathtub shall comply with 607.4.1.1 or 607.4.2.1.

609.5 Surface Hazards. Grab bars and any wall or other surfaces adjacent to grab bars shall be free of sharp or abrasive *elements* and shall have rounded edges.

609.6 Fittings. Grab bars shall not rotate within their fittings.

609.7 Installation. Grab bars shall be installed in any manner that provides a gripping surface at the specified locations and that does not obstruct the required clear floor *space*.

609.8 Structural Strength. Allowable stresses shall not be exceeded for materials used when a vertical or horizontal force of 250 pounds (1112 N) is applied at any point on the grab bar, fastener, mounting device, or supporting structure.

EXAM QUESTIONS

70. Grab bars with circular cross sections shall have an outside diameter of 2 inches maximum.

a. True
b. False

71. The space between the grab bar and projecting objects above shall be ____ inches minimum.

a. 2
b. 12
c. 24
d. 36

72. Grab bars and any wall or other surfaces adjacent to grab bars shall be free of sharp or abrasive elements and shall have rounded edges.

a. True
b. False

73. Grab bars shall rotate within their fittings.

a. True
b. False

610 Seats

610.1 General. Seats in bathtubs and shower compartments shall comply with 610.

610.2 Bathtub Seats. The top of bathtub seats shall be 17 inches (430 mm) minimum and 19 inches (485 mm) maximum above the bathroom finish floor. The depth of a removable in-tub seat shall be 15 inches (380 mm) minimum and 16 inches (405 mm) maximum. The seat shall be capable of secure placement. Permanent seats at the head end of the bathtub shall be 15 inches (380 mm) deep minimum and shall extend from the back wall to or beyond the outer edge of the bathtub.

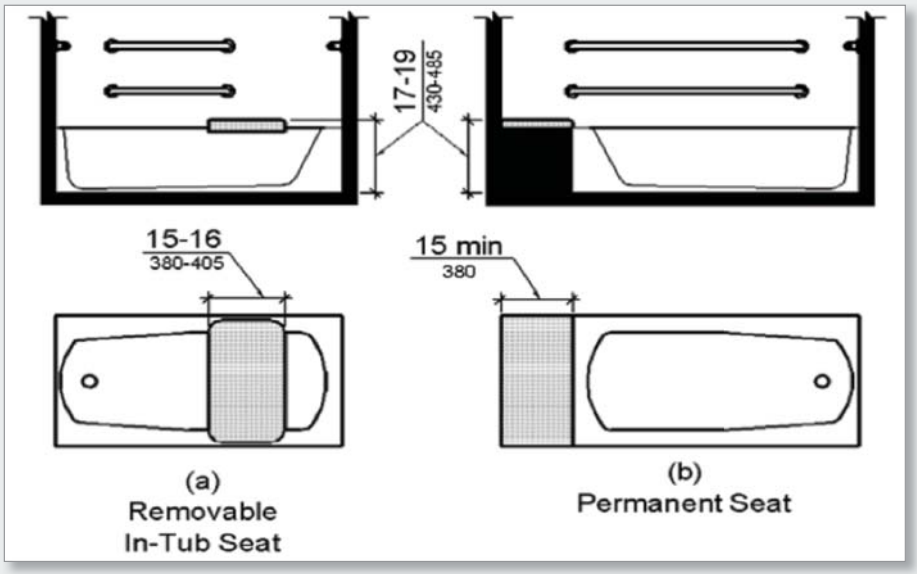


Figure 610.2 - Bathtub Seats

610.3 Shower Compartment Seats. Where a seat is provided in a standard roll-in shower compartment, it shall be a folding type, shall be installed on the side wall adjacent to the controls, and shall extend from the back wall to a point within 3 inches (75 mm) of the compartment entry. Where a seat is provided in an alternate roll-in type shower compartment, it shall be a folding type, shall be installed on the front wall opposite the back wall, and shall extend from the adjacent side wall to a point within 3 inches (75 mm) of the compartment entry. In transfer-type showers, the seat shall extend from the back wall to a point within 3 inches (75 mm) of the compartment entry. The top of the seat shall be 17 inches (430 mm) minimum and 19 inches (485 mm) maximum above the bathroom finish floor. Seats shall comply with 610.3.1 or 610.3.2.

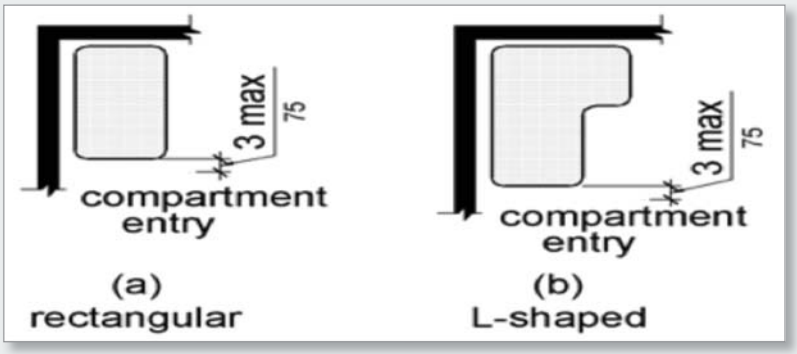


Figure 610.3 - Extent of Seat

610.3.1 Rectangular Seats. The rear edge of a rectangular seat shall be 2½ inches (64 mm) maximum and the front edge 15 inches (380 mm) minimum and 16 inches (405 mm) maximum from the seat wall. The side edge of the seat shall be 1½ inches (38 mm) maximum from the adjacent wall.

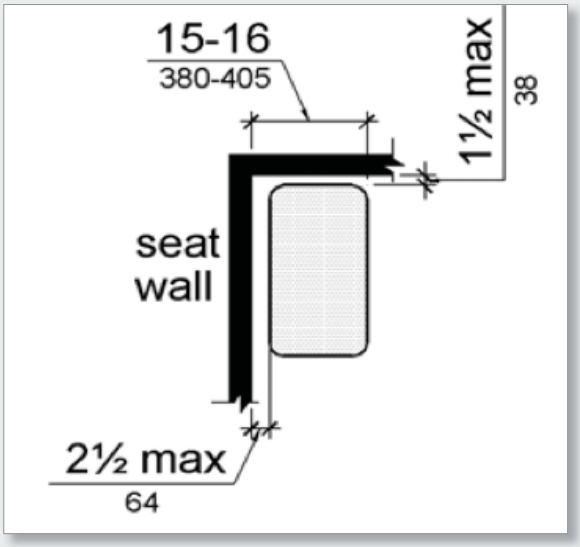


Figure 610.3.1 - Rectangular Shower Seat

610.3.2 L-Shaped Seats. The rear edge of an L-shaped seat shall be 2½ inches (64 mm) maximum and the front edge 15 inches (380 mm) minimum and 16 inches (405 mm) maximum from the seat wall. The rear edge of the "L" portion of the seat shall be 1½ inches (38 mm) maximum from the wall and the front edge shall be 14 inches (355 mm) minimum and 15 inches (380 mm) maximum from the wall. The end of the "L" shall be 22 inches (560 mm) minimum and 23 inches maximum (585 mm) from the main seat wall.

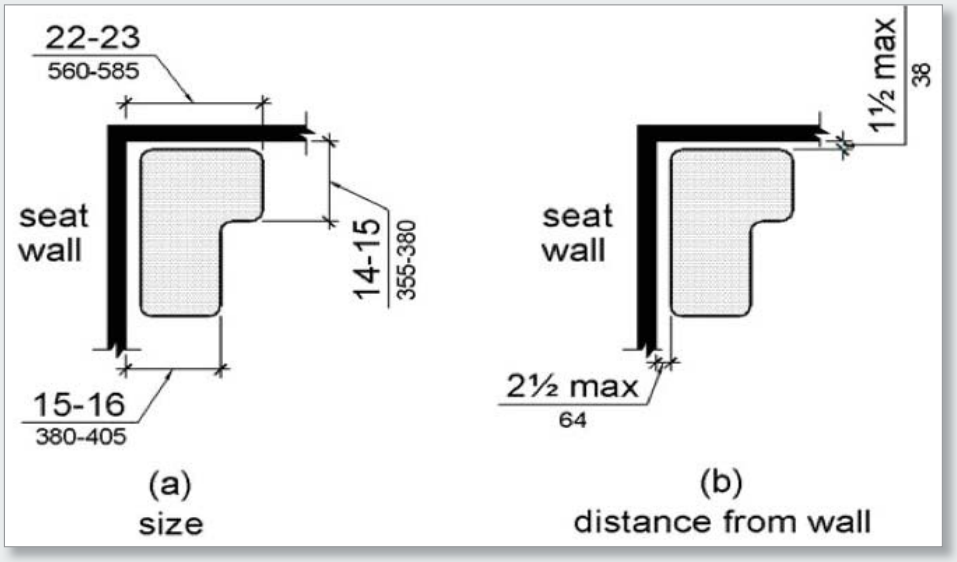


Figure 610.3.2 - L-Shaped Shower Seat

610.4 Structural Strength. Allowable stresses shall not be exceeded for materials used when a vertical or horizontal force of 250 pounds (1112 N) is applied at any point on the seat, fastener, mounting device, or supporting structure.

EXAM QUESTIONS

74. The rear edge of a rectangular seat shall be 2½ inches maximum from the seat wall.

a. True
b. False

75. The top of bathtub seats shall be 19 inches minimum and 21 inches maximum above the bathroom finish floor.

a. True
b. False

76. Allowable stresses shall not be exceeded for materials used when a vertical or horizontal force of _____ pounds is applied at any point on the seat, fastener, mounting device, or supporting structure.

a. 200
b. 250
c. 300
d. 350

611 Washing Machines and Clothes Dryers

611.1 General. Washing machines and clothes dryers shall comply with 611.

611.2 Clear Floor Space. A clear floor or ground *space* complying with 305 positioned for parallel approach shall be provided. The clear floor or ground *space* shall be centered on the appliance.

611.3 Operable Parts. *Operable parts,* including doors, lint screens, and detergent and bleach compartments shall comply with 309.

611.4 Height. Top loading machines shall have the door to the laundry compartment located 36 inches (915 mm) maximum above the finish floor. Front loading machines shall have the bottom of the opening to the laundry compartment located 15 inches (380 mm) minimum and 36 inches (915 mm) maximum above the finish floor.

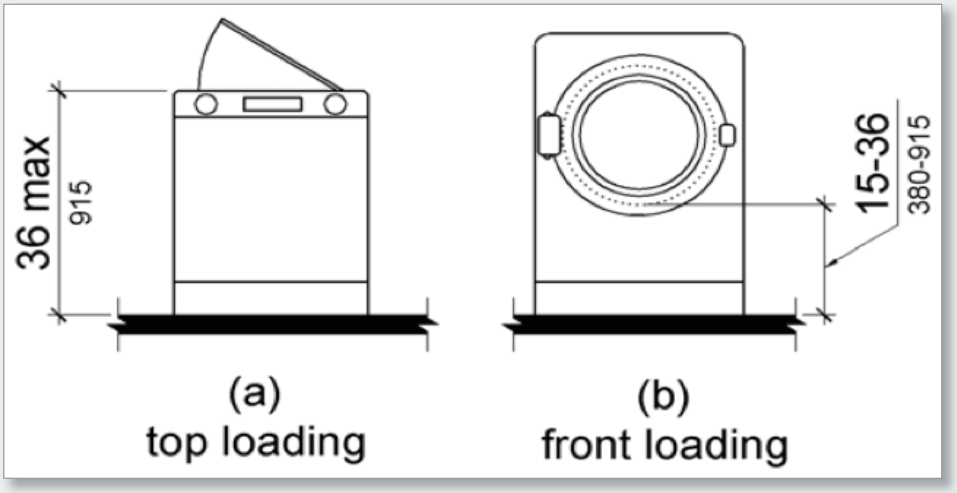


Figure 611.4 - Height of Laundry Compartment Opening

612 Saunas and Steam Rooms

612.1 General. Saunas and steam rooms shall comply with 612.

612.2 Bench. Where seating is provided in saunas and steam rooms, at least one bench shall comply with 903. Doors shall not swing into the clear floor *space* required by 903.2.

EXCEPTION: A readily removable bench shall be permitted to obstruct the turning *space* required by 612.3 and the clear floor or ground *space* required by 903.2.

612.3 Turning Space. A turning *space* complying with 304 shall be provided within saunas and steam rooms

EXAM QUESTIONS

77. Top loading machines shall have the door to the laundry compartment located ____ inches maximum above the finish floor.

a. 15 inches
b. 24 inches
c. 30 inches
d. 36 inches

78. Front loading machines shall have the bottom of the opening to the laundry compartment located 15 inches minimum and 36 inches maximum above the finish floor.

a. True
b. False

79. Saunas and steam rooms shall comply with section _____.

a. 609
b. 610
c. 611
d. 612

80. Where seating is provided in saunas and steam rooms, at least ___ bench(s) shall comply with 903.

a. 1
b. 2
c. 3
d. 4

ANSWER SHEET • ADA Plumbing Requirements (Course #ID09024) • 4 Hours

First Name: _____ Last Name: _____ Date: _____

Address: _____ City: _____ State: _____ ZIP: _____

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1.	(A) (B) (C) (D)	21.	(A) (B) (C) (D)	41.	(A) (B) (C) (D)	61.	(A) (B) (C) (D)
2.	(A) (B) (C) (D)	22.	(A) (B) (C) (D)	42.	(A) (B) (C) (D)	62.	(A) (B) (C) (D)
3.	(A) (B) (C) (D)	23.	(A) (B) (C) (D)	43.	(A) (B) (C) (D)	63.	(A) (B) (C) (D)
4.	(A) (B) (C) (D)	24.	(A) (B) (C) (D)	44.	(A) (B) (C) (D)	64.	(A) (B) (C) (D)
5.	(A) (B) (C) (D)	25.	(A) (B) (C) (D)	45.	(A) (B) (C) (D)	65.	(A) (B) (C) (D)
6.	(A) (B) (C) (D)	26.	(A) (B) (C) (D)	46.	(A) (B) (C) (D)	66.	(A) (B) (C) (D)
7.	(A) (B) (C) (D)	27.	(A) (B) (C) (D)	47.	(A) (B) (C) (D)	67.	(A) (B) (C) (D)
8.	(A) (B) (C) (D)	28.	(A) (B) (C) (D)	48.	(A) (B) (C) (D)	68.	(A) (B) (C) (D)
9.	(A) (B) (C) (D)	29.	(A) (B) (C) (D)	49.	(A) (B) (C) (D)	69.	(A) (B) (C) (D)
10.	(A) (B) (C) (D)	30.	(A) (B) (C) (D)	50.	(A) (B) (C) (D)	70.	(A) (B) (C) (D)
11.	(A) (B) (C) (D)	31.	(A) (B) (C) (D)	51.	(A) (B) (C) (D)	71.	(A) (B) (C) (D)
12.	(A) (B) (C) (D)	32.	(A) (B) (C) (D)	52.	(A) (B) (C) (D)	72.	(A) (B) (C) (D)
13.	(A) (B) (C) (D)	33.	(A) (B) (C) (D)	53.	(A) (B) (C) (D)	73.	(A) (B) (C) (D)
14.	(A) (B) (C) (D)	34.	(A) (B) (C) (D)	54.	(A) (B) (C) (D)	74.	(A) (B) (C) (D)
15.	(A) (B) (C) (D)	35.	(A) (B) (C) (D)	55.	(A) (B) (C) (D)	75.	(A) (B) (C) (D)
16.	(A) (B) (C) (D)	36.	(A) (B) (C) (D)	56.	(A) (B) (C) (D)	76.	(A) (B) (C) (D)
17.	(A) (B) (C) (D)	37.	(A) (B) (C) (D)	57.	(A) (B) (C) (D)	77.	(A) (B) (C) (D)
18.	(A) (B) (C) (D)	38.	(A) (B) (C) (D)	58.	(A) (B) (C) (D)	78.	(A) (B) (C) (D)
19.	(A) (B) (C) (D)	39.	(A) (B) (C) (D)	59.	(A) (B) (C) (D)	79.	(A) (B) (C) (D)
20.	(A) (B) (C) (D)	40.	(A) (B) (C) (D)	60.	(A) (B) (C) (D)	80.	(A) (B) (C) (D)