

# 17 Fireplaces, Chimneys, and Stoves

Text, Pages 369–387

Name \_\_\_\_\_

Course \_\_\_\_\_ Date \_\_\_\_\_ Score \_\_\_\_\_

## Part I: Completion

Complete each sentence with the proper response. Place your answer on the space provided.

1. Fireplaces may either be gas-fired or \_\_\_\_\_ burning. 1. \_\_\_\_\_
2. The hearth should be made from \_\_\_\_\_ materials such as ceramic tile, stone, or slate. 2. \_\_\_\_\_
3. If the fireplace is giving off only a small amount of heat, then the fire chamber is probably too \_\_\_\_\_. 3. \_\_\_\_\_
4. A fireplace that smokes into the room is likely to be the result of a fire chamber that is too \_\_\_\_\_. 4. \_\_\_\_\_
5. Ashes are removed from the ash chamber through the \_\_\_\_\_. 5. \_\_\_\_\_
6. The \_\_\_\_\_ and \_\_\_\_\_ of a prefabricated steel heat-circulating fireplace are made with a double-wall passageway where the air is heated. 6. \_\_\_\_\_
7. The \_\_\_\_\_ opens to the back of the fireplace throat. 7. \_\_\_\_\_
8. The smoke shelf height is determined by the location of the \_\_\_\_\_. 8. \_\_\_\_\_
9. The flue starts at the top of the smoke chamber and proceeds to the top of the \_\_\_\_\_. 9. \_\_\_\_\_
10. Each fireplace in a structure must have its own \_\_\_\_\_. 10. \_\_\_\_\_
11. \_\_\_\_\_ is reduced when the flue is not straight. 11. \_\_\_\_\_
12. A rule of thumb to follow in selecting the proper flue size is that the cross-sectional area of the flue should be at least \_\_\_\_\_ of the fireplace opening. 12. \_\_\_\_\_
13. A warmer chimney results in \_\_\_\_\_ performance. 13. \_\_\_\_\_
14. The chimney does not support any part of the house; thus it is a \_\_\_\_\_ structure. 14. \_\_\_\_\_
15. The recommended clearance for framing members around a chimney is \_\_\_\_\_. 15. \_\_\_\_\_

- |  |           |
|--|-----------|
| 16. The space between the chimney and the framing should be filled with a _____ material.                                  | 16. _____ |
| 17. The chance of water problems is _____ if a chimney is placed at the peak or ridge line of a roof.                      | 17. _____ |
| 18. Wide chimneys or extremely low roof slopes usually require a _____ along the chimney.                                  | 18. _____ |
| 19. _____ are the most popular type and the least complicated to construct of all the fireplace types.                     | 19. _____ |
| 20. The three-face fireplace is also referred to as a _____ fireplace.   | 20. _____ |
| 21. The _____ type of stove provides more even heat.   | 21. _____ |
| 22. Medium efficiency stoves have less air leakage into the stove, have better combustion, and are _____ to 50% efficient. | 22. _____ |

## Part II: Multiple Choice

Select the best answer and write the corresponding letter in the space provided.

- |   |          |
|---|----------|
| 1. The hearth should extend _____ in front of the fireplace.            | 1. _____ |
| A. 12"  |          |
| B. 14"  |          |
| C. 16"  |          |
| D. 18"  |          |
| 2. The walls of the fire chamber should be a minimum of _____ thick.    | 2. _____ |
| A. 8"   |          |
| B. 9"   |          |
| C. 10"  |          |
| D. 12"  |          |
| 3. Prefabricated steel heat-circulating fireplaces are:                 | 3. _____ |
| A. Somewhat efficient.  |          |
| B. Very efficient.  |          |
| C. Inefficient.   |          |
| D. None of the above.   |          |
| 4. Fireplace dampers:   | 4. _____ |
| A. Prevent downdrafts of cold air when the fireplace is not being used. |          |
| B. Are made of cast iron or steel.                                      |          |
| C. Should be located 6" or 8" above the top of the fireplace opening.   |          |
| D. All of the above.  |          |

Name \_\_\_\_\_

5. The shape of the smoke chamber is: \_\_\_\_\_
- A. Basically square.
  - B. An elongated rectangle.
  - C. Basically a pyramid with the back side usually vertical.
  - D. None of the above.
6. The flue lining is usually made from: \_\_\_\_\_
- A. Clay.
  - B. Concrete block.
  - C. Firebrick.
  - D. Poured concrete.
7. There should be \_\_\_\_\_ of masonry placed on all sides of the flue with a lining. \_\_\_\_\_
- A. 6"
  - B. 5"
  - C. 4"
  - D. 3"
8. At least \_\_\_\_\_ of masonry should be placed on all sides of the flue when it does not have a lining. \_\_\_\_\_
- A. 8"
  - B. 6"
  - C. 4"
  - D. 2"
9. Assume that you have designed a fireplace for a new home. The opening measures 48" wide by 32" high. What size modular flue is recommended for this size fireplace? Refer to the Design Data for Single-Face Fireplaces chart shown in Figure 17-15 in the text. \_\_\_\_\_
- A. 12" × 16"
  - B. 16" × 16"
  - C. 16" × 20"
  - D. 20" × 20"
10. Most building codes require that a flue be at least \_\_\_\_\_ above the highest point of the roof to prevent sparks flying out of the flue and setting the roof on fire. \_\_\_\_\_
- A. 2'
  - B. 3'
  - C. 4'
  - D. 5'

11. Most lintels used to support the masonry above fireplace openings are: 11. \_\_\_\_\_
- A. Wood beams.
  - B. Cast concrete.
  - C. Lintel blocks.
  - D. Angle steel.
12. The two-face adjacent fireplace: 12. \_\_\_\_\_
- A. Usually functions more efficiently than other fireplace types.
  - B. Opens on the front and either left or right side.
  - C. Is not subject to drafts.
  - D. All of the above.
13. Prefabricated steel heat-circulating fireplaces may require: 13. \_\_\_\_\_
- A. Framing enclosures.
  - B. Masonry enclosures.
  - C. Fruitwood logs.
  - D. A and B.
14. High-efficiency stoves, which are over 50% efficient, use \_\_\_\_\_ to increase output. 14. \_\_\_\_\_
- A. chimneys
  - B. bellows
  - C. heat exchange devices
  - D. All of the above.

### Part III: Short Answer/Listing

Provide brief answers to the following questions.

1. Name the five different types of fireplaces. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
2. Which material is normally used for the inner hearth? \_\_\_\_\_
3. What is the purpose of fireclay and where might it be used? \_\_\_\_\_  
 \_\_\_\_\_
4. Why is the design of the fire chamber important? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
5. Explain how a prefabricated steel, heat-circulating fireplace gains additional efficiency. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
6. What is the function of the smoke shelf? \_\_\_\_\_  
 \_\_\_\_\_

Name \_\_\_\_\_

7. Which materials are commonly used in the construction of the smoke chamber? \_\_\_\_\_  
\_\_\_\_\_
8. What is the rule of thumb to follow when selecting a flue for a fireplace opening? \_\_\_\_\_  
\_\_\_\_\_
9. List two circumstances that would require increasing the size of the flue. \_\_\_\_\_  
\_\_\_\_\_
10. How many flues may a single chimney have? \_\_\_\_\_
11. List four appliances or features of a home that require their own flue. \_\_\_\_\_  
\_\_\_\_\_
12. List two framing members used to provide support in the opening through which a chimney passes. \_\_\_\_\_
13. When chimneys are placed along a single slope of the roof, water can back up and seep under the shingles and produce leaks. What steps can be taken to prevent this? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
14. Why would a fireplace insert be used? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
15. List the two combustion materials (solids) used by stoves. \_\_\_\_\_  
\_\_\_\_\_
16. How do radiant stoves and circulating stoves differ? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
17. Which of the two types of stoves—radiant or circulating—has a lower surface temperature? \_\_\_\_\_
18. List three examples of low-efficiency stoves. \_\_\_\_\_  
\_\_\_\_\_
19. When installing a stove in front of a fireplace opening, what should be done to reflect the heat back into the room? \_\_\_\_\_  
\_\_\_\_\_
20. What effect will extending the height of a chimney have on the draft? \_\_\_\_\_  
\_\_\_\_\_

## Part IV: Matching

Match the correct term with its description listed below. Place the corresponding letter on the space provided.

- A. Ash chamber
- B. Damper
- C. Ash dump
- D. Fireclay
- E. Flue
- F. Hearth
- G. Lintel
- H. Saddle

- I. Single-face
- J. Smoke chamber
- K. Smoke shelf
- L. Stove
- M. Three-face
- N. Two-face (adjacent)
- O. Two-face (opposite)

1. Protects the floor from sparks. 1. \_\_\_\_\_
2. Fire-resistant mortar. 2. \_\_\_\_\_
3. Opening in the fireplace floor with a metal trap door. 3. \_\_\_\_\_
4. Holds ashes after they are removed from the fire chamber. 4. \_\_\_\_\_
5. Regulates the flow of air. 5. \_\_\_\_\_
6. Prevents down rushing cold air from forcing smoke into the room. 6. \_\_\_\_\_
7. The space directly above the smoke shelf and damper. 7. \_\_\_\_\_
8. Supplies a smoke path from the fireplace. 8. \_\_\_\_\_
9. Designed to shed water away from the chimney. 9. \_\_\_\_\_
10. Supports the masonry above a fireplace opening. 10. \_\_\_\_\_
11. Most popular type of fireplace. 11. \_\_\_\_\_
12. A fireplace that is open on both front and back sides. 12. \_\_\_\_\_
13. Also known as a projecting corner fireplace. 13. \_\_\_\_\_
14. A fireplace that is open on three sides. 14. \_\_\_\_\_
15. A good choice for localized heat source. 15. \_\_\_\_\_

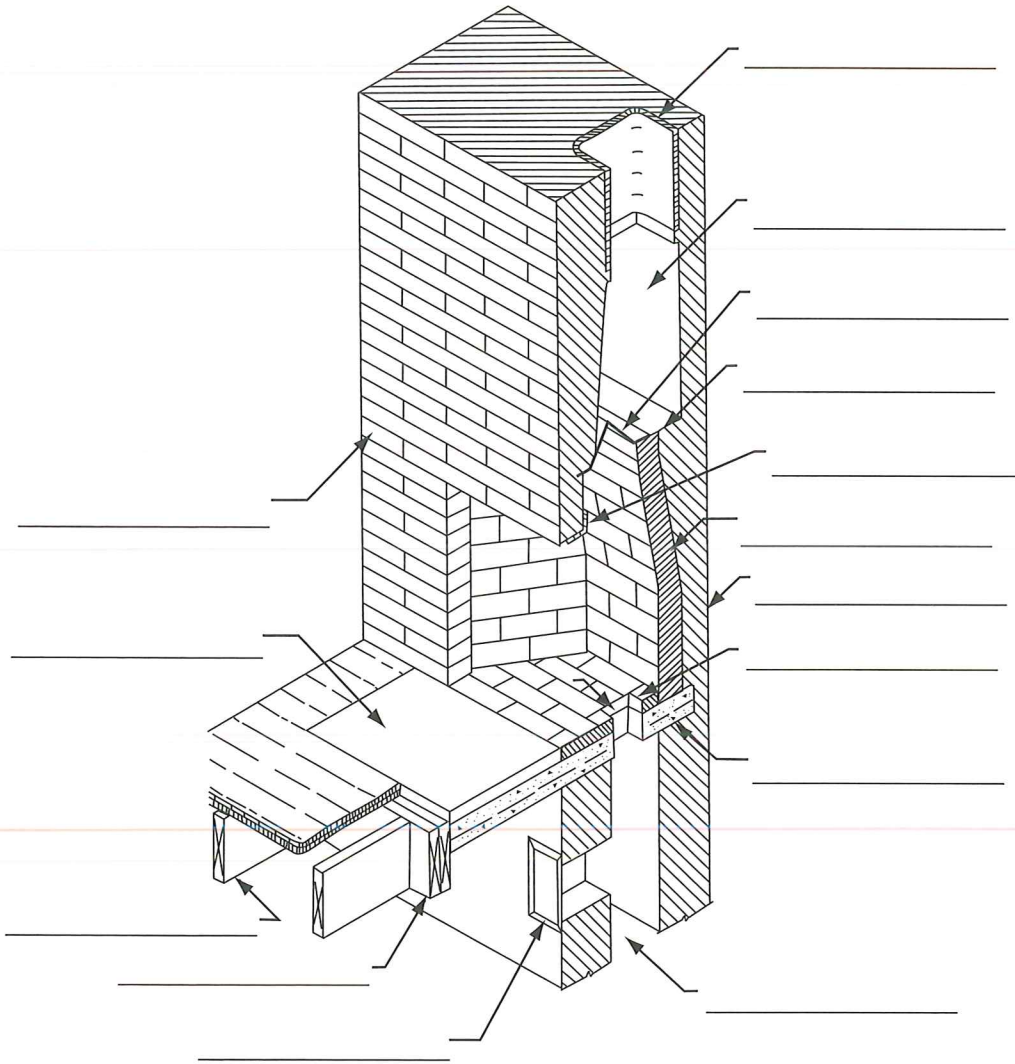
# Part V: Problems/Activities

1.

Directions:

Study the pictorial section of a fireplace and chimney below and identify each of the materials, parts, etc., indicated by the leaders. Use these specific notes:

- > Ash pit
- > Ash dump
- > Cleanout door
- > Damper
- > Double header
- > Face brick
- > Firebrick
- > Floor joist
- > Smoke chamber
- > Smoke shelf
- > Steel lintel
- > Stone hearth
- > 4" Reinforced concrete inner hearth
- > Minimum thickness of walls of fire chamber is 8"
- > Flue lining



FIREPLACE PARTS

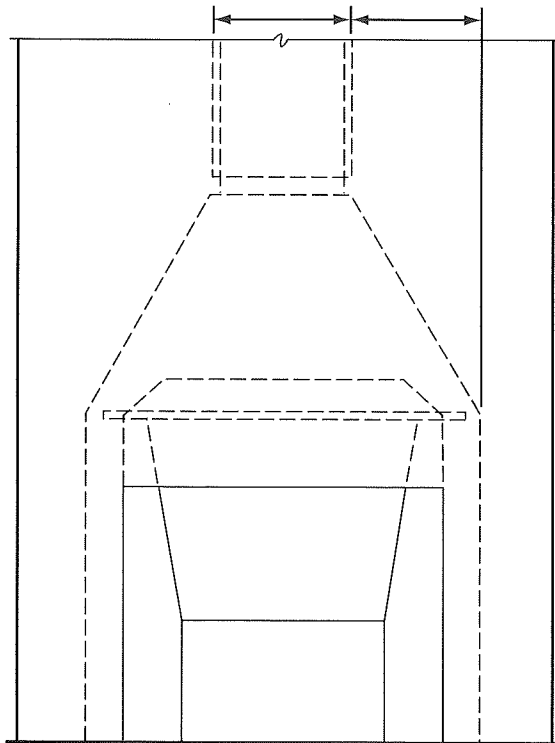
NAME:

17-1

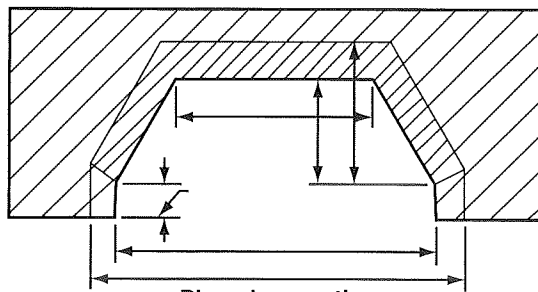
2.

Directions:

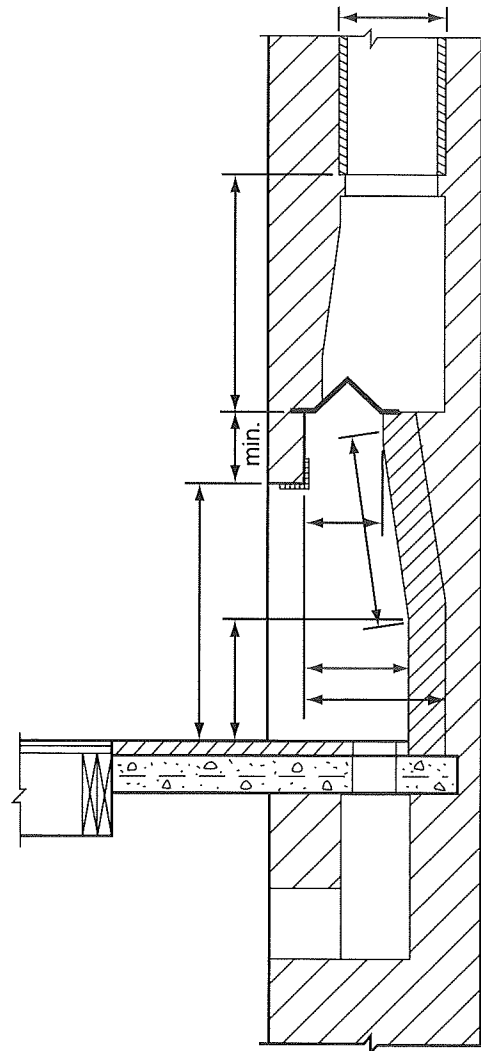
Using the Design Data for Single Face Fireplaces chart in Figure 17-15 in the text, fill in the dimensions represented on the drawings for a 40" wide fireplace and modular flue liner. Do not scale the drawings to arrive at these dimensions.



Front elevation



Plan view section



Profile section

FIREPLACE DIMENSIONS

NAME:

17-2