HT 18:
ENCOURAGE STAIRWAY USE BY HOLDING DOORS OPEN

New York City Building Code
Proposal developed by the Health Committee

Summary

Issue:
One means of encouraging stair use is to hold doors open by magnets that release the doors when smoke is detected. But the building code does not permit the use of these magnetic devices for stair doors.

Recommendation:
Allow the use of magnetic devices to hold doors open for stairs of three stories or less.

Proposed Legislation, Rule or Study

Amendments to the New York City Buildings Code

1. Amend Section 707.7 as follows:

   707.7 Openings. Openings in a shaft enclosure shall be protected in accordance with section 715 as required for fire barriers. Such openings shall be self-closing or automatic-closing by smoke detection. Automatic-closing by smoke detection is not permitted for required vertical exit doors.

   Exception:

   The use of magnetic devices for automatic-closing by smoke detection for vertical exit doors shall be permitted only for a maximum of three interconnected floors for only one egress stairway, provided there are at least two means of egress.

Supporting Information

Issues – Expanded
For additional background see HT15 “Allow Stairway Use”

Stair use is good for public health and stairs are more likely to be used if doors are open. Research indicates that grand staircases in buildings tend to invite use. The evidence suggests that stairs attract more use when they are highly visible from paths of travel, easy to access, and feature finishes consistent with other public corridor finishes. The NYC Building Code, however, does not permit the use of magnetic door holders for automatic-closing by smoke detection in the cases of vertical exit doors due to safety issues. If there is fire and one of the vertical exit doors does not close automatically, the smoke will spread out through the stairway very quickly – a phenomenon referred to as the ‘chimney effect.’ While the chimney effect is a serious concern where exit stairs connect multiple floors and not allowing for automatic-closing in these cases is a good practice, the chimney effect is not a serious issue for stairs that connect up to three floors.

To promote stair use, the proposal calls for allowing the use of magnetic door holders to hold exit stair doors in the open position on one of the egress stairways for the maximum of three interconnected floors, provided there are at least two means of egress. This proposal is consistent with the provision in the building code to allow open stairways for up to three stories and the one that allows open atriums up to three stories. Permitting the use of magnetic devices in these cases will provide high visibility and easy access of the stairs even if stairway doors are solid.

Environmental & Health Benefits
For additional environment and health benefits see HT15 “Allow Stairway Use”

This proposal was found to have no significant positive environmental impact.

This proposal was found to have no significant positive health impact.
Cost & Savings
This proposal is for a code allowance, which will have no direct impact on construction costs.

Precedents
For additional precedents see HT15 “Allow Stairway Use”

The Kentucky Building Code and Kentucky Fire Code allow for stairway and corridor to be maintained in an open position by magnetic door holders interconnected to the fire alarm system. If doors are held open, the installation of a smoke detector at the topmost level of the stairway is required. The International Building Code also allows for use of such tested devices. In NYC, AIANY’s Center for Architecture obtained a reconsideration from the Department of Buildings to hold open the doors of its 3-story egress stairwell.

LEED
For LEED information see HT15 “Allow Stairway Use”

Implementation & Market Availability
Multiple options for handling security issues are readily available. This includes a range of electromagnetic door holders and closers, smoke curtain releasers, and other activation devices, which are used as an integral part of a fire, security or ventilation systems. These products are a battery powered, electromagnetic system linked by radio signals to a central controller, which can be a part of the existing building fire system or a separate fire system. Smoke detectors, fire alarm, and other sensors allow fire and smoke doors to be open under conditions. They can activate the magnetic door holders and shut doors as needed in the case of emergencies such as fires.

The products enable fire doors to be legally held in an open position to ease access through a building, in compliance with the Disability Discrimination Act.52

Products are well suited for wall, floor or ceiling mounting in a variety of plain or decorative finishes to fit the decor of both existing and new buildings. The high quality of the finish ensures that little or no servicing is required once these products are fitted. Unlike traditional fire door holders, magnetic door holders and closers do not require wiring (even though wired options are available) throughout the building, making the system more cost-effective and convenient to install.

ENDNOTES:
