**Ch. 14 “Plumbing” homework questions**

Instructions

Create space in the Word document below, and type your answers using complete sentences. When you are finished, submit your work as an email attachment.

(10 questions, 100 points possible)

1. Basics (p. 354)
2. Plumbing consists of what 2 basic systems?
3. Fresh water for a building is usually supplied from one of two sources. Name the 2 sources:
4. Waste water from a building usually drains to one of two destinations. Name the 2 destinations:
5. Wastewater flows by gravity. Therefore, waste piping must be installed with a built-in slope of what angle? Give the allowable range:
6. Supply piping (p. 354-356)
7. The water supply pipe - from the street to the house - is typically what size? (diameters)
8. Where is the water meter typically located?
9. Once inside the house, the individual branch lines are typically reduced to what size? (diameters)
10. Study the house in Fig 14.1. Based on the piping diagram, what type of room is to be located on the 2nd floor?
11. Supply piping is typically made of what 3 materials?
12. Water heaters (p. 355)
13. List the 2 types of water heaters, with their advantages and disadvantages.
14. Study the water heater in Fig 14.3.
15. What is the large vertical pipe at the top?
16. Why is the water heater strapped to the wall?
17. How could you increase the efficiency of the water heater?
18. Energy conservation (p. 356)
19. Supply piping should be wrapped in thermal insulation. What are 2 types of insulation used?
20. In Fig 14.4, what type of insulation is being used?
21. In Fig 14.4, what is the pipe made out of?
22. If water in a pipe freezes, what can happen to the pipe?
23. Wastewater piping (p. 356-357)
24. Waste lines connected to toilets are at least what size? (diameter)
25. What is the purpose of a P-trap?
26. The entire wastewater piping system is known as the DWV system. What does DWV stand for?
27. DWV pipe systems are commonly made of what 3 materials?
28. Study the wastewater piping diagram in Fig 14.5
29. How many vent pipes go up through the roof?
30. What is the purpose of these vent pipes?
31. Describe the “journey” of the wastewater from the shower on the 2nd floor until it reaches the sewer line under the street.
32. Is the wastewater in this house pumped out of the house? What causes it to flow to the sewer main out at the street?
33. What is the typical waste pipe diameter used for a kitchen sink? (Fig 14.7)
34. What is the typical waste pipe diameter used for a washing machine?
35. Planning (p. 358)
    1. How can the framer make the plumber’s job more efficient?
    2. Why are special provisions made for the placement of toilet drain pipes?
    3. Outside the house, can the same trench be used for piping and electrical lines?
    4. In Fig 14.9, what type of supply pipe is being used for this bathroom? What is it made of?
36. Rough-In (p. 359-361)
    1. How do you solder (weld) copper pipe? Describe the steps. If you missed the copper welding lab at class, you can research this on YouTube.
    2. What hazards exist in welding copper pipe? What are some of the potential hazards? List some.
    3. Study Fig 14.11. Why is insulation wrapped around these drain pipes? What is the purpose?
    4. Why are waste pipes usually installed first in a project?
    5. Why can the supply lines be installed last?
    6. Refer to Fig 14.13.
37. What are the waste pipes made of in this picture?
38. What are the supply pipes made of?
    1. Why are “nailing plates” installed where piping is routed through wood framing members? What is the purpose?
39. Fire sprinkler systems (p. 364-365)
    1. Since the year \_\_\_\_\_\_\_, all new single-family homes have required a fire sprinkler system.
    2. Unlike commercial fire sprinkler systems, what is the goal of residential systems?
    3. Residential fire sprinkler systems need to supply water to 1 or 2 sprinkler heads for how long?
    4. The house in Fig 14.18 has how many sprinkler heads?
    5. How are the sprinkler heads activated? What causes them to start spraying water? What is the mechanism?
40. Hydronic heating (p. 366)

What is the operating principle behind a hydronic heating system? You may need to research this on the Internet. Explain it in 3 or 4 sentences.

1. Sustainable design (p. 366-367)
   1. What are the 2 primary concerns (or goals) of sustainability with plumbing?
   2. Pick one of the sustainability “ideas” listed on p. 366-367 (there are 11 ideas), research it on the Internet, and write a 2-3 paragraph “educational” summary. You may include pictures, diagrams, or other visuals which help explain it.