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. Clothes dryers shall be exhausted in accordance with the manufacturer’s instructions.

M1502.2 Independent exhaust systems. 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.

M1502.3 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. If the manufacturer’s instructions do not specify a termination location, the exhaust duct 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.

M1502.4 Dryer exhaust ducts. Dryer exhaust ducts shall conform to the requirements of Sections M1502.4.1 through M1502.4.6.

M1502.4.1 Material and size. Exhaust ducts shall have a smooth interior finish and shall be constructed of metal a minimum 0.016-inch (0.4 mm) thick. The exhaust duct size shall be 4 inches (102 mm) nominal in diameter.

M1502.4.2 Duct installation. Exhaust ducts shall be supported at 4 foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude into the inside of the duct.

M1502.4.3 Transition duct. Transition ducts used to connect the dryer to the exhaust duct system shall be a single length that is listed and labeled in accordance with UL 2158A. Transition ducts shall be a maximum of 8 feet (2438 mm) in length. Transition ducts shall not be concealed within construction.

M1502.4.4 Duct length. The maximum allowable exhaust duct length shall be determined by one of the methods specified in Section M1502.4.4.1 or M1502.4.4.2.

M1502.4.4.1 Specified length. The maximum length of the exhaust duct shall be 25 feet (7620 mm) from the connection to the transition duct from the dryer to the outlet terminal. Where fittings are used, the maximum length of the exhaust duct shall be reduced in accordance with Table M1502.4.4.1.

Exception: Where a clothes dryer booster fan is installed and listed and labeled for the application, the maximum length of the exhaust duct, including any transition duct, shall be permitted to be in accordance with the booster fan manufacturer’s installation instructions. Where a clothes dryer booster fan is installed and not readily accessible from the room in which the dryer is located, a permanent identifying label shall be placed adjacent to where the exhaust duct enters the wall. The label shall bear the words “This dryer exhaust system is equipped with a remotely located booster fan.”

M1502.4.4.2 Manufacturer’s instructions. The size and maximum length of the exhaust duct shall be deter-

<table>
<thead>
<tr>
<th>DRYER EXHAUST DUCT FITTING TYPE</th>
<th>EQUIVALENT LENGTH</th>
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<tbody>
<tr>
<td>4 inch radius mitered 45 degree elbow</td>
<td>2 feet 6 inches</td>
</tr>
<tr>
<td>4 inch radius mitered 90 degree elbow</td>
<td>5 feet</td>
</tr>
<tr>
<td>6 inch radius smooth 45 degree elbow</td>
<td>1 foot</td>
</tr>
<tr>
<td>6 inch radius smooth 90 degree elbow</td>
<td>1 foot 9 inches</td>
</tr>
<tr>
<td>8 inch radius smooth 45 degree elbow</td>
<td>1 foot</td>
</tr>
<tr>
<td>8 inch radius smooth 90 degree elbow</td>
<td>1 foot 7 inches</td>
</tr>
<tr>
<td>10 inch radius smooth 45 degree elbow</td>
<td>9 inches</td>
</tr>
<tr>
<td>10 inch radius smooth 90 degree elbow</td>
<td>1 foot 6 inches</td>
</tr>
</tbody>
</table>

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 degree = 0.0175 rad.
EXHAUST SYSTEMS

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 and fittings provided that the installation complies with all of the following:

1. The duct is installed under a concrete slab poured on grade; and
2. The underfloor trench in which the duct is installed is completely backfilled with sand or gravel; and
3. The PVC duct extends not more than 1 inch (25 mm) above the indoor concrete floor surface; and
4. The PVC duct extends not more than 1 inch (25 mm) above grade outside of the building; and
5. The PVC ducts are 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.

M1503.4 Makeup air required. Exhaust hood systems capable of exhausting in excess of 400 cubic feet per minute (0.19 m³/s) shall be provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with a means of closure and shall be automatically controlled to start and operate simultaneously with the exhaust system.

SECTION M1504
INSTALLATION OF MICROWAVE OVENS

M1504.1 Installation of a 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 have a metal exhaust hood, having a minimum thickness of 0.0157-inch (0.3950 mm) (No. 28 gage) with 1/4 inch (6.4 mm) clearance between the hood and the underside of combustible material or cabinets. A clearance of at least 24 inches (610 mm) must be maintained between the cooking surface and the combustible material or cabinet. The hood shall be at least as wide as the broiler unit, extend over the entire unit, discharge to the outdoors and 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 have an exhaust hood.

SECTION M1506
EXHAUST DUCTS

M1506.1 Ducts. Where exhaust duct construction is not specified in this chapter, 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>
<thead>
<tr>
<th>AREA TO BE VENTILATED</th>
<th>VENTILATION RATES</th>
</tr>
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<tbody>
<tr>
<td>Kitchens</td>
<td>100 cfm intermittent or 25 cfm continuous</td>
</tr>
<tr>
<td>Bathrooms—Toilet Rooms</td>
<td>Mechanical exhaust capacity of 50 cfm intermittent or 20 cfm continuous</td>
</tr>
</tbody>
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For SI: 1 cubic foot per minute = 0.4719 L/s.