

## CHAPTER 15

# EXHAUST SYSTEMS

### SECTION M1501 GENERAL

**M1501.1 Outdoor discharge.** The air removed by every mechanical exhaust system shall be discharged to the outdoors. Air shall not be exhausted into an attic, soffit, ridge vent or crawl space.

**Exception:** Whole-house ventilation-type attic fans that discharge into the attic space of dwelling units having private attics shall be permitted.

### SECTION M1502 CLOTHES DRYER EXHAUST

**M1502.1 General.** Dryer exhaust systems shall be independent of all other systems, and shall convey the moisture to the outdoors.

**Exception:** This section shall not apply to listed and labeled condensing (ductless) clothes dryers.

**M1502.2 Duct termination.** Exhaust ducts shall terminate on the outside of the building. Exhaust duct terminations shall be in accordance with the dryer manufacturer's installation instructions. Exhaust ducts shall terminate not less than 3 feet (914 mm) in any direction from openings into buildings. Exhaust duct terminations shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination.

**M1502.3 Exhaust duct size.** The diameter of the exhaust duct shall be as required by the clothes dryer's listing and the manufacturer's installation instructions. If the manufacturer is not known at the time of duct installation, a 4 inch (104 mm) diameter moisture exhaust duct of approved material shall be installed.

**M1502.4 Transition ducts.** Transition ducts shall not be concealed within construction. Flexible transition ducts used to connect the dryer to the exhaust duct system shall be limited to single lengths, not to exceed 8 feet (2438 mm) and shall be listed and labeled in accordance with UL 2158A.

**M1502.5 Duct construction.** Exhaust ducts shall be constructed of minimum 0.016-inch-thick (0.4 mm) rigid metal ducts, having smooth interior surfaces with joints running in the direction of air flow. Exhaust ducts shall not be connected with sheet-metal screws or fastening means which extend into the duct.

**M1502.6 Duct length.** The maximum length of a clothes dryer exhaust duct shall not exceed 25 feet (7620 mm) from the dryer location to the wall or roof termination. The maximum length of the duct shall be reduced 2.5 feet (762 mm) for each 45-degree (0.8 rad) bend and 5 feet (1524 mm) for each 90-degree (1.6 rad) bend. The maximum length of the exhaust duct does not include the transition duct.

#### Exceptions:

1. Where the make and model of the clothes dryer to be installed is known and the manufacturer's installation

instructions for the dryer are provided to the building official, the maximum length of the exhaust duct, including any transition duct, shall be permitted to be in accordance with the dryer manufacturer's installation instructions.

2. Where large-radius 45-degree (0.8 rad) and 90-degree (1.6 rad) bends are installed, determination of the equivalent length of clothes dryer exhaust duct for each bend by engineering calculation in accordance with the ASHRAE Fundamentals Handbook shall be permitted.
3. Where the make and model of the clothes dryer is not known, the installed length and amount of elbows of the duct in the building shall be posted by virtue of a warning label made of a minimum 3-inch (76 mm) by 4-inch (104 mm) metal plate that shall be permanently affixed on the wall near the interior duct outlet that states: "Warning Do Not Remove. To avoid the risk of fire caused by lint build-up in the exhaust duct, all domestic dryers installed at this location shall be manufacturer approved (listed) for connection to an exhaust duct that is ( ) feet or greater in length with ( ) elbows."

### SECTION M1503 RANGE HOODS

**M1503.1 General.** Range hoods shall discharge to the outdoors through a single-wall duct. The duct serving the hood shall have a smooth interior surface, shall be air tight and shall be equipped with a backdraft damper. Ducts serving range hoods shall not terminate in an attic or crawl space or areas inside the building.

**Exception:** Where installed in accordance with the manufacturer's installation instructions, and where mechanical or natural ventilation is otherwise provided, listed and labeled ductless range hoods shall not be required to discharge to the outdoors.

**M1503.2 Duct material.** Single-wall ducts serving range hoods shall be constructed of galvanized steel, stainless steel or copper.

**Exception:** Ducts for domestic kitchen cooking appliances equipped with down-draft exhaust systems shall be permitted to be constructed of schedule 40 PVC pipe provided that the installation complies with all of the following:

1. The duct shall be installed under a concrete slab poured on grade; and
2. The underfloor trench in which the duct is installed shall be completely backfilled with sand or gravel; and

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3. The PVC duct shall extend not more than 1 inch (25 mm) above the indoor concrete floor surface; and
4. The PVC duct shall extend not more than 1 inch (25 mm) above grade outside of the building; and
5. The PVC ducts shall be solvent cemented.

**M1503.3 Kitchen exhaust rates.** Where domestic kitchen cooking appliances are equipped with ducted range hoods or down-draft exhaust systems, the fans shall be sized in accordance with Section M1507.3.

### SECTION M1504 INSTALLATION OF MICROWAVE OVENS

**M1504.1 Installation of microwave oven over a cooking appliance.** The installation of a listed and labeled cooking appliance or microwave oven over a listed and labeled cooking appliance shall conform to the terms of the upper appliance's listing and label and the manufacturer's installation instructions. The microwave oven shall conform to UL 923.

### SECTION M1505 OVERHEAD EXHAUST HOODS

**M1505.1 General.** Domestic open-top broiler units shall be provided with a metal exhaust hood, not less than 28 gage, with  $\frac{1}{4}$  inch (6 mm) between the hood and the underside of combustible material or cabinets. A clearance of at least 24 inches (610 mm) shall be maintained between the cooking surface and the combustible material or cabinet. The hood shall be at least as wide as the broiler unit and shall extend over the entire unit. Such exhaust hood shall discharge to the outdoors and shall be equipped with a backdraft damper or other means to control infiltration/exfiltration when not in operation. Broiler units incorporating an integral exhaust system, and listed and labeled for use without an exhaust hood, need not be provided with an exhaust hood.

### SECTION M1506 EXHAUST DUCTS

**M1505.1 Ducts.** Where exhaust duct construction is not specified in this chapter, such construction shall comply with Chapter 16.

### SECTION M1507 MECHANICAL VENTILATION

**M1507.1 General.** Where toilet rooms and bathrooms are mechanically ventilated, the ventilation equipment shall be installed in accordance with this section.

**M1507.2 Recirculation of air.** Exhaust air from bathrooms and toilet rooms shall not be recirculated within a residence or to another dwelling unit and shall be exhausted directly to the outdoors. Exhaust air from bathrooms and toilet rooms shall not discharge into an attic, crawl space or other areas inside the building.

**M1507.3 Ventilation rate.** Ventilation systems shall be designed to have the capacity to exhaust the minimum air flow rate determined in accordance with Table M1507.3.

**TABLE M1507.3  
MINIMUM REQUIRED EXHAUST RATES FOR  
ONE- AND TWO-FAMILY DWELLINGS**

AREA TO BE VENTILATED	VENTILATION RATES
Kitchens	100 cfm intermittent or 25 cfm continuous
Bathrooms—Toilet Rooms	Mechanical exhaust capacity of 50 cfm intermittent or 20 cfm continuous

For SI: 1 cubic foot per minute = 0.0004719 m<sup>3</sup>/s.