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Construction Concerns: Residential Door Locks

Article and photos by Gregory Havel

Building codes have statements that require certain types of door locks in public buildings, including schools, retail stores, manufacturing facilities and warehouses, health care facilities, and many others. Most of these are based on the requirements listed in National Fire Protection Association (NFPA) 101 *Life Safety Code*, 2009 or previous editions.



(1)

Photo 1 shows the bedroom-side of a modern hotel door lock. The corridor side has a key-card reader for guest and housekeeping use; the operating handle; and a lock cylinder for use with the hotel's emergency key. The bedroom side shows the back of the key-card reader at the top; the operating lever for the dead bolt; and the door handle, which retracts both the latch and the dead bolt when it is operated. This is to comply with the requirements of NFPA 101-2009, articles 7.2.1.5.2 and 7.2.1.5.9. This arrangement also allows the addition of a security chain above the lock, as allowed by NFPA 101 article 7.2.5.9.3.

Chapter 24 of NFPA 101 details the requirements for one- and two-family residences. "All locking devices that impede or prohibit egress or that cannot be easily disengaged shall be prohibited" [NFPA 101 24.2.4.7] and "Latching devices for doors shall comply with 7.2.1.5.9" [NFPA 101 24.2.4.10]. Annex A to NFPA 101 states: "A.7.2.1.5.9 The operating devices should be capable of being operated with one hand and should not require tight grasping, tight pinching, or twisting of the wrist to operate."



(2)

Photo 2 shows the outside of the front door of a house. The lockset has a key-operated lock cylinder in the knob. Above the lockset is a dead-bolt lock, which uses a different key for security purposes. This arrangement is acceptable under the requirements of NFPA 101.



(3)

Photo 3 shows the inside of the front door of the same house. The inside knob of the lockset has a turn button that releases the inside knob when the door is locked. (Some brands of this type of inexpensive lockset lock both the inside and outside knobs when the door is locked; and the door must be unlocked from the outside by a key or from the inside by the turn button, if either knob is to be turned to open the door. (Hardware and home-improvement stores still sell this type of lockset. This type of lockset could be acceptable to the “authority having jurisdiction” (AHJ) under NFPA 101, 7.2.1.5.9.3, which provides for an additional locking device with an additional unlocking motion (intended for a security chain or a dead-bolt lock).

Photo 3 also shows that the inside of the dead-bolt lock is operated by a key, rather than by a more typical lever or thumb-turn. Since NFPA 101 allows for an additional operating motion to release door locks in existing installations [NFPA 101 7.2.1.5.9.4], this locking arrangement could be acceptable to the AHJ, since it was installed decades ago.

The security and locking devices in a one- or two-family house as shown in photos 2 and 3 may be acceptable under NFPA 101 and locally adopted building and fire codes as interpreted by the AHJ. However, this arrangement is not a good idea.

The heat content and rate of heat release of modern home furnishings and the rapid failure of manufactured and engineered lumber and structural members suggest that we no longer have minutes to escape a fire in our house. Under fire conditions, we may be assuming unacceptable risk by having multiple locks on our doors. Fumbling with these, especially in the dark, heat, and smoke, will delay the speedy evacuation of the burning structure.

We must remember that even though code requirements change, the installed hardware will still be in place for decades. Building code changes usually do not apply to existing structures unless they are being remodeled; and fire code changes that do apply to existing structures may be ignored.

In our public fire education programs, we should suggest that homeowners and landlords spend a little

more money on a better quality lockset that can be opened simply by turning the knob from the inside, even if it is locked (like in a commercial building) rather than spending the extra money on a second inexpensive lock.



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