

FIGURE 5.1.1(b) Masonry Chimney.

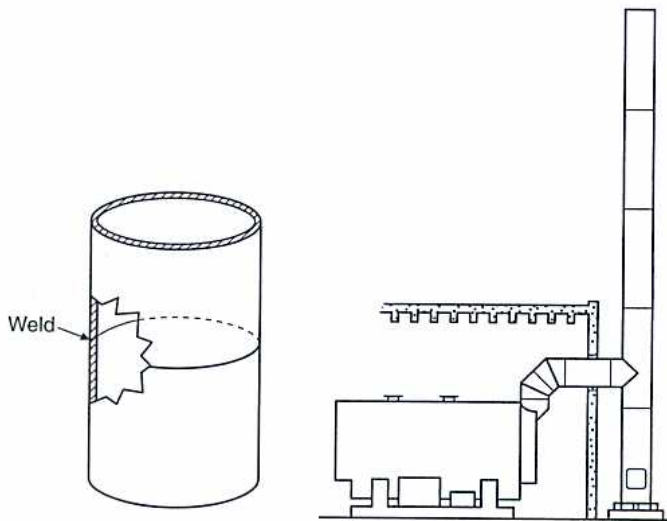


FIGURE 5.1.1(c) Typical Unlisted Metal Chimney Installation in a Commercial or Industrial Application.

**5.1.2 Application.** Each basic chimney type is defined in Chapter 3, and the application of each is determined by Table 5.2.2.1, with specific construction or installation requirements in Chapters 6, 7, and 8.

**5.2 Chimney or Vent Selection.**

**5.2.1 General.** The selection of a chimney or vent shall be based on the following:

- (1) Type of appliance connected thereto
- (2) Fuel used by the appliance

- (3) Temperature of the flue gases at the appliance outlet
- (4) Pressure within the chimney or vent

**5.2.2 Chimneys.**

**5.2.2.1** The chimney type shall be selected according to Table 5.2.2.1.

**5.2.2.2** Unlisted metal chimneys shall not be installed in one- and two-family dwellings.

**5.2.3 Vents.**

**5.2.3.1** A vent shall be used only where appliances are listed for use with a vent.

**5.2.3.2** The vent type shall be selected according to Table 5.2.3.2.

**Chapter 6 Factory-Built Chimneys and Chimney Units**

**6.1 Type and Installation.**

**6.1.1 General.** Factory-built chimneys and chimney units shall be listed and installed in accordance with the temperature and pressure conditions of the listing and the manufacturer's instructions.

**6.1.2 Temperature and Pressure Limits.** Flue gas temperatures and static pressures within the chimney shall not exceed the limits employed during listing tests.

**6.1.3 Listing Requirements.**

**6.1.3.1** Factory-built chimneys shall comply with the requirements of UL 103, *Standard for Factory-Built Chimneys for Residential Type and Building Heating Appliance*, CAN/ULC-S629-M87, *Standard for 650°C Factory-Built Chimney*; or UL 959, *Standard for Medium Heat Factory-Built Appliance Chimneys*.

**6.1.3.2\*** Factory-built chimneys for use with wood-burning appliances shall comply with the Type HT requirements of UL 103, *Standard for Factory-Built Chimneys for Residential Type and Building Heating Appliance*, or the requirements of CAN/ULC-S629-M87, *Standard for 650°C Factory-Built Chimney*.

**6.1.3.3** Chimneys for factory-built fireplaces shall meet the requirements of UL 127, *Standard for Factory-Built Fireplaces*.

**6.1.3.4** Engineered appliance-venting systems that have been listed to operate without producing combustible deposits to the venting system shall be installed in accordance with the conditions of their listing and the manufacturer's instructions.

**6.1.3.5** Open-front masonry fireplaces shall be permitted to use listed residential-type and building heating appliance chimneys without the Type HT designation. \*

**6.1.4 Enclosures.** Factory-built chimneys that pass through floors of buildings requiring the protection of vertical openings shall be enclosed with approved walls having a fire resistance rating of not less than 1 hour where such chimneys are located in a building less than four stories in height and not less than 2 hours where such chimneys are located in a building four or more stories in height.

**6.1.5 Decorative Shrouds.** Unlisted decorative shrouds shall not be permitted at the termination of a factory-built chimney.

Table 5.2.3.1 Vent Selection

Types of Appliances to Be Used with Each Type Vent					
Column I	Column II	Column III	Column IV	Column V	Column VI
All listed gas appliances with draft hoods and other Category I gas appliances listed for use with Type B Vents, such as: Central furnaces Duct furnaces  Floor furnaces Heating boilers Ranges, residential and low-heat gas Built-in ovens Vented wall furnaces Room heaters Water heaters Horizontal furnaces Unit heaters Decorative appliances (gas fireplaces)	Vented wall furnaces listed for use with Type BW vents only	Listed Categories II, III, and IV gas appliances and Category I appliances listed for use with Special Gas Vents	Low-temperature flue gas appliances listed for use with Type L vents  Gas appliances shown under Column I	Incinerators used outdoors, in open sheds, breezeways, or carports as provided in Section 8.2  Gas appliances shown under Column I Listed residential and low-heat gas appliances without draft hoods and unlisted residential and low-heat gas appliances with or without draft hoods	Listed pellet-burning appliances listed for use with pellet vents
Vent Type					
Listed Type B Gas Vent	Listed Type BW Gas Vent	Listed Special Gas Vent	Listed Type L Vent	Unlisted Single-Wall Metal Pipe	Listed Pellet Vent
				See 10.6.4 for limitations on unlisted single-wall metal pipe	

Note: See Chapter 10 for requirements.

### Chapter 6 Factory-Built Chimneys and Chimney Units

#### 6.1 Type and Installation.

6.1.1 Factory-built chimneys and chimney units shall be listed and installed in accordance with the temperature and pressure conditions of the listing and the manufacturer's instructions.

6.1.2 Flue gas temperatures and static pressures within the chimney shall not exceed the limits employed during listing tests.

#### 6.1.3 Listing Requirements.

6.1.3.1\* Factory-built chimneys for use with wood-burning appliances shall comply with the Type HT requirements of UL 103, *Factory-Built Chimneys for Residential Type and Building Heating Appliance*, or the requirements of CAN/ULC-S629-M87, *Standard for 650°C Factory-Built Chimney Systems for Solid Fuel-Burning Appliances*.

6.1.3.2 Chimneys for factory-built fireplaces shall meet the requirements of UL 127, *Standard for Safety Factory-Built Fireplaces*.

6.1.3.3 Freestanding open combustion chamber fireplace stoves listed only to UL 737, *Standard for Safety Fireplace Stoves*, shall be permitted to use residential-type and building heating appliance chimneys.

6.1.3.4 Engineered appliance-venting systems that have been listed to operate without producing combustible deposits to the venting system shall be installed in accordance with the conditions of their listing and the manufacturer's instructions.

6.1.4 Enclosures. Factory-built chimneys that pass through floors of buildings requiring the protection of vertical openings shall be enclosed with approved walls having a fire resistance rating of not less than 1 hour where such chimneys are located in a building less than four stories in height, and not less than 2 hours where such chimneys are located in a building four or more stories in height.

## Chapter 3 Factory-Built Chimneys and Chimney Units

### 3-1 Type and Installation.

**3-1.1** Factory-built chimneys and chimney units shall be listed and installed in accordance with the temperature and pressure conditions of the listing and the manufacturer's instructions. Flue gas temperatures and static pressures within the chimney shall not exceed the limits employed during listing tests.

**3-1.2\*** Factory-built chimneys for use with wood-burning appliances shall comply with the Type HT requirements of UL 103, *Standard for Safety Chimneys, Factory-Built, Residential Type and Building Heating Appliance*, or the requirements of CAN/ULC-S629-M87, *Standard for 650°C Factory-Built Chimney Systems for Solid Fuel-Burning Appliances*.

*Exception No. 1: Chimneys for factory-built fireplaces shall meet the requirements of UL 127, Standard for Safety Factory-Built Fireplaces.*

*Exception No. 2: Freestanding open combustion chamber fireplace stoves listed only to UL 737, Standard for Safety Fireplace Stoves, shall be permitted to use residential-type and building heating appliance chimneys.*

*Exception No. 3: Engineered appliance-venting systems that have been listed to operate without producing combustible deposits to the venting system shall be installed in accordance with the conditions of their listing and the manufacturer's instructions.*

**3-1.3** Factory-built chimneys that pass through floors of buildings requiring the protection of vertical openings shall be enclosed with approved walls having a fire resistance rating of not less than 1 hour where such chimneys are located in a building less than four stories in height, and not less than 2 hours where such chimneys are located in a building four or more stories in height.

**3-1.4** Decorative shrouds at the termination of a factory-built chimney shall not be permitted.

*Exception: Decorative shrouds listed for use with the specific factory-built chimney system.*

**3-2 Use.** Factory-built chimneys shall be permitted to be used for exhaust systems and ducting from hoods, industrial ovens, furnaces, and process equipment of any temperature classification (see Table 2-2.1), provided that the system is engineered so that gas temperatures and pressures do not exceed the applicable limit for the type of chimney.

**3-3\* Sizing.** Factory-built chimneys shall be sized and configured in accordance with the appliance and chimney manufacturers' instructions or approved methods.

## Chapter 4 Masonry Chimneys

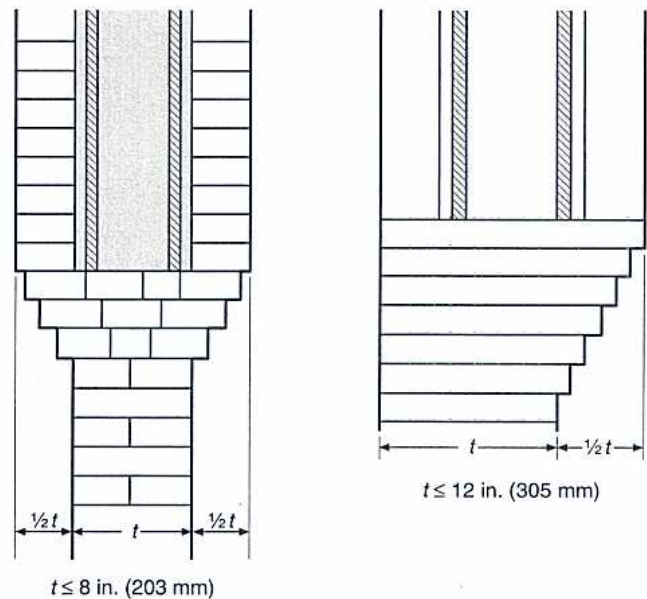
### 4-1 General Requirements.

**4-1.1 Support.** Masonry chimneys shall be supported on properly designed foundations of masonry or reinforced portland or refractory cement concrete or on noncombustible material having a fire resistance rating of not less than 3 hours, provided such supports are independent of the building construction and the load is transferred to the ground.

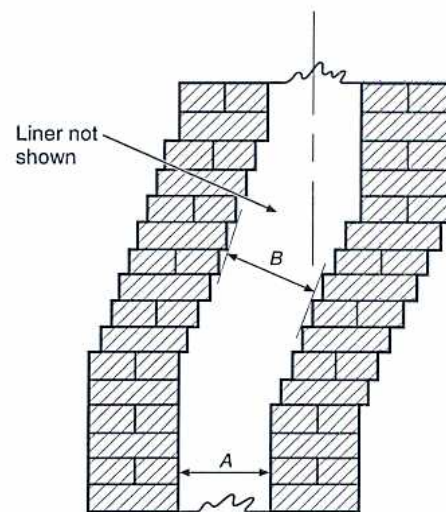
**4-1.2 Corbeling.** Individual and maximum projections of corbels in masonry chimneys shall comply with the requirements of this section. [See Figures 4-1.2(a), (b), (c), and (d).]

*Exception: Corbeling limitations shall be permitted to be varied for engineered reinforced brick masonry construction.*

**FIGURE 4-1.2(a) Corbels for supporting chimneys.**



**FIGURE 4-1.2(b) Corbels to change chimney direction.**



Chimney offset construction — centerline of upper flue does not fall beyond center of lower flue wall. Chimney size, A, and offset size, B, are equal.

**Table 2-2.2 Vent Selection Chart**  
(See Chapter 7 for requirements.)

Column I	Column II	Column III	Column IV	Column V	Column VI
<b>Types of Appliances to Be Used with Each Type Vent</b>					
All listed gas appliances with draft hoods and other Category I gas appliances listed for use with Type B Vents, such as: 1. Central furnaces 2. Duct furnaces 3. Floor furnaces 4. Heating boilers 5. Ranges, residential and low-heat gas 6. Built-in ovens 7. Vented wall furnaces 8. Room heaters 9. Water heaters 10. Horizontal furnaces 11. Unit heaters 12. Decorative appliances (gas fireplaces)	1. Vented wall furnaces listed for use with Type BW vents only	1. Listed Categories II, III, and IV gas appliances and Category I appliances listed for use with special gas vents	1. Low-temperature flue gas appliances listed for use with Type L Vents 2. Gas appliances shown under Column I	1. Incinerators used outdoors, in open sheds, breezeways, or carports as provided in Section 5-2 2. Gas appliances shown under Column I 3. Listed residential and low-heat gas appliances without draft hoods and unlisted residential and low-heat gas appliances with or without draft hoods.	1. Listed pellet-burning appliances listed for use with pellet vents
<b>Vent Type</b>					
<b>Listed Type B Gas Vent</b>	<b>Listed Type BW Gas Vent</b>	<b>Listed Special Gas Vent</b>	<b>Listed Type L Vent</b>	<b>Unlisted Single-Wall Metal Pipe</b>	<b>Listed Pellet Vent</b>
				See 7-6.3 for limitations on unlisted single-wall metal pipe	

### Chapter 3 Factory-Built Chimneys and Chimney Units

#### 3-1 Type and Installation.

**3-1.1** Factory-built chimneys and chimney units shall be listed and shall be installed in accordance with the temperature conditions of the listing and the manufacturer's instructions. Flue gas temperatures in the chimney shall not exceed the limits employed during listing tests.

**3-1.2** Factory-built chimneys for use with wood-burning appliances shall comply with the Type HT requirements of UL 103, *Standard for Safety Chimneys, Factory-Built, Residential Type and Building Heating Appliance*, or the requirements of CAN/ULC-S629-M87, *Standard for 650°C Factory-Built Chimney Systems for Solid Fuel-Burning Appliances*.

*Exception No. 1: Chimneys for factory-built fireplaces shall meet the requirements of UL 127, Standard for Safety Factory-Built Fireplaces.*

*Exception No. 2: Freestanding open combustion chamber fireplace stoves listed only to UL 737, Standard for Safety Fireplace Stoves, shall be permitted to use residential-type and building heating appliance chimneys.*

*Exception No. 3: Engineered appliance-venting systems that have been listed to operate without producing combustible deposits to the venting system shall be installed in accordance with the conditions of their listing and the manufacturer's instructions.*

**3-1.3** Factory-built chimneys that pass through floors of buildings requiring the protection of vertical openings shall be enclosed with approved walls having a fire resistance rating of not less than 1 hour where such chimneys are located in a building less than four stories in height, and not less than 2 hours where such chimneys are located in a building four or more stories in height.

**3-1.4** Decorative shrouds at the termination of a factory-built chimney shall not be permitted.

*Exception: Decorative shrouds listed for use with the specific factory-built chimney system.*

**804.3.3 Termination.** The termination of chimneys or vents equipped with power exhausters shall be located a minimum of 10 feet (3048 mm) from the lot line or from adjacent buildings. The exhaust shall be directed away from the building.

**804.3.4 Horizontal terminations.** Horizontal terminations shall comply with the following requirements:

1. Where located adjacent to walkways, the termination of mechanical draft systems shall be not less than 7 feet (2134 mm) above the level of the walkway.
2. Vents shall terminate at least 3 feet (914 mm) above any forced air inlet located within 10 feet (3048 mm).
3. The vent system shall terminate at least 4 feet (1219 mm) below, 4 feet (1219 mm) horizontally from or 1 foot (305 mm) above any door, window or gravity air inlet into the building.
4. The vent termination point shall not be located closer than 3 feet (914 mm) to an interior corner formed by two walls perpendicular to each other.
5. The vent termination shall not be mounted directly above or within 3 feet (914 mm) horizontally from an oil tank vent or gas meter.
6. The bottom of the vent termination shall be located at least 12 inches (305 mm) above finished grade.

**804.3.5 Vertical terminations.** Vertical terminations shall comply with the following requirements:

1. Where located adjacent to walkways, the termination of mechanical draft systems shall be not less than 7 feet (2134 mm) above the level of the walkway.
2. Vents shall terminate at least 3 feet (914 mm) above any forced air inlet located within 10 feet (3048 mm) horizontally.
3. Where the vent termination is located below an adjacent roof structure, the termination point shall be located at least 3 feet (914 mm) from such structure.
4. The vent shall terminate at least 4 feet (1219 mm) below, 4 feet (1219 mm) horizontally from or 1 foot (305 mm) above any door, window or gravity air inlet for the building.
5. A vent cap shall be installed to prevent rain from entering the vent system.
6. The vent termination shall be located at least 3 feet (914 mm) horizontally from any portion of the roof structure.

**804.3.6 Exhauster connections.** An appliance vented by natural draft shall not be connected into a vent, chimney or vent connector on the discharge side of a mechanical flue exhauster.

**804.3.7 Exhauster sizing.** Mechanical flue exhausters and the vent system served shall be sized and installed in accordance with the manufacturer's installation instructions.

**804.3.8 Mechanical draft systems for manually fired appliances and fireplaces.** A mechanical draft system shall be permitted to be used with manually fired appliances and

fireplaces where such system complies with all of the following requirements:

1. The mechanical draft device shall be listed and installed in accordance with the manufacturer's installation instructions.
2. A device shall be installed that produces visible and audible warning upon failure of the mechanical draft device or loss of electrical power, at any time that the mechanical draft device is turned on. This device shall be equipped with a battery backup if it receives power from the building wiring.
3. A smoke detector shall be installed in the room with the appliance or fireplace. This device shall be equipped with a battery backup if it receives power from the building wiring.

## SECTION 805 FACTORY-BUILT CHIMNEYS

**805.1 Listing.** Factory-built chimneys shall be listed and labeled and shall be installed and terminated in accordance with the manufacturer's installation instructions.

**805.2 Solid fuel appliances.** Factory-built chimneys installed in dwelling units with solid fuel-burning appliances shall comply with the Type HT requirements of UL 103 and shall be marked "Type HT" and "Residential Type and Building Heating Appliance Chimney."

### Exceptions:

1. Chimneys for use with open combustion chamber fireplaces shall comply with the requirements of UL 103 and shall be marked "Residential Type and Building Heating Appliance Chimney."
2. Chimneys for use with open combustion chamber appliances installed in buildings other than dwelling units shall comply with the requirements of UL 103 and shall be marked "Building Heating Appliance Chimney" or "Residential Type and Building Heating Appliance Chimney."

**805.3 Factory-built fireplaces.** Chimneys for use with factory-built fireplaces shall comply with the requirements of UL 127.

**805.4 Support.** Where factory-built chimneys are supported by structural members, such as joists and rafters, such members shall be designed to support the additional load.

**805.5 Medium-heat appliances.** Factory-built chimneys for medium-heat appliances producing flue gases having a temperature above 1,000°F (538°C), measured at the entrance to the chimney, shall comply with UL 959.

**805.6 Decorative shrouds.** Decorative shrouds shall not be installed at the termination of factory-built chimneys except where such shrouds are listed and labeled for use with the specific factory-built chimney system and are installed in accordance with Section 304.1.