

2021 UMC Update:

1. Our directive was to eliminate as much amendments as possible and go back to publish code. This required that we separate the process into two different phases.
  - The first phase consisted of making comparisons with the 2015 UMC published code and the 2015 UMC amendments. This phase has been completed with better than 50% of the language going back to publish code.
  - The second phase is making comparison with the 2015 UMC amendments and the 2021 UMC, the second phase of the UMC ordinance is into its second meeting with all departments involved.
2. Change being proposed that may be of concern.
  - The cloth dryer section being deleted from the UPC and using section 504 from the IMC. For plan review and inspections this issue is a common problem and staff is attempting to work on a new approach to better help all involved. The biggest concern is with domestic cloth dryers although the entire section is being adopted to help with eliminating confusion. The 2015 amendments already had 3 section from the IMC and table 504.4.2.1.1.
  - Section 504 basically covers four areas.
    - a) General requirements for cloth dryers
    - b) Domestic cloth dryers
    - c) Commercial cloth dryers
    - d) Common exhaust for cloth dryers

We are working on bring the 2021 UMC to the stakeholders sometime in February, soon after to the Board. The adoption of the 2021 Uniform Mechanical Code is on schedule to be adopted sometime in November 2021 although the plan is to adopt all the codes at one time which could delay the 21 UMC code adoption.

I will gladly discuss the overview of the adoption although as a professional courtesy the details of individual sections will be left to Charlie Ablanado.

## SECTION 504

### CLOTHES DRYER EXHAUST (IMC)

**504.1 Installation.** Clothes dryers shall be exhausted in accordance with the manufacturer's instructions. Dryer exhaust systems shall be independent of all other systems and shall convey the moisture and any products of *combustion* to the outside of the building.

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

**504.2 Exhaust penetrations.** Where a clothes dryer exhaust duct penetrates a wall or ceiling membrane, the annular space shall be sealed with noncombustible material, *approved* fire caulking or a noncombustible dryer exhaust duct wall receptacle. Ducts that exhaust clothes dryers shall not penetrate or be located within any fireblocking, draftstopping or any wall, floor/ceiling or other assembly required by the *International Building Code* to be fire-resistance rated, unless such duct is constructed of galvanized steel or aluminum of the thickness

specified in section 504.1.1 and the fire-resistance rating is maintained in accordance with the *International Building Code*. Fire dampers, combination fire/smoke dampers and any similar devices that will obstruct the exhaust flow shall be prohibited in clothes dryer exhaust ducts.

**504.1.1 Metallic ducts.** Metallic ducts shall be constructed as specified in the SMACNA *HVAC Duct Construction Standard Metal and Flexible*.

**Exception:** Ducts installed within single *dwelling units* shall have a minimum thickness as specified in Table 603.4.

**504.3 Cleanout.** Each vertical riser shall be provided with a means for cleanout.

**504.4 Exhaust installation.** Dryer exhaust ducts for clothes dryers shall terminate on the outside of the building in accordance with section 502.2.1 and shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. Ducts shall not be connected or installed with sheet metal screws or other fasteners that will obstruct the exhaust flow. Clothes dryer exhaust ducts shall not be connected to a vent connector, vent or chimney. Clothes dryer exhaust ducts shall not extend into or through ducts or plenums.

**504.5 Dryer exhaust duct power ventilators.** Domestic dryer exhaust duct power ventilators shall be listed and labeled to UL 705 for use in dryer exhaust duct systems. The dryer exhaust duct power ventilator shall be installed in accordance with the manufacturer's instructions.

**504.6 Makeup air.** Installations exhausting more than 200 cfm (0.09 m<sup>3</sup>/s) shall be provided with *makeup air*. Where a closet is designed for the installation of a clothes dryer, an opening having an area of not less than 100 square inches (0.0645 m<sup>2</sup>) shall be provided in the closet enclosure or *makeup air* shall be provided by other *approved means*.

**504.7 Protection required.** Protective shield plates shall be placed where nails or screws from finish or other work are likely to penetrate the clothes dryer exhaust duct. Shield plates shall be placed on the finished face of all framing members where there is less than 1 1/4 inches (32 mm) between the duct and the finished face of the framing member. Protective shield plates shall be constructed of steel, have a thickness of 0.062 inch (1.6 mm) and extend not less than 2 inches (51 mm) above sole plates and below top plates.

**504.8 Domestic clothes dryer ducts.** Exhaust ducts for domestic clothes dryers shall conform to the requirements of Sections 504.8.1 through 504.8.6.

**504.8.1 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.

**504.8.2 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 more than 1/8 inch (3.2 mm) into the inside of the duct.

**504.8.3 Transition ducts.** 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 not greater than 8 feet (2438 mm) in length and shall not be concealed within construction.

**504.8.4 Duct length.** The maximum allowable exhaust duct length shall be determined by one of the methods specified in Sections 504.8.4.1 through 504.8.4.3.

**\*504.8.4.1 Specified length.** The maximum length of the exhaust duct shall be 35 feet (10 668 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 504.8.4.1**.

<b>Table 504.4.2.1.1 Dryer Exhaust Duct Fitting Equivalent Length (IMC 504)</b>
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Dryer Exhaust Duct fitting	Equivalent Length
4" radius mitered 45-degree elbow	2' 6"
4" radius mitered 90-degree elbow	5'
6" radius smooth 45-degree elbow	1'
6" radius smooth 90-degree elbow	1' 9"
8" radius smooth 45-degree elbow	1'
8" radius smooth 90-degree elbow	1' 7"
10" radius smooth 45-degree elbow	9"
10" radius smooth 90-degree elbow	1' 6"

TABLE 603.4				
DUCT CONSTRUCTION MINIMUM SHEET METAL THICKNESS FOR SINGLE DWELLING UNITS <sup>a</sup>				
ROUND DUCT DIAMETER (INCHES)	STATIC PRESSURE			
	½-INCH WATER GAUGE		1-INCH WATER GAUGE	
	THICKNESS (INCHES)		THICKNESS (INCHES)	
	GALVANIZED	ALUMINUM	GALVANIZED	ALUMINUM
< 12	0.013	0.018	0.013	0.018
12 TO 14	0.013	0.018	0.016	0.023
15 TO 17	0.016	0.023	0.019	0.027
18	0.016	0.023	0.024	0.034
19 TO 20	0.019	0.027	0.024	0.034
RECTANGULAR DUCT DIMENSION (INCHES)	STATIC PRESSURE			
	½-INCH WATER GAUGE		1-INCH WATER GAUGE	
	THICKNESS (INCHES)		THICKNESS (INCHES)	
	GALVANIZED	ALUMINUM	GALVANIZED	ALUMINUM
≤ 8	0.013	0.018	0.013	0.018
9 TO 10	0.013	0.018	0.016	0.023
11 TO 12	0.016	0.023	0.019	0.027
13 TO 16	0.019	0.027	0.019	0.027
17 TO 18	0.019	0.027	0.024	0.034
19 TO 20	0.024	0.034	0.024	0.034
a. Ductwork that exceeds 20 inches by dimension or exceeds a pressure of 1-inch water gage shall be constructed in accordance with SMACNA HVAC Duct Construction Standards—Metal and Flexible.				

**\*504.8.4.2 Manufacturer's instructions.** The maximum length of the exhaust duct shall be determined by the dryer manufacturer's installation instructions. The code official shall be provided with a copy of the installation instructions for the make and model of the dryer. Where the exhaust duct is to be concealed, the installation instructions shall be provided to the code official prior to the concealment inspection. In the absence of fitting equivalent length calculations from the clothes dryer manufacturer, **Table 504.8.4.1** shall be used.

**504.8.4.3 Dryer exhaust duct power ventilator length.** The maximum length of the exhaust duct shall be determined by the dryer exhaust duct power ventilator manufacturer's installation instructions.

**\*504.8.5 Length identification.** Where the exhaust duct equivalent length exceeds 35 feet (10 668 mm), the equivalent length of the exhaust duct shall be identified on a permanent label or tag. The label or tag shall be located within 6 feet (1829 mm) of the exhaust duct connection.

**504.8.6 Exhaust duct required.** Where space for a clothes dryer is provided, an exhaust duct system shall be installed. Where the clothes dryer is not installed at the time of occupancy, the exhaust duct shall be capped at the location of the future dryer.

**Exception:** Where a *listed* condensing clothes dryer is installed prior to occupancy of structure.

**504.9 Commercial clothes dryers.** The installation of dryer exhaust ducts serving commercial clothes dryers shall comply with the *appliance* manufacturer's installation instructions. Exhaust fan motors installed in exhaust systems shall be located outside of the airstream. In multiple installations, the fan shall operate continuously or be interlocked to operate when any individual unit is operating. Ducts shall have a minimum clearance of 6 inches (152 mm) to combustible materials. Clothes dryer transition ducts used to connect the *appliance* to the exhaust duct system shall be limited to single lengths not to exceed 8 feet (2438 mm) in length and shall be *listed* and *labeled* for the application. Transition ducts shall not be concealed within construction.

**504.10 Common exhaust systems for clothes dryers located in multistory structures.** Where a common multistory duct system is designed and installed to convey exhaust from multiple clothes dryers, the construction of the system shall be in accordance with all of the following:

1. The shaft in which the duct is installed shall be constructed and fire-resistance rated as required by the *International Building Code*.
2. Dampers shall be prohibited in the exhaust duct. Penetrations of the shaft and ductwork shall be protected in accordance with Section **607.5.5, Exception 2**.
3. Rigid metal ductwork shall be installed within the shaft to convey the exhaust. The ductwork shall be constructed of sheet steel having a minimum thickness of 0.0187 inch (0.4712 mm) (No. 26 gage) and in accordance with *SMACNA Duct Construction Standards*.
4. The ductwork within the shaft shall be designed and installed without offsets.
5. The exhaust fan motor design shall be in accordance with Section 503.2.
6. The exhaust fan motor shall be located outside of the airstream.
7. The exhaust fan shall run continuously, and shall be connected to a standby power source.
8. Exhaust fan operation shall be monitored in an *approved* location and shall initiate an audible or visual signal when the fan is not in operation.
9. Makeup air shall be provided for the exhaust system.
10. A cleanout opening shall be located at the base of the shaft to provide *access* to the duct to allow for cleaning and inspection. The finished opening shall be not less than 12 inches by 12 inches (305 mm by 305 mm).
11. Screens shall not be installed at the termination.

12. The common multistory duct system shall serve only clothes dryers and shall be independent of other exhaust system

**\*504.4.2.1.3 Alternate Engineered Systems.** If the dryer duct system is designed by a professional engineer, the system must comply with ANSI Z21.5.1/CSA 7.1. The design professional must provide calculations and design criteria on plans submitted under Section 104.0 of the Mechanical Code; and must demonstrate dryer vent equivalent

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