

# Fire Damper Inspection



## By Rick Cravy

Fire dampers and combination fire/smoke dampers perform vital safety functions as part of a building's fire protection or life-safety system. They must function properly during a fire or life-safety emergency and so, must be periodically inspected and tested to ensure they work when needed. Codes, standards and manufacturer's recommendations have been published recommending inspection and test-

ing intervals as well as the procedures to use for the process.

The purpose of this article is to summarize these recommendations and to provide some guidance pertaining to the procedures to inspect fire, smoke, and combination fire-smoke dampers.

There are two important types of inspections, the initial construction inspection, or commissioning; and periodic inspection, testing and maintenance. The first inspection is part of the commissioning process.

### Commissioning Inspection

A commissioning inspection ensures proper operation of a building's mechanical systems, including the fire protection or life-safety system. The commissioning of fire and fire/smoke dampers includes:

- Inspection of the installation to confirm it meets the requirements or intent of the building code.
- Operational test to prove the damper will fully close from the open position under normal operating conditions.

Commissioning inspections and proper operation need documentation in order to establish a point from which to begin the periodic inspection, testing and maintenance program for fire and fire/smoke dampers. Periodic inspections are the second important type of inspection.

### Periodic Inspection, Testing and Maintenance

Described below is a typical periodic inspection, testing and maintenance procedure.

### INSPECTION, TESTING & MAINTENANCE INSTRUCTIONS

#### DAMPER MODELS: All Fire/Smoke and Smoke Dampers

Regular inspection, testing and maintenance is essential to ensure a building's fire/smoke and smoke dampers will perform as intended under fire and smoke conditions. Regular inspection and maintenance should include periodic testing of all equipment, including dampers, fans, initiating devices, controls, etc., associated with the smoke-control or life-safety system. Consult standards like NFPA 92A, NFPA 80, NFPA105 and local codes for guidance regarding the frequency of inspections, testing and maintenance of fire/smoke and smoke dampers.

#### MAINTENANCE

- Check actuator and tighten linkage if necessary.
- Clean damper blades and other working parts if necessary.
- Lubricate linkage, bearings and other moveable parts with a silicone lubricant. Do not use petroleum-based products as they could cause excessive dust collection.
- Operate (open and close) the damper via the actuator (see note).
- Check the blades to make sure they completely close and re-open.
- Consult the manufacturer if problems occur.

#### TESTING FIRE/SMOKE DAMPERS

- Use a moderate heat source and heat the thermal disc found "in the air-stream" on the fire/smoke

damper. Caution: too much heat may damage the thermal disc.

- The disc will dimple and cause the flow of electricity to the actuator to stop. The damper blades will close.

- Allow the disc to cool. Press the reset button on the outside of the damper. Flow of electricity to the actuator will resume and the damper blades will open.

Note: If possible, operate the dampers under normal airflow conditions.

### DAMPER MODELS: All Curtain Type and Multi-Blade Type Fire Dampers

Regular maintenance is essential to ensure that a building's fire protection system will perform as intended when fire occurs. Regular maintenance should include periodic testing of all equipment, including fire dampers, associated with the fire protection system. The frequency of inspection, testing and maintenance varies widely depending on the duration of system operation, condition of fresh air, amount of dust in return air, and other factors. NFPA 80 recommends inspecting and testing all fire dampers at least once every four or six years.

#### MAINTENANCE

(refer to notes)

- Check closure springs. If defective, repair or replace.

- Operate the damper by removing the fusible link and allowing the blades to drop or close. (Caution: keep fingers and hands out of the blade package travel path.)

- Check the damper for rust and/or corrosion.

- Clean damper blades and lubricate the working parts. Do not use petroleum-based products as they could cause excessive dust collection.

- Re-open the damper (move the blade package back to the top of damper) and replace the fusible link.

### TESTING DAMPERS

(refer to notes)

- Use a heat source and melt the fuse link or remove the fuse link and let the blade package drop. (Caution: keep fingers and hands out of the blade package travel path.)

- Check the blades to make sure they completely close and lock (if a lock is used).

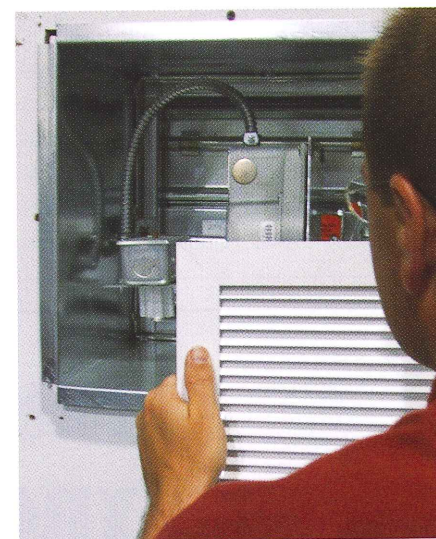
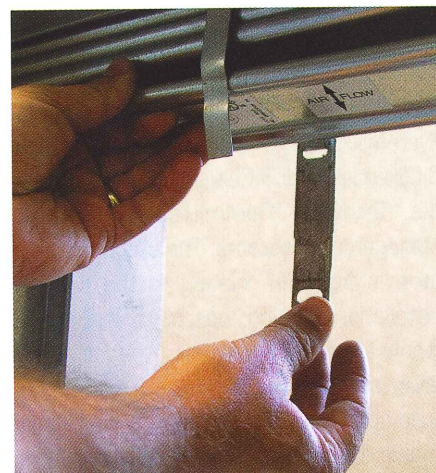
### Notes:

1. Due to their construction (including size) and/or accessibility, dynamic curtain type fire dampers may be very difficult and in some cases impossible to test (close and re-open). If the damper is determined to be impossible to test, the authority having jurisdiction can omit the test and allow a thorough examination to ensure nothing exists that would prohibit the damper from closing. A thorough examination should include checking the damper for squareness and the blade channel for obstructions.

2. Fire dampers may be easier to reopen from a specific side. Consult the manufacturer for assistance.

3. If possible, test fire dampers under normal airflow conditions.

Fire dampers and combination fire/smoke dampers protect building occupants in two ways. First, they close internally to form a barrier against the threat. Second, they also provide fire and smoke protection around the perimeter of the duct with continuous metal angles and firestop systems. When firestop systems are used as the "angle substitute," they must be installed to the classified firestop system tested at the laboratory, with zero tolerance protocol. Annular space sizes, duct



size, backing and clips used in addition to the firestop sealants all must be installed to the tested system.

To function properly during a fire or life-safety emergency, dampers must be periodically inspected and tested. There are several companies that perform commissioning and periodic inspections of dampers as a specialty. Consult the Authority Having Jurisdiction and local building and fire codes for inspection frequency by occupancy. 🔥

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