Fire Engineering®

# Construction Concerns: Maintenance

## Article and photos by Gregory Havel

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I was told decades ago during a tour of a new building that the building would be "maintenance-free for 20 years." Unfortunately, if property owners and managers do not begin to care for their buildings while they are still new, they will begin to deteriorate, hardware will wear out, and life safety issues can develop.

Photo 1 shows a self-closing hinge on a hotel-room door. National Fire Protection Association (NFPA) 101, *Life Safety Code*, 2012 edition, which is incorporated by reference into most building and fire codes, requires that the walls and doors between hotel rooms and hotel corridors be rated for one hour (NFPA 101:29.2.2.1.2). These doors are required to be equipped with self-closing devices (NFPA 101:7.2.1.8).

*(1)*

The hotel in which this photo was taken is perhaps 20 years old. A walk down one corridor showed that many of the hotel room doors were standing open and needed to be closed manually, suggesting that the self-closing feature of the hinges was worn out or disabled.

Photo 2 shows a sidewall sprinkler head in a corridor in the same hotel. It shows a significant amount of dust, lint, and other debris accumulated on and around the thermal sensor (the glass bulb filled with fluid). This lack of maintenance should make us wonder about the status of the rest of the automatic fire sprinkler system. The standard for automatic fire sprinkler system maintenance is NFPA 25, *Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems,* 2011 edition. NFPA 25:5.2.1.1 requires an annual inspection of sprinklers from the floor for “corrosion, foreign materials, paint, and physical damage” and for the correct orientation of the sprinkler head.

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*(2)*

The pipe and conduit shown in Photo 3 were added after a building was complete, and the penetrations of the masonry fire-rated wall were properly fire-caulked. This detail is often overlooked, especially when the work is done by custodial staff or a low-budget contractor.

*(3)*

During the construction of a new building, the plan reviewers, building inspectors, state inspectors, and inspectors from other agencies concentrate on ensuring that the building goes up as designed and that the required life safety systems and hardware are installed and working properly.

After the building is occupied, it is often the fire department that performs “fire inspections”—the inspections of means of egress and life safety systems for the protection of the building’s occupants and employees. “Fire inspectors” must be educated in life safety requirements, the systems and hardware that are required, and the signs that these systems and hardware are not receiving the attention that they need. They must also be able to observe when changes have been made to a building so that they can ensure that life safety systems, fire-rated walls, and floor-ceiling assemblies have not been compromised. And, they must be able to provide the building owner or manager with reasons for the requirements for these systems, beyond “it’s a code requirement.”

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