

Fire Damper Terminology and Definitions:

Fire Damper: Fire dampers are typically intended to be used as part of the HVAC duct system when passing through a fire rated barrier. (walls, partitions or floors). Fire dampers will close automatically when a temperature sensitive fuse link detects elevated temperatures and opens.

There are two categories of fire dampers: The first are static fire dampers, which close when the HVAC system blower is not running (probably turned off by means of an automatic fire detector). The second are dynamic fire dampers, which close while the HVAC system blower is running. Dynamic fire dampers are investigated for closure under maximum recommended airflow.

Access Door: All installed fire dampers must be accessible for inspection and/or testing by the local authorities. If fire dampers is not accessible from a grill or register, an access door in the ductwork is required.

Collar: A collar is what the contractor fastens the duct to when a C-type damper is ordered (the collar can be round, oval or square/rectangular).

Damper Blade: A single piece of the interlocking blade stack

Damper Blade Stack: The interlocking portion of the fire damper that closes and behaves as a fire curtain when the fuse link opens (curtain type fire damper).

Dynamic Fire Damper: A fire damper that will close while the HVAC system blower is running. Dynamic fire dampers will close under maximum recommended airflow.

Frame: The portion of the fire damper that houses the damper blade stack, fuse link, locking ramps, transitions and springs (if springs are required).

Framed Retaining Angles: Framed retaining angles attach to the sleeve on both sides of the fire rated barrier (floor or wall), they do not attach to the fire rated barrier. The sleeve will always be smaller than the hole in the fire rated barrier so it can expand and contract without an adverse effect on proper operation of the damper. The framed retaining angle covers the openings between the outside of the sleeve and the inside of the hole in the fire rated barrier.

Fuse Link: A temperature sensitive link that holds the damper blade stack in the open position. Three different fuse links are available, they're defined by their temperature rating, 165, 212 and 286 degrees F. The Electro-Thermal fuse link heats up and opens after receiving an electric signal.

Fire Rating of 1.5 Hours: Fire dampers with a 1.5 hour rating can be installed in fire barriers rated for 2 hours or less.

Fire Rating of 3 Hours: Fire dampers with a 3 hour rating can be installed in fire barriers rated at 4 hours or less.

Locking Ramp: The locking ramp catches and locks the first damper blade of the blade stack when the fuse link opens. Two locking ramps are installed in a fire damper when springs are used.

Micro-switch: A micro-switch can be mounted on a fire damper in such a way that when the blades close the switch is tripped. When the switch is tripped it will generally send a signal to an audio or visual alarm at a control station. This alerts the operator of the control station that the fire damper is closed.

Pressure, Low: 2 inches w.c. or less, unsealed.

Pressure, Medium: 3 inches w.c. and higher, sealed with caulk or metal tape.

Pressure, High: Up to 10 inches w.c., welded seal.

Sleeve: Required on all fire dampers in order to meet the UL 555 installation instructions. It may be fabricated around the fire damper at the factory or by the installer at the shop or at the job site.

NOTE: If a fire damper has a frame which is wide enough to accommodate the frame retaining angles on either side of the floor or wall where it will be installed, then the damper does not require a separate sleeve as above.

Spring: Spring refers to different stainless steel springs used to positively close the blade stack when the fuse links opens. Springs are required for all fire dampers used in horizontal applications and all dynamic fire dampers. They are installed on both sides of the fire damper.

Static Fire Damper: A fire damper that will close when the HVAC system blower is not running (probably turned off by means of an automatic fire detector).

Transition or Enclosure: The rectangular piece of metal that the collar is generally attached to. It will have a round, oval, square or rectangular hole in it matching the collar. In effect, a transition with a collar will convert an "A" type fire damper to into a "C" type fire damper.

Type A fire damper: Used when the airflow interruption from the stack of blades in the fire damper frame is not a prime concern or consideration. A-type dampers are the easiest and fastest type to install and are mostly used in low-pressure systems. (Up to 2" w.c.)

Type B fire damper: Used when airflow or velocity in the duct is a concern. The stack of blades in the fire damper frame is kept out of the air stream. The total square inches of free area in the fire damper is maximized and the pressure drop in the duct is minimized.

Type C fire damper: Used in applications with medium to high velocities, usually over 3,000 feet per minute (fpm) or duct static pressures of 3" w.c. or more.