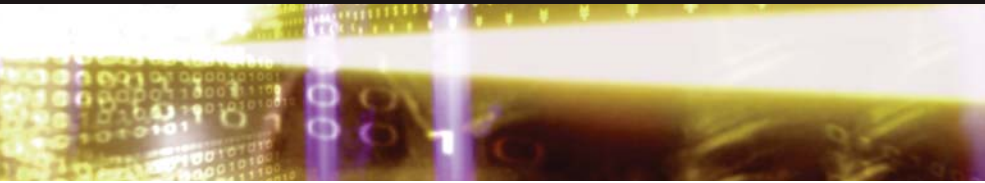


# The Case for *Ruskin* ValidatOr



**B**ecause failures are unpredictable, fire marshals, inspectors, building owners, insurance underwriters, and specifiers need assurance that HVAC life-safety systems will function properly when needed. Periodic testing and adequate documentation practices provide such assurance and reduces facility owner's potential liability. As a vital part of a facility's HVAC life-safety system combination fire/smoke and smoke dampers deserve careful consideration.

Unfortunately in the past, fire/smoke and smoke dampers have frequently received very little (if any at all) maintenance attention. Some of the reasons for this lack of attention are:

- ▶ ***A misunderstanding of the nature of fire/smoke and smoke dampers***
- ▶ ***Conflicting information regarding the maintenance and testing of fire/smoke and smoke dampers***
- ▶ ***Inadequate resources to perform necessary periodic testing and maintenance***

## **A Misunderstanding of the Nature of the Damper**

Fire/smoke and smoke dampers are misunderstood because they are likened to "standard" fire dampers. They are like "standard" fire dampers in that they close when "activated" by heat or a fire but differ significantly in that they close or open through the operation of a pneumatic or electric actuator. Building owners and maintenance personnel sometimes forget that fire/smoke and smoke dampers, because of the actuators, require different maintenance than "standard" fire dampers.

- Fire/smoke and smoke dampers, because of the actuators, need to be cycle tested (operated) more frequently than "standard" fire dampers.

This misunderstanding of fire/smoke and smoke dampers means they are frequently installed and forgotten. Forgotten, that is, until a building occupant complains about ventilation or inadequate maintenance uncovers a problem.



## **Conflicting Information Regarding the Maintenance and Testing of Fire/Smoke Dampers**

Listed below are some industry organizations and information about maintenance testing of fire/smoke and smoke dampers.

### **Building Codes**

To date the building codes do not include specific language regarding maintenance testing of fire/smoke and smoke dampers.

- The International Building Code (IBC) and International Fire Code (IFC) make the building owner responsible for hazardous conditions created by inadequate maintenance.
- The International Fire Code requires continuous maintenance in accordance with referenced standards like NFPA101 (Life Safety Code) and NFPA92A.

## NFPA – National Fire Protection Association

The National Fire Protection Association serves as the world's leading advocate of fire protection. Codes and standards developed by NFPA influence every building, process, service, design and installation in the United States. Many people rely upon NFPA90A, 92A and 101 for recommendations regarding maintenance of fire/smoke and smoke dampers. Unfortunately, these publications do not agree.

- NFPA90A recommends maintenance testing every 4 years which is inadequate for a damper utilizing an actuator.
- NFPA92A recommends periodic maintenance testing every 6 months or yearly depending on how the HVAC system is utilized.
- NFPA101 (Life-Safety Code) says smoke control systems (including fire/smoke dampers) should be maintained in accordance with nationally recognized standards, engineering guides, or recommended practices and the engineer of record shall clearly identify the required means of testing and maintaining the system.

## AMCA – Air Movement and Control Association

AMCA is a trade association of fan, damper and actuator manufacturers. AMCA has recently re-written its Application Manual for Fire, Ceiling, Smoke and Fire/Smoke Dampers. The Manual is Publication 503 and it now includes maintenance testing recommendations.

- AMCA recommends owners develop a greater awareness of the life protecting abilities of fire/smoke and smoke dampers and establish a planned maintenance schedule.
- Publication 503 recommends fire/smoke and smoke dampers be maintenance cycled at least once every 6 months.

AMCA's recommendation for maintenance cycling is much more realistic than that of NFPA90A. Recommended maintenance cycling every 6 months is evidence of a better understanding of the nature of fire/smoke and smoke dampers.

## UL – Underwriter's Laboratories

Building codes require fire/smoke and smoke dampers be tested, listed and labeled by Underwriters Laboratories. Maintenance testing or cycling is not part of the UL listing but UL recognizes the importance of periodic maintenance.

- The UL Marking and Application Guide says periodic maintenance includes cycling of damper and actuator assemblies.
- For more information regarding periodic maintenance, UL refers to NFPA92A and the International Building Code.

## Inadequate Resources to Perform Necessary Periodic Testing and Maintenance

Herein is the main reason fire/smoke and smoke dampers are not maintenance tested as they should be. Fire/smoke and smoke dampers are installed in areas that are, for the most part, hard to access. In addition, most maintenance departments are understaffed which only adds to the problem. Costs to maintenance test fire/smoke and smoke dampers vary depending upon the size of the building; however, estimates of \$50K per year for an average size building of 200 dampers have been suggested.

## Ruskin Validator – The Solution

- ▶ ***Ruskin Validator automates the maintenance testing procedure without disrupting normal HVAC operation.***
- ▶ ***Ruskin Validator provides for "seamless" integration into any existing or new building automation system.***
- ▶ ***Ruskin Validator pays for itself in as little as 2 years.***

## Summary

The case for Validator can be summarized as follows:

- ▶ Failures are unpredictable so periodic testing is necessary.
- ▶ Periodic testing insures proper life-safety operation and reduces building owner's potential liability.
- ▶ Adequate maintenance testing is not happening.
- ▶ Ruskin Validator solves the problem by automating the maintenance testing and verification procedure.

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