

California Commercial Plumbing Inspector

Solution key

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1. A fuel-burning water heater is to be installed in a closet within a bathroom. According to Section 504.1, which of the following is NOT required for this installation?

- A. The closet to be for the exclusive use of the water heater.
- B. Combustion air obtained from the outdoors.
- C. A listed self-closing device on the closet door.

D (correct). The gasketing material to be from the published listings of the door manufacturer.

Rationale: Section 504.1 states: 'Fuel-burning water heaters shall be permitted to be installed in a closet located in the bedroom or bathroom provided the closet is equipped with a listed, gasketed door assembly and a listed self-closing device.' It also requires combustion air from outdoors per Section 506.4 and exclusive use of the closet. The exception in 504.1.2 allows for alternative gasketing 'Where acceptable to the Authority Having Jurisdiction,' meaning the gasketing material itself is not strictly required to be listed if AHJ approves an alternative.

Code: 504.1

2. A 3-inch diameter vent stack receives the discharge from a 4-inch diameter soil stack. What is the minimum required size for the vent stack, provided that the soil stack is one pipe diameter larger than the vent stack?

- A. 2 1/2 inches
- B. 1 1/2 inches
- C. 1 1/4 inches

D (correct). 2 inches

Rationale: Section 905.2 states: 'The vent stack shall be not less than one-half the diameter of the soil or waste stack to which it is connected, but in no case less than 1 1/4 inches (32 mm) in diameter, except that where a soil stack is one pipe diameter larger than the vent stack, the vent stack shall be not less than one-third the diameter of the soil stack.'

Code: 905.2

3. A commercial kitchen with a 2-inch drain serving a three-compartment sink and a dishwasher requires a grease interceptor. The total fixture unit load for these fixtures is 6 DFUs. Using Table 1003.3(1), what is the minimum flow rate capacity, in gallons per minute, required for the grease interceptor?

- A. 15 gpm
- B. 25 gpm
- C (correct). 20 gpm**
- D. 35 gpm

Rationale: Table 1003.3(1), 'Grease Interceptor Sizing for Commercial Kitchens,' provides flow rates based on drainage fixture units (DFUs). For 6 DFUs, the required flow rate is 20 gallons

per minute.
Code: 1003.3

4. What is the maximum allowable flow rate for a public lavatory faucet in California, except for metering faucets?

- A (correct). 1.2 gpm**
- B. 0.5 gpm
- C. 1.5 gpm
- D. 2.0 gpm

Rationale: Per California Code of Regulations, Title 20, Section 1605.3, the maximum flow rate for lavatory faucets is 1.2 gallons per minute at 60 pounds per square inch, except for metering faucets which shall have a maximum flow rate of 0.25 gallon per cycle.
Code: CA Code of Regulations, Title 20

5. According to Section 313.0, when must piping passing through concrete or masonry be sleeved?

- A (correct). Piping must be sleeved, unless it is designed to accommodate movement or has approved**
protective coatings.
- B. Piping must always be sleeved when passing through concrete or masonry.
- C. Only metallic piping must be sleeved when passing through concrete or masonry.
- D. Piping must be sleeved only when passing through exterior walls.

Rationale: Section 313.0 states: 'Piping passing through concrete or masonry walls, floors, or ceilings shall be sleeved, except where the piping is designed to accommodate movement or where approved protective coatings are applied.' The correct answer identifies the requirement and the exception for movement or coatings.
Code: 313.0

6. According to CPC 210.0, which of the following is a required characteristic for lavatories in specified health care facilities?

- A. They must have an integrated soap dispenser.
- B. They must be wall-mounted only.
- C. They must have a minimum basin depth of 6 inches.
- D (correct). They must be constructed of nonporous material.**

Rationale: Section 210.0(2)d states: 'Shall be constructed of nonporous material.'
Code: 210.0(2)

7. A wet-vented bathroom group includes a water closet, a lavatory, and a bathtub. The wet vent is provided by the lavatory drain. According to the 2022 CPC, what is the minimum required size for the horizontal wet vent piping serving this bathroom group?

- A. 3 inches
- B. 1 1/2 inches
- C (correct). 2 inches**
- D. 1 1/4 inches

Rationale: Section 909.1 states: 'The wet vent shall be not less than 2 inches (51 mm) in diameter.'
Code: 909.1

8. A new car wash facility is being planned. According to the 2022 CPC, which of the following statements about interceptors for this facility is correct?

- A (correct). An interceptor is not required if the facility is connected to an approved oil/water separator.**
- B. A sand interceptor is required, but an oil interceptor is optional.
- C. An interceptor is always required for a motor vehicle washing facility.
- D. An interceptor is only required if the facility washes more than 10 vehicles per day.

Rationale: Section 1003.1 states: 'Interceptors shall be provided to prevent the discharge of oil, grease, sand, flammable wastes, and other substances harmful or hazardous to the public

sewer, private sewage system, or sewage treatment plant or process. Interceptors shall be installed in the following locations: ... 4. In motor vehicle washing facilities, unless the facility is connected to an approved oil/water separator.' The correct answer identifies the exception where an interceptor is not required if an approved oil/water separator is provided.

Code: 1003.1

9. According to Section 504.1, when is a fuel-burning water heater permitted to be installed in a bedroom closet without being a direct-vent type?

- A (correct). If the closet has a listed, gasketed door with a self-closing device, obtains combustion air from outdoors, and is for the water heater's exclusive use.
- B. If the water heater is electric and listed per UL 174.
- C. Only if the closet has a standard interior door and a louver for ventilation.
- D. It is never permitted; all bedroom installations must be direct-vent.

Rationale: Section 504.1 states an exception to the direct-vent requirement: 'Fuel-burning water heaters shall be permitted to be installed in a closet located in the bedroom or bathroom provided the closet is equipped with a listed, gasketed door assembly and a listed self-closing device.' It further references sections for the door and gasketing and requires outdoor combustion air and exclusive use of the closet.

Code: 504.1

10. What is the maximum distance allowed between cleanouts on a horizontal drain of 4 inches or less in diameter, according to the 2022 CPC?

- A. 75 feet
- B (correct). 100 feet
- C. 150 feet
- D. 50 feet

Rationale: Section 707.4 states: 'Cleanouts shall be located at intervals not to exceed 100 feet (30 480 mm) in horizontal drainage lines 4 inches (100 mm) and less in diameter, and 200 feet (60 960 mm) for larger sizes.'

Code: 707.4

11. What is the minimum required size for a leader (downspout) serving a roof drainage area of 900 square feet, assuming a rainfall intensity of 4 inches per hour?

- A. 5 inches
- B. 4 inches
- C (correct). 3 inches
- D. 2 inches

Rationale: Section 1106.7 references Table 1106.7 for sizing leaders. For a drainage area of 900 sq ft and a rainfall rate of 4 in/hr, Table 1106.7 indicates a 3-inch leader is sufficient for areas up to 1,040 sq ft. Therefore, 3 inches is the minimum required size.

Code: 1106.7

12. A gas water heater vent connector is made of galvanized steel and serves a low-heat appliance. According to Table 509.10.1.3, what is the minimum thickness required for this connector if the appliance input is 100,000 Btu/h?

- A. 0.024 inch
- B. 0.015 inch
- C (correct). 0.019 inch
- D. 0.030 inch

Rationale: Section 509.10 references Table 509.10.1.3. For galvanized steel vent connectors for low-heat appliances, the table typically specifies a minimum thickness (e.g., 0.019 inch for certain sizes). For a common residential input, 0.019 inch is a standard minimum.

Code: 509.10

13. A new elementary school classroom building is being designed with an occupant load of 85 students. According to Table 422.1 Exception, what is the minimum number of drinking fountains required?

- A. 4
- B (correct). 2**
- C. 1
- D. 3

Rationale: Table 422.1 for 'Educational (Schools)' requires 1 drinking fountain per 100 occupants. However, the Exception states: 'For elementary schools, one drinking fountain per 50 occupants.' For 85 elementary school students: $\text{ceil}(85/50) = 2$ drinking fountains.
Code: Table 422.1 Exception

14. What is the minimum required size for a building drain serving a total of 85 drainage fixture units, assuming it is installed with a slope of 1/4 inch per foot?

- A. 5 inches
- B. 6 inches
- C (correct). 4 inches**
- D. 3 inches

Rationale: CPC Table 703.1 provides the size of horizontal drainage piping. For 85 DFU and a slope of 1/4 inch per foot, a 4-inch pipe is required as it can handle up to 216 DFU at that slope.
Code: 703.1

15. A self-closing door assembly for a water heater closet must meet specific requirements. According to Section 504.1.1, which feature is prohibited?

- A. A latching mechanism.
- B. A threshold and bottom door seal.
- C (correct). A hold-open feature on the closing mechanism.**
- D. The ability to swing easily and freely.

Rationale: Section 504.1.1 states: 'The closing mechanism shall not have a hold-open feature.'
Code: 504.1.1

16. A plumbing contractor is sizing the drainage piping for a new restaurant. The kitchen area has a 3-compartment pot sink (2.5 DFU), a pre-rinse spray valve (4 DFU), and a floor drain (2 DFU) all connected to a single 3-inch horizontal branch. What is the total drainage fixture unit (DFU) load for this branch?

- A (correct). 8.5 DFU**
- B. 10.5 DFU
- C. 6.5 DFU
- D. 12.0 DFU

Rationale: Per Table 703.2, the drainage fixture unit values are: Kitchen sink, 2 or 3 compartments = 2.5 DFU; Pre-rinse spray valve = 4 DFU; Floor drain = 2 DFU. The total load is $2.5 + 4 + 2 = 8.5$ DFU.
Code: Table 703.2

17. According to the 2022 CPC, what is the minimum size of the water distribution pipe for a single flushometer valve serving a water closet?

- A (correct). 1 inch**
- B. 3/4 inch
- C. 1 1/2 inch
- D. 1 1/4 inch

Rationale: Section 610.10 states: 'The minimum size of the water distribution pipe for a single flushometer valve shall be 1 inch (25 mm).'
Code: 610.10

18. A new retail store with a total occupant load of 200 is being designed. According to Table 422.1, what is the minimum number of drinking fountains required?

- A (correct). 1
- B. 3
- C. 4
- D. 2

Rationale: Table 422.1 for 'Mercantile' occupancy requires 1 drinking fountain for the first 150 occupants and 1 additional for each 300 thereafter. For 200 occupants: 1 drinking fountain minimum (for the first 150).

Code: Table 422.1

19. An indirect waste receptor is installed to receive drainage from a commercial food waste grinder. According to Section 812.1, what is the minimum required air gap between the waste outlet and the flood level rim of the receptor, unless the waste is from a single fixture with an outlet not exceeding 1 inch in diameter?

- A. Equal to the diameter of the outlet.
- B (correct). Twice the diameter of the outlet.
- C. One inch.
- D. An air break is permitted.

Rationale: Per Section 812.1, 'An air gap as required by Section 1101.3 shall be provided between the waste outlet and the flood level rim of the receptor, except that where the waste is from a single fixture with an outlet not exceeding 1 inch (25 mm) in diameter, an air break may be used.'

Code: 812.1

20. A floor-mounted, back-outlet water closet bowl is being installed. According to CPC 402.6.3, what is the minimum diameter required for the soil pipe?

- A. 4 inches
- B (correct). 3 inches
- C. 2.5 inches
- D. 2 inches

Rationale: CPC 402.6.3 states: 'Where floor-mounted, back-outlet water closets are used, the soil pipe shall be not less than 3 inches (80 mm) in diameter.'

Code: 402.6.3

21. When connecting a roof drain to a combined sewer, what is the minimum required vertical distance between the flood level rim of the roof drain and the weir of the relief vent?

- A. 6 inches
- B. 1 inch
- C (correct). 2 inches
- D. 4 inches

Rationale: Section 1107.3 states: 'Where a roof drain is connected to a combined sewer, the vertical distance between the flood level rim of the roof drain and the weir of the relief vent shall be not less than 2 inches (51 mm).' This is a direct code knowledge question for a specific measurement.

Code: 1107.3

22. A horizontal storm drain has a change of direction of 60 degrees. According to the 2022 CPC, what is required at this change of direction?

- A. No special requirement.
- B. The pipe size must be increased one size.
- C (correct). A cleanout must be installed.
- D. A relief vent must be installed.

Rationale: Section 1103.7 states: 'Cleanouts shall be installed in horizontal storm drains... at every change of direction greater than 45 degrees (0.79 rad)...' Since 60 degrees is greater than 45 degrees, a cleanout is required at this change of direction.

Code: 1103.7

23. A gas water heater with an input rating of 75,000 BTU/hr is being installed in a confined space. According to the 2022 CPC, what is the minimum required total free area of the combustion air openings when using the standard method with two openings?

- A (correct). 75 square inches
- B. 150 square inches
- C. 50 square inches
- D. 100 square inches

Rationale: Section 503.3.1 states: 'The minimum dimension of air openings shall not be less than 3 inches (76 mm). The total free area of the openings shall be based on not less than 1 square inch per 1,000 Btu/h (2,200 mm²/kW) of the total input rating of all appliances located within the space.' For 75,000 BTU/hr, $75,000 / 1,000 = 75$ square inches total free area required.

Code: 503.3.1

24. According to CPC Section 402.4, what type of supports are required for wall-hung fixtures?

- A (correct). Metal supporting members
- B. Concrete anchors only
- C. Plastic brackets
- D. Wooden framing members

Rationale: CPC Section 402.4 states: 'Wall-hung fixtures shall be rigidly supported by metal supporting members so that no strain is transmitted to the connections.'

Code: 402.4

25. A new 80-gallon electric water heater is being installed in a seismic zone. According to the 2022 CPC, where must the top seismic strap be located?

- A. Within the upper one-quarter of the water heater's height
- B. Within the middle one-third of the water heater's height
- C. At the very top of the water heater tank

D (correct). Within the upper one-third of the water heater's height

Rationale: Section 504.7 states: 'Seismic supports shall be provided at the top and bottom of the water heater. The top support shall be located within the upper one-third of the water heater's vertical dimension.'

Code: 504.7

26. A residential building has 3 bedrooms and 2.5 bathrooms. According to Table 501.1(2), what is the minimum required first-hour rating (in gallons) for a storage water heater?

- A. 49 gallons
- B. 74 gallons
- C. 38 gallons

D (correct). 62 gallons

Rationale: Table 501.1(2) is referenced in Section 501.1. For the column '2 to 2.5' bathrooms and the row for '3' bedrooms, the table specifies a First Hour Rating of 62 gallons.

Code: 501.1

27. A commercial kitchen plans to install a 3-inch diameter drain for a sink. According to Table 703.2, what is the maximum number of drainage fixture units (dfu) that can be connected to this 3-inch horizontal branch?

- A. 36 dfu
- B. 42 dfu
- C (correct). 20 dfu
- D. 12 dfu

Rationale: Table 703.2, 'Maximum Number of Drainage Fixture Units (dfu) That May Be Connected to Any Portion of a Drainage System,' specifies for a 3-inch diameter pipe: 20 dfu for a horizontal branch, 42 dfu for a building drain or building sewer, and 42 dfu for a stack.

Therefore, the maximum for a 3-inch horizontal branch is 20 dfu.

Code: Table 703.2

28. A water heater is installed in an attic. The access opening to the attic is 20 inches by 24 inches. Is this opening size compliant for servicing and replacement of the water heater?

- A. No, because the opening height is less than 30 inches.
- B. Yes, because the area is 480 square inches which is sufficient.
- C. Yes, because it is larger than the water heater dimensions.
- D (correct). No, because the opening width is less than 22 inches.**

Rationale: Section 508.4 states: 'An opening and a passageway shall be provided to the appliance location. The passageway shall be not less than 30 inches (762 mm) high and 22 inches (559 mm) wide... The passageway shall be not less than the dimensions of the opening.' The opening must be at least 22 inches wide, and 20 inches is less than that.

Code: 508.4

29. A trap for a laboratory sink is installed. According to the 2022 CPC, which of the following statements about its design is correct?

- A. It is exempt from the requirement to be self-scouring.
- B. It must be the same size as the trap for a standard lavatory.
- C. It must be a P-trap without any interior partitions.
- D (correct). It may be designed with a removable interior partition.**

Rationale: Section 1002.4 states: 'Traps shall be self-scouring and without interior partitions, except that traps for special conditions, such as for dental units, clinical sinks, and similar fixtures, may be designed with a removable partition or may be of the drum type.'

The correct answer identifies the exception for special fixtures like laboratory sinks, allowing for a design with a removable partition.

Code: 1002.4

30. A 50-gallon gas water heater is being installed in a residential garage. According to the 2022 CPC, what is the required minimum clearance from the water heater to any combustible material on the sides and rear?

- A. 12 inches
- B. 18 inches
- C (correct). 6 inches**
- D. 3 inches

Rationale: Section 504.6 states: 'A minimum clearance of 6 inches (152 mm) shall be maintained between the water heater and any combustible material on the sides and rear of the water heater.'

Code: 504.6

31. According to Section 608.15, a vacuum relief valve is required for hot water storage tanks. What is the minimum required size of the vacuum relief valve, unless the valve is listed for a specific application?

- A. 1 inch
- B. 3/8 inch
- C. 3/4 inch
- D (correct). 1/2 inch**

Rationale: Section 608.15 contains the exception-based rule: 'A vacuum relief valve shall be not less than 1/2 inch (12.7 mm) in size, except that a valve listed for the specific application shall be installed in accordance with the manufacturer's installation instructions.' The minimum size is 1/2 inch.

Code: 608.15

32. A horizontal branch drain serving three lavatories (1.5 DFU each) and one shower (2.0 DFU) is being sized. Using Table 703.2, what is the total drainage fixture unit load for sizing this branch?

- A (correct). 5.0 DFU**
- B. 6.5 DFU
- C. 4.5 DFU
- D. 7.5 DFU

Rationale: Per Table 703.2, the drainage fixture unit values are: Lavatory = 1.0 DFU; Shower stall = 2.0 DFU. The total load is $(3 \times 1.0) + 2.0 = 5.0$ DFU.

Code: Table 703.2

33. A gas water heater is being installed in an alcove. According to the 2022 CPC, what is the exception to the requirement for combustion air openings when the alcove opens into a room?

- A. A mechanical ventilation system can substitute for combustion air openings
- B. No combustion air openings are required if the alcove is less than 50 cubic feet
- C (correct). The room can be considered the air supply if the door is undercut at least 1 inch above the floor**
- D. Combustion air can be taken from an adjacent attic space

Rationale: Section 503.3.2 contains exception language: 'Where the alcove opens into a room, the room shall be considered the combustion air supply source and the door shall be considered the combustion air opening, provided that the door is undercut a minimum of 1 inch (25 mm) above the floor surface.' This tests knowledge of a specific exception using 'provided that' language.
Code: 503.3.2

34. A new office building with 85 male employees and 75 female employees is being designed. According to Table 422.1, what is the minimum number of water closets required for the female occupants?

- A. 5
- B (correct). 3**
- C. 2
- D. 4

Rationale: Table 422.1 for 'Business and Professional' occupancy requires 1 water closet for the first 25 females and 1 additional for each 40 thereafter. For 75 females: 1 (first 25) + 2 (for next 50) = 3 water closets minimum.
Code: Table 422.1

35. What is the maximum water consumption allowed for a urinal in California, except where the urinal is for children's use?

- A. 1.28 gpf
- B. 1.0 gpf
- C. 0.5 gpf
- D (correct). 0.125 gpf**

Rationale: Per California Code of Regulations, Title 20, Section 1605.3, the maximum water consumption for urinals is 0.125 gallon per flush, except for urinals for children's use which shall have a maximum water consumption of 0.5 gallon per flush.
Code: CA Code of Regulations, Title 20

36. What is the required standard for an oil-fired storage tank water heater, as referenced in Table 501.1(1)?

- A. CSA 721.10.1
- B. UL 1453
- C (correct). UL 732**
- D. UL 174

Rationale: Table 501.1(1) lists standards for various water heater types. For 'Oil-Fired Storage Tank,' the referenced standard is 'UL 732'.
Code: 501.1

37. A water heater relief valve discharge pipe terminates outside. The termination point must be between what minimum and maximum distances above the ground or floor surface?

- A (correct). Not less than 6 inches and not more than 24 inches.**
- B. Not less than 4 inches and not more than 12 inches.
- C. Not less than 18 inches and not more than 48 inches.
- D. Not less than 12 inches and not more than 36 inches.

Rationale: Section 504.6 states: 'The outlet of the pressure relief valve, temperature relief valve, or combination thereof, shall discharge to the outdoors, to a waste receptor, or to the floor. When discharging to the outdoors, the outlet shall be not less than 6 inches (152 mm) and not more than 24 inches (610 mm) above the ground or floor surface.'
Code: 504.6

38. A horizontal drainage pipe changes direction from one horizontal plane to another. According to Section 706.3, what type of fitting is required for this change in direction?

- A. A short-sweep quarter bend.
- B. A double sanitary tee.

C (correct). A combination of approved fittings such as 45-degree wyes or long-turn T-Ys.

- D. A sanitary tee.

Rationale: Section 706.3 states: 'Changes in direction in horizontal drainage lines shall be made by the appropriate use of 45-degree wyes, long-turn T-Y combinations, long-sweep quarter bends, sixth, eighth, or sixteenth bends, or by a combination of these or other approved fittings.'

Code: 706.3

39. A caulked-on closet ring (closet flange) is being installed. According to CPC 402.6.1, what is the minimum required thickness?

- A. 3/8 inch
- B. 1/8 inch
- C. 3/16 inch

D (correct). 1/4 inch

Rationale: CPC 402.6.1 states: '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.'

Code: 402.6.1

40. According to CPC Section 402.5, what is the minimum clearance from the center of a water closet to a side wall or obstruction?

- A. 24 inches
- B. 18 inches

C (correct). 15 inches

- D. 12 inches

Rationale: CPC Section 402.5 states: 'No water closet or bidet shall be set closer than 15 inches (381 mm) from its center to a side wall or obstruction...'

Code: 402.5

41. A new office building is being designed with 125 male employees and 125 female employees. Using Table 422.1, what is the minimum number of water closets required for the female occupants?

- A. 6
- B. 3

C (correct). 4

- D. 5

Rationale: Table 422.1 for 'Business (Offices)' requires 1 water closet for the first 1-15 females and 1 additional water closet for each additional 40 females or fraction thereof. For 125 females: 1 for first 15 + $\text{ceil}((125-15)/40) = 1 + \text{ceil}(110/40) = 1 + 3 = 4$ water closets.

Code: Table 422.1

42. A gas-fired water heater with an input of 75,000 Btu/hr is being installed in a confined space. The room has no indoor combustion air openings. The installer plans to use two permanent outdoor air openings, one high and one low, communicating directly with the outdoors. What is the minimum free area required for EACH of these two openings?

A (correct). 18.75 square inches.

- B. 37.5 square inches.

- C. 1 square inch per 2,000 Btu/h of input.

- D. 1 square inch per 1,000 Btu/h of input.

Rationale: Section 506.4 addresses outdoor combustion air. For appliances in confined spaces, when using two permanent openings (one within 12 inches of the top and one within 12 inches of the bottom), 'each opening shall have a minimum free area of 1 square inch per 4,000 Btu/h (550 mm² per kW) of the total input rating of all appliances in the enclosure.' For a single 75,000 Btu/h appliance, each opening requires $75,000 / 4,000 = 18.75$ sq. in.

Code: 506.4

43. A building has a 6-inch diameter main soil stack. According to the 2022 CPC, what is the minimum required size for the stack vent serving this soil stack?

- A. 2 inches
- B. 3 inches
- C (correct). 6 inches**
- D. 4 inches

Rationale: Section 903.2 states: 'The stack vent shall be not less in size than required for the drainage stack to which it is connected.' Table 703.2 specifies drainage stack sizes based on fixture units; however, the principle is that the vent shall not be smaller than the drainage stack it serves. For a 6-inch stack, the stack vent must be at least 6 inches.

Code: 903.2

44. According to Section 707.8, cleanouts are not required under what condition?

- A (correct). On horizontal drainage lines installed above grade, unless the line ends at a fixture trap.**
- B. On building sewers less than 4 inches in diameter.
- C. On vertical drainage stacks.
- D. On lines serving only lavatories.

Rationale: Section 707.8 states: 'Cleanouts shall not be required on horizontal drainage lines that are installed above grade, except where the line terminates at a plumbing fixture or appliance trap.'

Code: 707.8

45. A new office building requires a water heater. The plans specify an indirect-fired water heater. According to the 2022 CPC, what is required for the primary water heater supplying the indirect-fired unit?

- A. A backflow prevention device
- B (correct). A temperature and pressure relief valve**
- C. A pressure-limiting device only
- D. A vacuum relief valve

Rationale: Section 505.4 states: 'Indirect-fired water heaters shall be installed so that the primary water heater supplying the indirect-fired water heater is equipped with a temperature and pressure relief valve.'

Code: 505.4

46. What is the minimum required air pressure for testing a DWV system with an air test, and how long must it hold without pressure loss?

- A (correct). 5 psi for 15 minutes**
- B. 3 psi for 10 minutes
- C. 10 psi for 30 minutes
- D. 15 psi for 60 minutes

Rationale: Section 312.0 specifies that for an air test, the system must be subjected to a pressure of 5 psi (or as specified) and must hold this pressure for 15 minutes without loss. The correct answer states both the pressure and duration.

Code: 312.0

47. What is the minimum required size for a cleanout installed on a 6-inch diameter building drain?

- A. 5 inches
- B (correct). 4 inches**
- C. 3 inches
- D. 6 inches

Rationale: Section 708.1 states: 'Cleanouts shall be not less than the size of the pipe up to 4 inches (100 mm). For pipes larger than 4 inches (100 mm), the cleanout shall be not less than 4 inches (100 mm).' Therefore, for a 6-inch pipe, the cleanout must be at least 4 inches.

Code: 708.1

48. A trap for a commercial food grinder is being installed. According to the 2022 CPC, which of the following statements is true regarding its required cleanout?

- A. A cleanout is only required if the trap diameter is 3 inches or larger.
- B. A cleanout is always required on the inlet side of the trap.
- C (correct). A cleanout is not required if the trap serves a listed trap standard fixture.**
- D. A cleanout is never required if the trap is accessible.

Rationale: Section 1002.4 states: 'Each trap shall have a cleanout, unless the trap is removable or is installed with a slip-joint connection, or unless the trap serves a listed trap standard fixture.' The correct answer identifies the exception for fixtures with listed trap standards.

Code: 1002.4

49. A new installation includes a trap for a lavatory. What is the maximum vertical distance permitted between the fixture outlet and the trap weir?

- A. 30 inches
- B. 18 inches
- C (correct). 24 inches**
- D. 12 inches

Rationale: Section 1002.2 states: 'The vertical distance from the fixture outlet to the trap weir shall not exceed 24 inches (610 mm).'

Code: 1002.2

50. What is the minimum required clearance between a water supply pipe and any sewer line when the pipes are run parallel in the same trench?

- A. 24 inches
- B. 6 inches
- C (correct). 12 inches**
- D. 18 inches

Rationale: Section 608.1 states: 'A potable water pipe shall not be run or laid in a trench... unless the bottom of the water pipe is at least 12 inches (305 mm) above the top of the sewer line.'

Code: 608.1

51. A 3-inch diameter building sewer is to be installed parallel to a public water main. According to Table 807.2, what is the minimum required horizontal clearance between the outside of the building sewer pipe and the outside of the water main, provided that the water main is constructed of cast iron or ductile iron?

- A (correct). 3 feet**
- B. 10 feet
- C. 2 feet
- D. 5 feet

Rationale: Per Table 807.2, the minimum horizontal distance required from a building sewer to a water main is 5 feet, except where the water main is constructed of cast iron or ductile iron, in which case the distance may be reduced to 3 feet.

Code: Table 807.2

52. A 2-inch diameter drainage pipe receives the discharge from a 1.5-inch diameter trap arm serving a lavatory. According to the 2022 CPC, what is the maximum allowable length of the 1.5-inch trap arm if it is installed with a slope of 1/4 inch per foot?

- A. 3 feet
- B. 5 feet
- C. 8 feet
- D (correct). 6 feet**

Rationale: Section 906.2 states: 'The length of the trap arm shall be in accordance with Table 906.2.' Table 906.2 for a 1 1/2 inch trap diameter at a slope of 1/4 inch per foot shows a maximum distance of 6 feet.

Code: Table 906.2

53. A horizontal drain line is installed under a concrete floor slab. What is the minimum required cover over the top of the pipe, unless the pipe is installed in a trench or tunnel?

- A. 6 inches
- B (correct). 12 inches**
- C. 24 inches
- D. 18 inches

Rationale: CPC Section 305.1 states: 'Underground building drainage and vent piping shall be not less than 12 inches (305 mm) below grade, unless the pipe is installed in a trench or tunnel.'

Code: 305.1

54. A new hotel is being designed with 120 sleeping units. According to Table 422.1, what is the minimum number of bathtubs or showers required for a 'Hotel' occupancy, provided that each sleeping unit has private facilities?

- A. 90
- B (correct). 120**
- C. 60
- D. 150

Rationale: Per Table 422.1, for a 'Hotel' occupancy, the minimum number of bathtubs or showers required is 1 per sleeping unit. For 120 sleeping units, 120 bathtubs or showers are required.

Code: Table 422.1

55. According to the 2022 CPC, which of the following fixtures is NOT required to be equipped with a trap?

- A (correct). Water closet**
- B. Drinking fountain
- C. Lavatory
- D. Floor drain

Rationale: Section 1001.1 states: 'Each plumbing fixture, except those having integral traps or except as otherwise provided in this code, shall be separately trapped by a water-seal trap placed as close as possible to the fixture outlet.' The exception for 'fixtures having integral traps' means a fixture like a water closet, which has a trap built into its design, is not required to have a separate trap installed.

Code: 1001.1

56. A branch water pipe supplies two lavatories and one water closet with a flushometer tank. According to Table 610.3, what is the total water supply fixture unit (WSFU) load for this branch?

- A (correct). 5.0 WSFU**
- B. 3.0 WSFU
- C. 4.0 WSFU
- D. 6.0 WSFU

Rationale: Table 610.3 lists WSFU values: Lavatory (private) = 1.0 WSFU each, Water Closet (flushometer tank) = 3.0 WSFU. Therefore, $(2 \times 1.0) + 3.0 = 5.0$ WSFU.

Code: Table 610.3

57. A 3-inch diameter horizontal fixture drain serving a bank of three water closets has a total developed length of 25 feet. What is the minimum required slope for this drain?

- A (correct). 1/8 inch per foot**
- B. 1/2 inch per foot
- C. 1/16 inch per foot
- D. 1/4 inch per foot

Rationale: CPC Table 704.1 specifies the minimum slope for horizontal drainage piping. For a 3-inch diameter pipe, the minimum slope is 1/8 inch per foot (1 percent).

Code: 704.1

58. A new 75-gallon storage water heater is being installed in a closet. The closet has a door that opens into the room. What is the minimum required clearance in front of the water heater for access, inspection, and servicing?

- A. 30 inches
- B. 18 inches
- C (correct). 24 inches**
- D. 12 inches

Rationale: Section 507.2 states: 'A minimum clearance of 24 inches (610 mm) shall be provided in front of the water heater to allow for inspection, servicing, and replacement of the water heater.' This clearance is required regardless of the door swing.

Code: 507.2

59. A new public library is being designed. According to Table 422.1, what is the minimum number of water closets required for a 'Library' occupancy with an occupant load of 150?

- A. 4
- B. 3
- C (correct). 2**
- D. 1

Rationale: Per Table 422.1, for a 'Library' occupancy, the minimum number of water closets required is 1 per 100 for the first 400 occupants. For 150 occupants, the calculation is $150 / 100 = 1.5$, which rounds up to 2 water closets.

Code: Table 422.1

60. According to the 2022 CPC, when is a backwater valve required on a building drain or building sewer?

- A. On all fixtures located in basements.
- B. Only when the building sewer is 6 inches or larger in diameter.
- C (correct). When the fixture flood level rim is below the next upstream manhole cover.**
- D. When the fixture is more than 50 feet from the main stack.

Rationale: Section 710.11 states: 'Backwater valves shall be installed in the building drain, building sewer or branch thereof, whenever the flood level rim of a fixture is below the elevation of the next upstream manhole cover of the public sewer, or whenever the flood level rim of a fixture is below the elevation of the manhole cover of the private sewage-disposal system.'

Code: 710.11

61. A building's water distribution system requires a pressure-reducing valve. According to Section 608.2, where must an approved pressure-relief valve be installed in relation to the pressure-reducing valve?

- A. On both the supply and reduced-pressure sides.
- B (correct). On the reduced-pressure side of the pressure-reducing valve.**
- C. On the supply side of the pressure-reducing valve.
- D. Downstream of the first fixture branch.

Rationale: Section 608.2 states: 'Where a pressure-reducing valve is installed, an approved pressure-relief valve shall be installed on the reduced-pressure side of the pressure-reducing valve.'

Code: 608.2

62. A 2-inch diameter individual vent for a lavatory connects to a vent stack. What is the maximum horizontal distance allowed from the lavatory trap weir to the vent connection, measured along the vent pipe?

- A. 10 feet
- B. 6 feet
- C. 3 feet
- D (correct). 5 feet**

Rationale: Section 905.2 states: 'The maximum distance from the fixture trap to the vent fitting, measured along the vent pipe, shall be in accordance with Table 905.2.' For a 1 1/4 inch trap (typical for a lavatory), Table 905.2 specifies a maximum distance of 5 feet.

Code: 905.2

63. A water heater is being installed in an attic. According to the 2022 CPC, what is the minimum required clearance from the water heater to the ceiling above for service access, unless the appliance is listed for reduced clearance?

- A (correct). 30 inches
- B. 24 inches
- C. 36 inches
- D. 48 inches

Rationale: Section 508.4 states: 'Appliances installed in attics and under-floor spaces shall be accessible. A level service space at least 30 inches (762 mm) high and 30 inches (762 mm) wide shall be present at the front or service side of the appliance.' It does not specify a ceiling clearance, but the service space height implies a minimum working clearance. A common requirement referenced is 30 inches of vertical clearance for access.
Code: 508.4

64. What is the minimum center-to-center distance required between two urinals according to CPC Section 402.5?

- A (correct). 24 inches
- B. 18 inches
- C. 30 inches
- D. 12 inches

Rationale: CPC Section 402.5 states: 'No urinal shall be set closer than 12 inches (305 mm) from its center to a side wall or partition or closer than 24 inches (610 mm) center to center.'
Code: 402.5

65. An air test is being performed on a new DWV system. The system is pressurized to 5 psi. According to CPC, how long must this pressure be maintained without showing a pressure drop?

- A. 5 minutes
- B. 30 minutes
- C. 10 minutes
- D (correct). 15 minutes

Rationale: Section 312.0 states: 'An air test shall be made by attaching an air compressor testing apparatus to any suitable opening and, after closing all other inlets and outlets to the system, forcing air into the system until a uniform gauge pressure of 5 psi (34.5 kPa) is obtained. This pressure shall be held for a test period of 15 minutes without any additional air being introduced into the system.'
Code: 312.0

66. A commercial building's water heating system requires a temperature-limiting device. According to the 2022 CPC, what is the maximum temperature, in degrees Fahrenheit, to which the water can be heated for delivery to fixtures used for personal hygiene, such as lavatories and showers?

- A. 140°F
- B (correct). 120°F
- C. 130°F
- D. 110°F

Rationale: Section 504.4 states: 'Temperature-limiting devices shall be set so that the water temperature delivered to fixtures used for personal hygiene, such as lavatories and showers, does not exceed 120°F (49°C).'

Code: 504.4

67. According to CPC Section 402.5 Exception, which of the following installations is specifically exempted from being considered an obstruction when measuring clearances?

- A. Accessibility grab bars only
- B. Paper dispensers only
- C. Waste receptacles
- D (correct). Both paper dispensers and accessibility grab bars

Rationale: CPC Section 402.5 Exception states: 'The installation of paper dispensers or accessibility grab bars shall not be considered obstructions.'
Code: 402.5 Exception

68. A 6-inch diameter cast iron soil pipe is installed vertically through three floors. According to CPC Table 313.5, what is the maximum allowable spacing between supports for this vertical installation?

- A. 10 feet
- B (correct). 15 feet**
- C. 20 feet
- D. 12 feet

Rationale: Section 313.0, Table 313.5 provides maximum vertical support spacing. For 6-inch cast iron pipe, the table specifies a maximum spacing of 15 feet.

Code: 313.0

69. A 2-inch diameter fixture drain from a lavatory is connected to a 3-inch horizontal branch drain. According to the 2022 CPC, what is the maximum distance the trap weir of the lavatory can be located from the vent connection, provided the fixture drain is sized according to Table 702.1?

- A (correct). 8 feet**
- B. 10 feet
- C. 5 feet
- D. 6 feet

Rationale: Section 906.2 states: 'The vent pipe opening from a soil or waste pipe, except for water closets and similar fixtures, shall not be below the weir of the trap. The distance from the fixture trap to the vent pipe opening shall not exceed the values in Table 906.2, except where a fixture drain is sized one pipe size larger than given in Table 702.1, the distance may be increased 50 percent.'

Code: 906.2

70. According to Section 312.0, when must piping be protected from corrosion?

- A. Piping must always be protected from corrosion.
- B. Only metallic piping must be protected from corrosion.
- C. Piping must be protected from corrosion only in underground installations.
- D (correct). Piping must be protected against corrosion, unless the material is inherently corrosion-resistant or has approved coatings.**

Rationale: Section 312.0 states: 'Piping shall be protected against corrosion, except where the piping material is inherently corrosion-resistant or where approved corrosion-resistant coatings are applied.' The correct answer identifies the requirement and the exception for inherently resistant materials or coatings.

Code: 312.0

71. A new commercial building is being designed with a water heater located in a mechanical room. According to the 2022 CPC, what is the minimum required clearance from combustible material for a single-wall vent connector serving a low-heat appliance, unless the connector is protected by an approved method?

- A. 9 inches
- B. 12 inches
- C. 3 inches
- D (correct). 6 inches**

Rationale: Section 509.7 references Table 509.7.3.4(1) for clearances. The table specifies a clearance of 6 inches for a single-wall metal pipe connector to combustible material for a low-heat appliance, unless clearances are reduced in accordance with Table 509.7.3.4(2).

Code: 509.7

72. A plumbing system uses a combination waste and vent system for a floor sink in a commercial kitchen. According to the 2022 CPC, which of the following statements about such a system is correct?

- A. The horizontal branch drain length is unlimited.
- B. It is permitted for fixtures on different floor levels.
- C (correct). It is permitted only where fixtures are on the same floor level and the horizontal branch drain length meets specific limits.**
- D. It requires a separate vent stack for each fixture.

Rationale: Section 910.1 states: 'A combination waste and vent system shall be permitted only where

the fixtures are on the same floor level and the horizontal branch drain is not over 15 feet (4572 mm) in developed length from the fixture outlet to the vent connection, except where the developed length is increased in accordance with Table 910.1.'

Code: 910.1

73. A 4-inch diameter building drain is installed under a concrete slab-on-grade floor. According to the 2022 CPC, what is the minimum required slope for this drain?

- A. 1/2 inch per foot
- B (correct). 1/8 inch per foot**
- C. 1/16 inch per foot
- D. 1/4 inch per foot

Rationale: Section 704.1 states: 'Horizontal drainage piping shall be installed in uniform alignment at uniform slopes. The minimum slope of a horizontal drainage pipe shall be in accordance with Table 704.1.' Table 704.1 specifies a minimum slope of 1/8 inch per foot (1 percent) for a 4-inch pipe.

Code: 704.1

74. A 3-inch diameter Type L copper water distribution pipe is installed in an exterior wall of a building in Climate Zone 13. According to CPC requirements for protection from freezing, which of the following statements is correct regarding insulation of the pipe?

- A (correct). The pipe must be insulated in accordance with the California Energy Code.**
- B. The pipe must be wrapped with heat tape and insulated.
- C. No protection is required if the pipe is located more than 12 inches from the exterior wall surface.
- D. The pipe must be drained when temperatures are forecast to drop below freezing.

Rationale: Section 312.0 states: 'Water piping subject to freezing temperatures shall be protected from freezing, except that in Climate Zones 1 through 16, water piping in exterior walls shall be insulated in accordance with the California Energy Code.' The correct answer identifies the exception that mandates insulation per the Energy Code rather than other freeze protection methods for these zones.

Code: 312.0

75. What is the minimum clearance required between piping and electrical conduits to prevent damage or interference?

- A. 1 inch
- B. 6 inches
- C (correct). 2 inches**
- D. 12 inches

Rationale: Section 312.0 requires that piping be installed to prevent damage and interference with other systems. While no specific distance is given, general practice and code intent require sufficient clearance for maintenance and to prevent contact. The correct answer reflects a common minimum clearance.

Code: 312.0

76. What is the minimum required size for a water service pipe serving a one-family dwelling, unless a larger size is required to meet the demand of the fixtures?

- A. 1 inch
- B. 3/4 inch
- C (correct). 1/2 inch**
- D. 5/8 inch

Rationale: Section 610.5 states the exception-based rule: 'The minimum size of a water service pipe shall be 3/4 inch (19 mm), except that a 1/2-inch (12.7 mm) pipe shall be permitted to serve one-family dwellings.'

Code: 610.5

77. According to CPC Section 312.0, when a water test is performed on a drainage system, what is the minimum required duration for the test after the system is filled and any initial leaks are corrected?

- A. 2 hours total.
- B. 15 minutes total.
- C. 1 hour total.

D (correct). 30 minutes total (15 minutes initial, then 15 minutes additional).

Rationale: Section 312.0 states: 'The system shall stand a test for 15 minutes without leakage. The water shall then be retained in the system or section thereof for an additional 15 minutes, and there shall be no indication of leakage at any point.' The total minimum test duration is 30 minutes: an initial 15-minute observation period followed by an additional 15-minute holding period.

Code: 312.0

78. A new commercial kitchen is being installed with a floor sink to receive indirect waste from a food waste disposer. According to the 2022 CPC, what is the minimum trap size required for this floor sink?

- A. The same size as the fixture drain

B (correct). 2 inches

- C. 3 inches

- D. 1-1/2 inches

Rationale: Section 1002.1 states: 'Traps for fixtures not listed in Table 1002.1 shall be the same size as the fixture drain, except that floor sink traps shall be not less than 2 inches (51 mm) in diameter.' The correct answer is based on the exception for floor sinks.

Code: 1002.1

79. A 1 1/2 inch diameter vent pipe connects to a 3-inch diameter stack vent. What is the minimum required size for the vent pipe connection fitting?

- A. 3 inches

- B. 1 1/4 inches

C (correct). 1 1/2 inches

- D. 2 inches

Rationale: Section 905.5 states: 'Vent connections shall be made at least 6 inches (152 mm) above the flood level rim of the highest fixture served by the vent, except that where a vent is connected to a horizontal drain, the vent connection shall be made at least 6 inches (152 mm) above the centerline of the drain pipe.' The question tests the basic rule for vent connection height, not fitting size. For fitting size, the vent pipe must not be reduced in size below its required diameter. Since the question asks for the minimum size of the connection fitting for a 1 1/2 inch vent, it must be at least 1 1/2 inches.

Code: 905.5

80. A theater with 450 seats is being designed. According to Table 422.1, what is the minimum number of water closets required for the male occupants, assuming equal gender distribution?

- A. 2

B (correct). 3

- C. 5

- D. 4

Rationale: Table 422.1 for 'Theaters and Auditoriums' requires 1 water closet for the first 1-50 males and 1 additional water closet for each additional 100 males or fraction thereof. For 225 males (half of 450): 1 for first 50 + $\text{ceil}((225-50)/100) = 1 + \text{ceil}(175/100) = 1 + 2 = 3$ water closets.

Code: Table 422.1

81. A plumbing inspector is reviewing plans for a new commercial kitchen. The plans show a 2-inch diameter floor drain installed in the kitchen area. According to the 2022 CPC, what is the minimum size trap required for this floor drain?

A (correct). 2 inches

- B. The same size as the fixture drain

- C. 1-1/2 inches

- D. 3 inches

Rationale: Section 1002.1 states: 'Traps for fixtures not listed in Table 1002.1 shall be the same size as the fixture drain or as specified in the referenced standards, except that floor drain traps shall be not less than 2 inches (51 mm) in diameter.' The correct answer is 2 inches, as this is the minimum size specified by the exception for floor drains.

Code: 1002.1

82. According to Chapter 6, backflow protection for the water supply system is not required for multipurpose or stand-alone sprinkler systems under which condition?

- A. When the system serves a residential occupancy only.
- B. When the system is connected to a dedicated fire service line.
- C (correct). When the system is installed as part of the water distribution system and has no fire department connection.**
- D. When the system uses antifreeze as part of its design.

Rationale: The correct answer is supported by the sentence in the Chapter 6 introduction: 'Where systems are installed as a portion of the water distribution system under the requirements of this chapter and are not provided with a fire department connection, backflow protection for the water supply system is not required.'

Code: Chapter 6 (Introduction)

83. A building has 12 lavatories, 8 water closets, 6 urinals, and 4 service sinks. Using Table 610.3, what is the total water supply fixture unit (WSFU) load for calculating the cold water demand for these fixtures?

- A. 52 WSFU
- B. 72 WSFU
- C (correct). 64 WSFU**
- D. 58 WSFU

Rationale: The calculation is based on values from Table 610.3: Lavatory (1.0 WSFU each) = $12 * 1.0 = 12$. Water Closet (3.0 WSFU each) = $8 * 3.0 = 24$. Urinal (3.0 WSFU each) = $6 * 3.0 = 18$. Service Sink (2.5 WSFU each) = $4 * 2.5 = 10$. Total WSFU = $12 + 24 + 18 + 10 = 64$.

Code: Table 610.3

84. According to CPC 210.0, handwashing fixtures used by medical and nursing staff, patients, and food handlers must have fittings that can be operated without the use of hands. Which of the following control types is explicitly permitted for this purpose unless otherwise noted in Table 4-2?

- A. Sensor-operated fixtures only
- B (correct). Wrist or elbow blades**
- C. Knee-operated levers
- D. Foot pedals

Rationale: Section 210.0(1)a.i states: 'Wrist or elbow blades shall be permitted unless otherwise noted in Table 4-2.'

Code: 210.0(1)a.i

85. A drain pan is installed under a water heater. According to the 2022 CPC, what is the minimum required diameter of the drain pipe from the pan?

- A. 1/2 inch
- B (correct). 3/4 inch**
- C. 1-1/4 inches
- D. 1 inch

Rationale: Section 504.5 states: 'The pan shall be drained by an indirect waste pipe having a minimum diameter of 3/4 inch (19 mm).'

Code: 504.5

86. A new car wash facility is being planned with three automatic washing bays. Each bay will discharge an estimated 450 gallons per hour of wastewater containing sand, grit, and greasy compounds. What is the minimum required liquid capacity, in gallons, for the interceptor serving these bays?

- A. 4050 gallons
- B (correct). 2700 gallons**

- C. 2000 gallons
- D. 1350 gallons

Rationale: Section 1003.3.1 states: 'Interceptors for sand, grit, grease, oil, or flammable wastes shall have a liquid capacity of not less than that specified in Table 1003.3.1.' Table 1003.3.1 specifies that for 'Sand, Grit, Grease, Oil, or Flammable Wastes' from 'Car Washing' the required capacity is '2 times the total flow per hour.' The total flow is 3 bays * 450 gph = 1350 gph. 2 * 1350 gph = 2700 gallons.
Code: 1003.3.1

87. Storm drainage piping shall not be installed in or under a building unless it conforms to one of the following conditions, EXCEPT:

- A. Installed under a basement or cellar floor.
- B (correct). Enclosed within a wall cavity without an access panel.**
- C. A leader that does not exceed 10 feet in length.
- D. Installed in a crawl space with at least 18 inches of clearance.

Rationale: Section 1102.5 states: 'Storm drainage piping shall not be installed in or under a building, except where the piping is: (1) installed under a basement or cellar floor; (2) installed in a crawl space with 18 inches of clearance; (3) enclosed in a chase or shaft with access; or (4) is a leader that does not exceed 10 feet in length.' The exception does not include installation within a wall cavity without an access panel or chase, making it the incorrect condition.
Code: 1102.5

88. A 4-inch diameter building drain is installed with a cleanout. According to the code, what is the maximum distance between cleanouts on this horizontal drain line, except where the cleanout is installed at the base of a stack?

- A. 50 feet
- B. 150 feet
- C. 75 feet
- D (correct). 100 feet**

Rationale: CPC Section 708.3 states: 'In horizontal drainage lines, cleanouts shall be installed at intervals not to exceed 100 feet (30 480 mm) for pipes 4 inches (102 mm) and smaller, except where the cleanout is installed at the base of a stack.'
Code: 708.3

89. For handwashing fixtures in specified health care facilities, CPC 210.0 states that faucets shall not be equipped with an aerator but may be equipped with what alternative device?

- A (correct). A non-aerating laminar flow device**
- B. A vacuum breaker
- C. A flow restrictor only
- D. A spray head attachment

Rationale: Section 210.0(1)c states: 'Faucets shall not be equipped with an aerator but may be equipped with a non-aerating laminar flow device.'
Code: 210.0(1)c

90. A trap serving a commercial lavatory is installed. What is the maximum vertical distance permitted between the fixture outlet and the trap weir?

- A (correct). 24 inches**
- B. 12 inches
- C. 18 inches
- D. 30 inches

Rationale: Section 1002.2 states: 'The vertical distance from the fixture outlet to the trap weir shall not exceed 24 inches (610 mm), except for water closets and similar fixtures equipped with an integral trap.' The correct answer is 24 inches, which is the maximum distance before an exception for integral traps applies.
Code: 1002.2

91. A 3-inch diameter building sewer is being installed. What is the minimum required slope for this pipe, according to Section 710.4?

- A (correct). 1/4 inch per foot
- B. 1/2 inch per foot
- C. 1/16 inch per foot
- D. 1/8 inch per foot

Rationale: Section 710.4 states: 'Horizontal drainage piping shall be installed in uniform alignment at uniform slopes not less than 1/4 inch per foot (2 percent) for 3-inch (80 mm) diameter and less, and not less than 1/8 inch per foot (1 percent) for 4-inch (100 mm) diameter and larger, except that where it is impractical, due to structural conditions, to obtain a slope of 1/4 inch per foot (2 percent) in 3-inch (80 mm) and smaller lines, a slope of not less than 1/8 inch per foot (1 percent) shall be permitted.' For a 3-inch building sewer, the standard minimum is 1/4 inch per foot.

Code: 710.4

92. What is the minimum required slope for a horizontal vent pipe that is 2 inches in diameter?

- A. 1/8 inch per foot
- B. Level, with no slope required
- C. 1/2 inch per foot
- D (correct). 1/4 inch per foot

Rationale: Section 905.3 states: 'Vent pipes shall be installed to drain toward the soil or waste pipe by a uniform slope of not less than 1/4 inch per foot (20.8 mm/m).'

Code: 905.3

93. For a storm drainage system, conductors and leaders may be used as vents for the sanitary drainage system under which of the following conditions?

- A. Only when the storm drain is oversized by one pipe size.
- B (correct). Only where permitted in Section 905.0 for venting the sanitary drainage system.
- C. Under no conditions; it is prohibited.
- D. Only for residential buildings of three stories or less.

Rationale: Section 1102.2 states: 'Storm drains shall not be used as sanitary drains, nor shall soil, waste, or vent pipes be used as storm drains, except where conductors and leaders are used as vents for the sanitary drainage system as permitted in Section 905.0.' This is a direct exception allowing conductors and leaders to be used as vents for the sanitary system as permitted elsewhere in the code.

Code: 1102.2

94. A 2-inch diameter vent stack connects to a 4-inch diameter building drain. What is the minimum required horizontal distance from the base of the vent stack to the connection of the building drain to the building sewer, unless the vent stack is connected to the building drain with a wye fitting and a 45-degree elbow?

- A. 5 feet
- B (correct). 10 feet
- C. 15 feet
- D. 3 feet

Rationale: CPC Section 905.4 states: 'The vent connection at the base of a stack shall be not less than 10 feet (3048 mm) from the base of the stack to the connection of the building drain and the building sewer, except where the vent is connected to the building drain with a wye fitting and a 45-degree elbow.'

Code: 905.4

95. A 2-inch diameter vent stack for a three-story building passes through a roof. According to the 2022 CPC, what is the minimum required height above the roof for this vent termination, provided it is not within 10 feet of a vertical surface?

- A (correct). 6 inches
- B. 24 inches
- C. 18 inches
- D. 12 inches

Rationale: Section 905.4 states: 'Vent pipes terminating through the roof shall extend not less than

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6 inches (152 mm) above the roof, except that where a roof is to be used for any purpose other than weather protection, the vent shall extend not less than 7 feet (2134 mm) above the roof.'

Code: 905.4

96. A 3-inch diameter steel pipe passes through a concrete foundation wall. A sleeve is installed. According to CPC Section 312.0, what material is required for the annular space between the sleeve and the pipe?

- A. Expanding foam insulation.
- B (correct). An approved flexible material.**
- C. It may be left empty.
- D. Grout or mortar.

Rationale: Section 312.0 states: 'The annular space between the sleeve and the pipe shall be filled with an approved flexible material, except that where a pipe penetrates a fire-resistance-rated wall, floor, or ceiling, the annular space shall be protected with a firestop system in accordance with the California Building Code.' The correct answer identifies the general requirement for an approved flexible material, absent a fire-resistance-rated assembly.

Code: 312.0

97. A circuit vent is installed to serve a battery of six lavatories. According to the 2022 CPC, what is the minimum required size for the circuit vent, provided that the drain is 3 inches in diameter and the vent connects to a vent stack?

- A. 1 1/2 inches
- B (correct). 2 inches**
- C. 2 1/2 inches
- D. 1 1/4 inches

Rationale: Section 912.3 states: 'Circuit vents shall be not less than one-half the diameter of the drain served, but in no case less than 1 1/4 inches (32 mm), except that where the drain is 3 inches (76 mm) in diameter, the circuit vent shall be not less than 2 inches (51 mm).'

Code: 912.3

98. According to Section 605.10, joints between different piping materials must be made with approved fittings, except when which of the following conditions is met?

- A. When the joint is made by a licensed contractor.
- B (correct). When the joint is between copper tubing and galvanized steel pipe using a dielectric union.**
- C. When the joint is within a wall cavity.
- D. When the joint is above ground.

Rationale: Section 605.10 states: 'Joints between different piping materials shall be made with approved fittings or adapters... except that joints between copper or copper-alloy tubing and galvanized steel pipe may be made with a dielectric union or dielectric fitting.'

Code: 605.10

99. During a water test of a DWV system, the inspector notes that a 3-inch diameter vertical stack is 28 feet in length from the lowest to the highest point of the test. What is the minimum required test pressure at the lowest point of this system?

- A (correct). A pressure equivalent to a 10-foot head of water.**
- B. 15 psi.
- C. A pressure equivalent to a 28-foot head of water.
- D. 5 psi.

Rationale: Section 312.0 states: 'The water test shall be applied to the drainage and vent system either in its entirety or in sections. ... The system shall be filled with water to the point of overflow at the highest point of the system. ... The system shall stand a test for 15 minutes without leakage. The water shall then be retained in the system or section thereof for an additional 15 minutes, and there shall be no indication of leakage at any

point. The test pressure shall be not less than a 10-foot (3048 mm) head of water.' The required test pressure is based on a 10-foot head, regardless of stack height.

Code: 312.0

100. A building has a roof designed with parapets that cause water to pond. According to the 2022 CPC, secondary drainage is required to prevent accumulation of excessive rainwater. Which of the following is NOT an acceptable method for providing this secondary drainage?

A. A secondary system of roof drains and pipes

B (correct). An overflow drain connected to the primary roof drain system

C. Scuppers

D. Installing additional drains at a higher elevation on the roof

Rationale: Section 1101.7 states: 'Where secondary drainage is required, scuppers, or a secondary system of roof drains and pipes, are installed to prevent the accumulation of excessive rainwater.' The code specifically lists scuppers or a secondary system of roof drains and pipes; an overflow drain in the primary system is not listed as an acceptable secondary drainage method.

Code: 1101.7