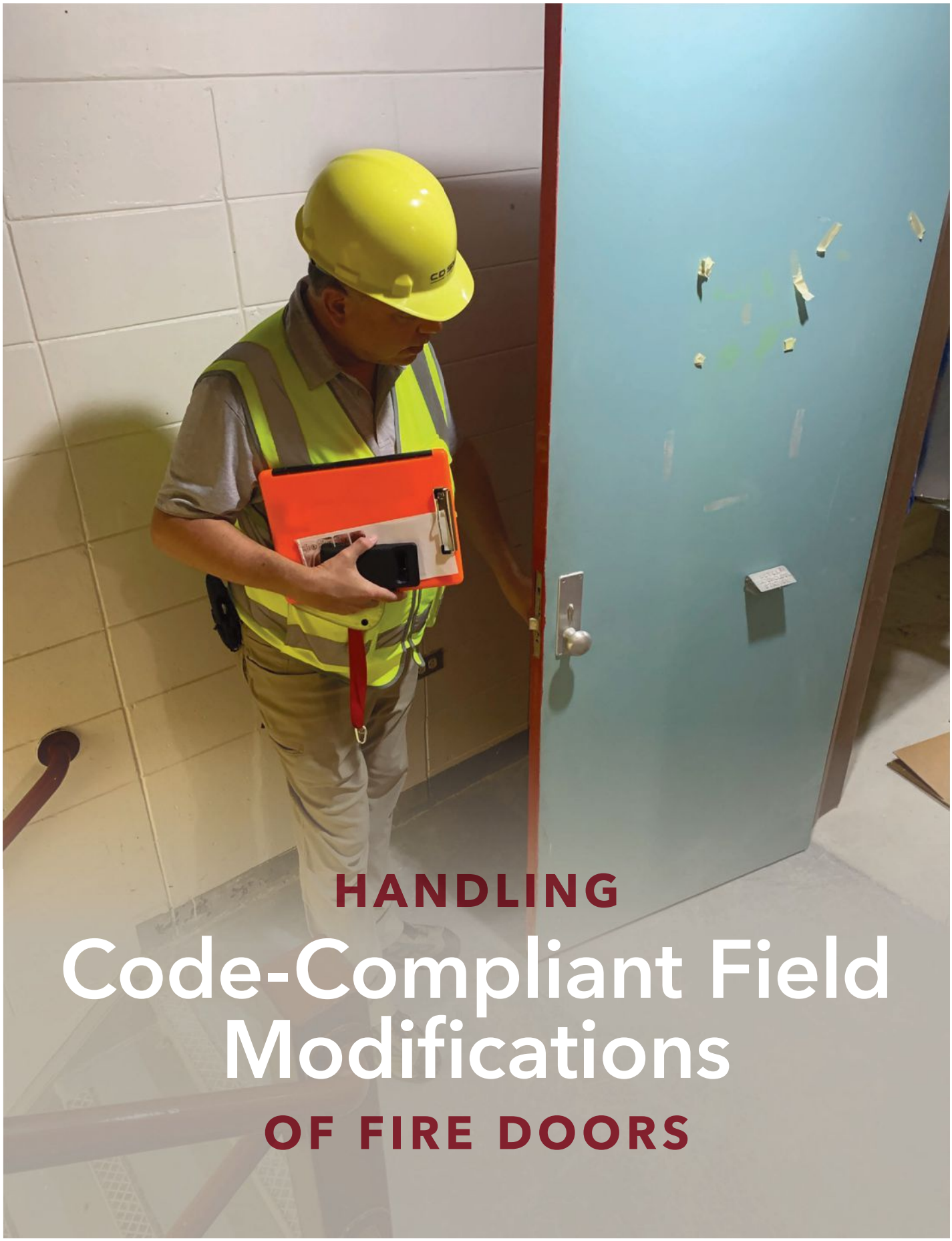

HANDLING

Code-Compliant Field Modifications

OF FIRE DOORS

PHOTOS COURTESY OF INTERTEK

BY JUSTIN HENDRICKS

Following standards and working with listing agencies keeps occupants and facilities safe.

Over the lifetime of a door and frame assembly, certain changes may become necessary. These can range from the relatively straightforward, such as the installation of a protection plate, to more complex modifications that require certain types of cuts or preparations to the door or frame.

Renovation work and advances in technology, such as access control applications, seem to be some of the primary drivers for these changes to door and frame assemblies.

There are published guidelines for job site preparations and field modifications of fire doors and frames that can be found in the 2022 revision of NFPA 80: Standard for Fire Doors and Other Opening Protectives. This document serves as the governing standard for the installation and maintenance of fire doors, frames and hardware and is referenced in the International Building Code (IBC).

Section 5.1.5.2.2 of NFPA 80 specifies what job site preparations are permitted, which include holes for surface-applied hardware, functional holes for mortise locks, holes for labeled viewers, a maximum three-quarter inch (19mm) wood and composite door undercutting and the installation of protection plates (discussed further in Section 6.4.5).

Holes

The holes described above are further defined in subsequent sections of NFPA 80, specifically section 5.1.5.2.2.1, which states, "Surface-applied hardware shall be applied to the door or frame without removing material other than drilling round holes to accommodate cylinders, spindles, similar operational elements, electrified hardware, and through-bolts in doors." The holes are also defined in section 5.1.5.2.2.2, which states, "The holes described in 5.1.5.2.2.1 shall not exceed a diameter of 1 inch (25.4mm), with the exception of holes for cylinders, unless otherwise permitted by 5.1.5.2.2.3."

Section 5.1.5.2.2.3 (previously section 4.1.3.2.3) was first incorporated into the 2016 edition of NFPA 80, and the language contained within it is present in subsequent editions of the standard. It allows for drilling round holes exceeding 1 inch (25.4mm) in diameter for surface-applied hardware installed in accordance with the door manufacturer's and hardware manufacturer's listings.

It is important to remember that preparations with other shapes, sizes, intended functions and locations on the door or frame beyond what is noted here are outside of the scope of what is allowed to be done at the job site per NFPA 80 and are considered field modifications. These are addressed in Chapter 5 of the standard.

Undercutting

Additional guidance is given in annex section A.5.1.5.2.2 of the standard for wood and composite door undercutting performed at the job site, which includes a recommendation to verify the internal construction of the doors before proceeding with any undercutting.

This should be done by contacting the supplier or manufacturer directly. Depending on the size of the bottom rail and how much material has been trimmed at the manufacturing or machining facility, additional undercutting at the job site may lead to the structural integrity of the door being compromised in the event of a fire.

Hardware preps within the bottom of the door, such as latch preps (i.e., flush bolt or CVR) or mortised or semi-mortised door bottom preps, will also affect the ability of the door to be undercut. For these instances, the door manufacturer and the listing agency should be contacted as early as possible to discuss potential field modification options to prevent the fire door label from becoming void.

Wire Raceways

Sections 5.1.5.2.2.4 and 5.1.5.2.2.5 of NFPA 80 provide guidance on drilling raceways for wires at the job site. This work is required to be done in accordance with the door manufacturer's listing and when permitted by the laboratory with which the door is listed (listing agency).

Certain listing agencies may also have their own qualified personnel program

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that addresses this type of field-based work on their listed doors (such as Intertek Raceway Installer Program). If the door manufacturer's listing does not contain approval for wire raceways, then the raceway is considered a field modification, and the requirements set forth in Chapter 5 of NFPA 80 must be followed.

Listing Agency

For field modifications beyond the job site preparations allowed by NFPA 80, the laboratory that lists (listing agency) the modified product must be contacted and provided a written or graphic description of the modification.

Upon review, the listing agency will determine the proper course of action, which may include an engineering evaluation, additional testing or replacement of the affected door or frame. A field inspection visit from the listing agency may also be required depending on the complexity and type of modification.

Certain door or frame manufacturer's published listings may also include additional guidance, allowances or limitations for field preparations. In this case, the door or frame manufacturer should also be contacted and consulted prior to making any modifications in the field.

The fire door and fire door frame certification labels will provide information pertaining to what agency certifies the product. This is identifiable by the certification mark on the label (such as Intertek/Warnock Hersey, UL) as well as the name of either the manufacturer or supplier, logo or a numerical code that can be used by the listing agency to identify the manufacturer or supplier.

If the door or frame manufacturer or supplier is known, as well as the original listing agency, the listing agency's online public directory can be consulted. This may offer some details of the door or frame products in question, such as the type of hardware that is eligible to be installed on the door.

When in doubt, the listing agency should be contacted, and it can assist with any questions you may have regarding listed products in the field. Keeping an open dialogue with the listing agency as early as possible in the process will help reduce the possibility of issues as you plan any preparations or modifications to a fire door or frame assembly.

It is important to not only follow the guidelines set forth in NFPA 80, but to be aware of door and frame assemblies that may have been modified at your facility in the past. Modifications made to a fire door or frame outside of the job site preparations referenced in NFPA 80 and without notifying the listing agency that certifies the door or frame places the building occupants' safety in jeopardy.

It also risks unnecessary damage to the building in the event of a fire. Even small modifications made to door and frame assemblies may lead to fire and/or smoke spreading more rapidly through a building.

Remember, many disasters are preventable. Ensuring that a facility follows the requirements of NFPA 80 will help protect the integrity of the building and the safety of the building occupants in the event of a fire. +

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