This guideline is developed by the Tri-chapter Uniform Code Committee and is intended to enhance regional consistency in application and enforcement of the Building Code. Please verify acceptance of this guideline with your local building department prior to its application.

ISSUE:

The 2013 California Mechanical Code (CMC) Section 504.3.1.2 limits domestic dryer moisture exhaust ducts to a total combined horizontal and vertical length not to exceed 14 feet, including two 90 degree elbows, unless otherwise permitted or required by the dryer manufacturer’s instructions and approved by the Authority Having Jurisdiction (AHJ). In addition, a length of 2 feet (610 mm) shall be deducted for each 90 degree (1.57 rad) elbow in excess of two.

Adequate venting is the most important factor to operate domestic dryers in a safe and efficient manner. In multifamily buildings and multistory building complexes, the 14 feet length limitation as required by the CMC Section 504.3.1.2, is difficult to comply. At the same time some manufacturers would allow the length of dryer vents up to 60 feet including elbows which can cause great safety concerns among jurisdictions. On average, the maximum allowed metal vent length is between 20 to 35 feet by major dryer manufacturers.

Another safety concern to be addressed for domestic dryer installation is that future maintenance and replacement of dryers will most likely be managed by property owners or tenants who may not have any knowledge of the length limitation on the installed exhaust ducts.

Other design proposals such as using power ventilator (booster fan) to increase exhaust duct length or using common exhaust systems for clothes dryers in multistory structures, are not regulated by the 2013 California Mechanical Code. These should be considered part of this policy.

PROPOSED POLICY:

A. When the length of domestic dryer moisture exhaust ducts from the connection to the transition duct to the outlet terminal, exceeds 14 feet (including two 90 degree elbows per code), but is less than 35 feet, the following conditions shall be followed:
1) Submit the manufacturer’s installation instructions, the makes and model of the clothes dryer to the AHJ for review and approval.

2) When fittings are used, the 35 feet maximum length of the exhaust duct shall be reduced in accordance with the following table:

**DRYER EXHAUST DUCT FITTING EQUIVALENT LENGTH**

<table>
<thead>
<tr>
<th>Dryer Exhaust Duct Fitting Type</th>
<th>Equivalent Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>4” radius mitered 45-degree elbow</td>
<td>2 feet 6 inches</td>
</tr>
<tr>
<td>4” radius mitered 90-degree elbow</td>
<td>5 feet</td>
</tr>
<tr>
<td>6” radius smooth 45-degree elbow</td>
<td>1 foot</td>
</tr>
<tr>
<td>6” radius smooth 90-degree elbow</td>
<td>1 foot 9 inches</td>
</tr>
<tr>
<td>8” radius smooth 45-degree elbow</td>
<td>1 foot</td>
</tr>
<tr>
<td>8” radius smooth 90-degree elbow</td>
<td>1 foot 7 inches</td>
</tr>
<tr>
<td>10” radius smooth 45-degree elbow</td>
<td>9 inches</td>
</tr>
<tr>
<td>10” radius smooth 90-degree elbow</td>
<td>1 foot 6 inches</td>
</tr>
</tbody>
</table>

3) The equivalent length of the exhaust duct shall be identified on a permanent label or tag located within 6 feet of the exhaust duct connection. The label or tag shall be at least 4 inches vertical and 5 inches horizontal in size in black fonts on yellow background. The following is a sample:

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WARNING
THE EQUIVALENT LENGTH OF THE EXHAUST DUCT APPROVED FOR THIS LOCATION IS:
__________________ FEET.

ANY DOMESTIC DRYER TO BE INSTALLED AT THIS LOCATION SHALL HAVE THE MANUFACTURER’S INSTRUCTIONS WITH AN EQUIVALENT LENGTH OF EXHAUST DUCT TO EXCEED THE ABOVE SPECIFIED LENGTH.

DO NOT REMOVE THIS TAG
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B. **Dryer Exhaust Duct Power Ventilator (Booster Fan).** Using dryer exhaust duct power ventilator or booster fan to increase the maximum length of exhaust duct will require the project applicant to submit an Alternate Materials and Methods of Construction application to AHJ for review and approval according to CMC Section 1.11.2.4. The domestic dryer
exhaust duct power ventilator shall be listed and labeled to UL 705. As a minimum, the following conditions shall be met:

1) Submit manufacturer’s installation instructions, the make and the model of the clothes dryer to the AHJ for review and approval.

2) The power ventilator shall be readily accessible for inspection, service (lint removal), repair or replacement, without the use of ladders and/or special tools. The manufacturer’s maintenance instructions shall be included as part of the building operation and maintenance manual to be placed in the building at the time of final inspection. When the power ventilator cannot be located in a readily accessible location, the approval of the use of power ventilator is subject to the condition that HOA agrees to provide regular maintenance per manufacturer’s instructions and such agreement shall be included in the CC&R. This condition of approval shall be indicated on the plan for review and approval.

3) The power ventilator must be functional (i.e., the sensor shall always be on and shall not have a manual shut down).

4) The discharge shall be in an approved location and have a visible point of discharge.

5) Specially designed clothes dryer appliances shall not be used in lieu of an external power ventilator to meet the exhaust ducting requirements.

6) The power ventilator shall be wired in such a way that the clothes dryer will not operate unless the booster is fully operational. Submit power ventilator installation instructions and electrical wiring diagram.

7) A label shall be attached to the inside face of the access panel to the power ventilator indicating the actual length of the dryer duct installed. A permit is required to replace power ventilator with an equivalent listing as the existing fan. The label material shall be durable under the sustained temperature when the power ventilator is in operation and shall be permanently attached to the access panel.

C. 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 will require applicant to submit an Alternate Materials and Methods of Construction application to AHJ for review and approval according to CMC Section 1.11.2.4. and 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 California Building Code.

2) Dampers shall be prohibited in the exhaust duct. Penetrations of shafts shall use steel exhaust subducts having a minimum thickness of .0187 inch, extend not less than 22 inches vertically and the exhaust fan at the upper terminus is powered continuously and maintains air-flow upward to the outdoors.

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 .0187 inch (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.
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.

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 systems.

D. Other Designs or proposals. Other designs or proposals may be acceptable to AHJ when the project applicant and design professionals submit an Alternate Materials and Methods of Construction application to AHJ for review and approval according to CMC Section 1.11.2.4.
CODE REFERENCE(S):

2013 California Mechanical Code Sec. 504.3.1.2

504.0 Environmental Air Ducts.

504.3 Clothes Dryers. Moisture exhaust ducts shall terminate on the outside of the building and shall be equipped with a backdraft damper. Screens shall not be installed at the duct termination. Ducts for exhausting clothes dryers shall not be connected or installed with sheet metal screws or other fasteners that will obstruct the flow. Clothes dryer moisture exhaust ducts shall not be connected to a gas vent connector, gas vent, or chimney, and shall serve clothes dryers. Clothes dryer moisture exhaust ducts under positive pressure shall not extend into or through ducts or plenums.

504.3.1 Domestic Clothes Dryers. Where a compartment or space for a domestic clothes dryer is provided, not less than a 4 inch diameter (102 mm) moisture exhaust duct of approved material shall be installed in accordance with this section and Section 504.0. Where a closet is designed for the installation of a clothes dryer, an opening of not less than 100 square inches (0.065 m²) for makeup air shall be provided in the door or by other approved means.

504.3.1.1 Domestic Dryer Vents. Domestic clothes dryer moisture exhaust ducts shall be of metal and shall have smooth interior surfaces.

Exception: Listed clothes dryer transition ducts not more than 6 feet (1829 mm) in length shall be permitted to be used in connection with domestic dryer exhausts.

Flexible clothes dryer transition ducts shall not be concealed within construction.

504.3.1.2 Length Limitation. Unless otherwise permitted or required by the dryer manufacturer's instructions and approved by the Authority Having Jurisdiction, domestic dryer moisture exhaust ducts shall not exceed a total combined horizontal and vertical length of 14 feet (4267 mm), including two 90 degree (1.57 rad) elbows. A length of 2 feet (610 mm) shall be deducted for each 90 degree (1.57 rad) elbow in excess of two.