



Building Construction: Fire Dampers

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Learning Objective: The student shall be able to explain fire damper installation requirements.

Fire dampers are installed in an air-distribution system, and are designed to close automatically upon detection of heat, to interrupt migratory air flow, and to restrict the passage of flame. They are required in order to maintain the required integrity of a fire resistance assembly when ducts penetrate fire-rated walls, partitions, or floors.

Fire dampers are required by either the model building or mechanical codes or National Fire Protection Association (NFPA) 90A, *Standard for the Installation of Air Conditioning and Ventilating Systems*. Fire dampers are manufactured with fire-resistance ratings of 90 or 180 minutes.

Dampers are classified for use in both **static** and **dynamic** heating, ventilating, and air conditioning (HVAC) systems.

A static air handling system is one where the air movement is stopped on the activation of a smoke detection device. In a dynamic air handling system, the air continues to flow. Dynamic system dampers must be labeled with the maximum rated air flow under which the damper will close, the maximum pressure differential across the damper face when it is in the closed position, and the air flow direction.

Building and mechanical codes require that fire dampers are listed in accordance with the requirements of Underwriters Laboratories (UL) *Standard for Fire Dampers*, UL 555, and have the testing agency's label attached. Dampers must be installed in accordance with the manufacturer's installation instructions.

Damper mountings are noted for vertical or horizontal positions, or both. There must be an access point in the duct for inspection, maintenance, and resetting. The access door should be located as close as practicable to the damper and, if feasible, at the underside of the duct. The access should be located so that the damper's spring catch and fusible link are accessible in the closed position.

The duct opening must be identified with letters of a minimum of 1/2-inch (12.7 mm). The minimum access door should be 18 by 16 inches (457 by 406 mm) when duct size permits. For dampers that are too large for an ordinary person's arm to reach from the outside of the duct to reset the damper and replace the link, the access size should be 24 by 16 inches (610 by 406 mm) to allow a person to enter the duct.

For additional information, refer to UL's *Marking and Application Guide* at <http://www.ul.com/global/eng/documents/offerings/perspectives/regulators/electrical/newsletters/dampers.pdf>



This fire damper has been released to illustrate its closed condition. One-half of the fusible link remains.

