



**BSR/ASHRAE/IES Addendum m  
to ANSI/ASHRAE/IES Standard 90.1-2019**

**Public Review Draft**

# **Proposed Addendum m to Standard 90.1-2019, Energy Standard for Buildings Except Low-Rise Residential Buildings**

**First Public Review (July 2020)  
(Draft Shows Proposed Changes to Current Standard)**

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## FOREWORD

Section 6.4.3.4.1 requires motorized dampers on vents that might be used at the top of elevator shafts and stairwells. The language of the requirement suggests that these vents are used for smoke control. Issues with the current language:

1. Stairwell vents are used in high rise buildings as part of stair pressurization systems usually not to vent smoke but instead to provide more stable stair pressure as stair doors are opened and closed when stair pressurization fans are running. When stair doors are all closed, air is relieved out of this vent due to the pressure in the stair created by the pressurization fan. When a door is opened, the stair pressure drops as air is relieved through the door and not through the vent. Because these changes occur so quickly, using a motorized damper with active pressure control is not practical – the control loop would be too erratic as doors rapidly open and close. So nonmotorized counter-balanced gravity relief dampers are used instead. These would not meet the current wording because they are not motorized nor are they “interlocked” to the fire alarm system. However, it is possible to use both a gravity damper and a 2-position motorized damper in series, the latter damper interlocked to open when the stair pressurization fan is running. But in mild climates and in low rise buildings, there is little benefit to this added damper – it will not be cost effective – so this addendum proposes to include an exception that is almost identical to Exception 1 to Section 6.4.3.4.2 (the parts of that exception about supply air are left out since these vents are for relief air).
2. Elevator shaft vents are no longer required by most model codes, but many machine-room-less elevator manufacturers insist on a vent to help maintain shaft temperatures that may rise due to heat produced by the cab-mounted elevator machinery. Vents are not likely necessary or even useful for temperature control in most applications given heat losses to the conditioned spaces adjacent to the elevator shaft should result in acceptable shaft temperatures, but they are being used nonetheless. Therefore this addendum expands this requirement to include vents that are thermostatically controlled.
3. A minor change – removal of parenthesis around “gravity backdraft dampers” – is made to exception 1 of Section 6.4.3.4.2 to improve the language. It makes no substantive change to the exception. The proposal does not include other language is that section.

In summary, this revision:

1. Adds a requirement for motorized dampers on shaft vents used for temperature control. These were shown to be cost effective for outdoor air and exhaust air openings in Section 6.4.3.4.2.

2. Reduces stringency and costs in mild climates and short buildings by allowing nonmotorized dampers in lieu of motorized dampers, mirroring Exception 1 to Section 6.4.3.4.2.

*[Note to Reviewers: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and ~~striketrough~~ (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard are open for review and comment at this time. Additional material is provided for context only and is not open for comment except as it relates to the proposed changes.]*

## **Addendum m to 90.1-2019**

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*Modify the standard as follows (IP and SI Units)*

### **6.4.3.4.1 Stair and Elevator Shaft Vent Dampers**

Where ~~s~~stair and elevator shafts have vents, they shall be equipped with motorized dampers that are capable of and configured to *automatically* close during normal *building* operation and are interlocked to only open as required by fire and smoke detection systems, or by *thermostatic control systems*.

#### **Exception to 6.4.3.4.1**

Nonmotorized gravity back draft dampers are acceptable in *buildings* less than three stories in height and for *buildings* of any height located in Climate Zones 0, 1, 2, and 3.

### **6.4.3.4.2 Shutoff Damper Controls**

All *outdoor air* intake and exhaust *systems* shall be equipped with motorized dampers that will *automatically* shut when the *systems* or *spaces* served are not in use. *Outdoor air* and exhaust/relief dampers shall be capable of and configured to *automatically* shut off during preoccupancy *building warm-up, cooldown, and setback*, except when the supply of *outdoor air* reduces *energy* costs or when *outdoor air* must be supplied to meet code requirements.

#### **Exceptions to 6.4.3.4.2**

1. Nonmotorized (~~gravity back draft~~) dampers are acceptable for exhaust and relief in *buildings* less than three stories in height and for *outdoor air* intakes and exhaust and relief dampers in *buildings* of any height located in Climate Zones 0, 1, 2, and 3. Nonmotorized dampers for *outdoor air* intakes must be protected from direct exposure to wind.

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