ANSWER SHEET • 2015 UPC Update Chapters 1-4 • Idaho

First Name: _____ Last Name: _____ Date: _____

Address: _____ City: _____ State: _____ ZIP: _____

License #: _____ Phone: _____

** 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
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

American Plumbing Institute

Affordable and Easy to Use Continuing Education for Plumbers

IDAHO PLUMBERS
CONTINUING EDUCATION

PO Box 31131 • Spokane, WA 99223-3018
www.apiceu.com

2015 UPC Update Chapters 1-4 • 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 Update Chapters 1-4

(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 11⁄2 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 1⁄4 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