Door Security + Safety

DHI'S PUBLICATION FOR DOOR SECURITY + SAFETY PROFESSIONALS

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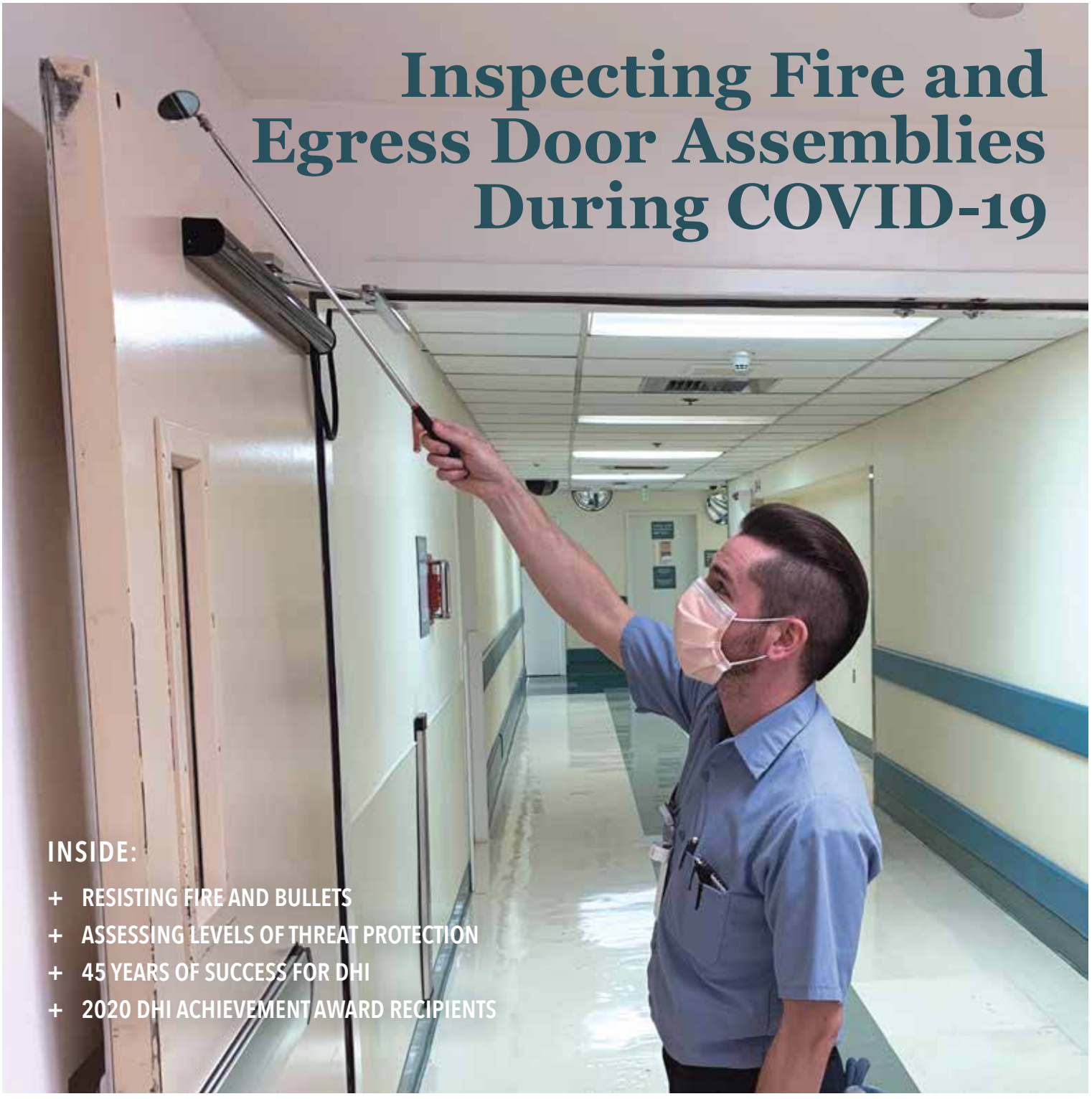
Inspecting Fire and Egress Door Assemblies During COVID-19



INSIDE:

The Pyrophobic's Systems tempRCORE™ is a patented, composite temperature rise core that makes temperature rise steel fire doors safe.

BY TIMOTHY RILEY

Finding a Door Core Partner

Manufacturing and certifying cores for steel fire doors requires extensive research, testing and certification.

Ensuring that doors are fire-rated and able to prevent fires from spreading is an essential part of protecting lives. The entire door and hardware industry has a strong commitment to life safety.

THE CHALLENGE

A closed door should keep a burning fire out, but that is not always the case. The challenge is that for a door to contain and prevent the fire spreading, the door opening must maintain the fire rating of the entire assembly. Otherwise, the door opening is essentially a break in the fire-rated wall.

Doors without a fire-rated core can be a fire hazard, in most cases lasting less than 20 minutes. A fire-rated core provides more powerful protection, increasing the fire rating of hollow metal doors to more than three hours.

TESTED BY FIRE

What makes a door core safe? To start with, they are rigorously tested at nationally certified testing facilities like Underwriters Laboratories and Intertek Testing Services.

Door assemblies are placed in large furnaces and tested to UL 10C standards, ("Positive Pressure Fire Tests of Door Assemblies"). When a fire-rated core is inserted between the steel skins, it provides thermal separation from a fire that is designed to increase in temperature, based on a standardized fire-temperature curve. This is a severe fire. During the first 5 minutes of a test, the furnace increases to 1000 degrees Fahrenheit, and continues to increase in temperature based on the specified time, for up to 4 hours, reaching 4000 degrees F.

The purpose of the test is to evaluate the ability of a door assembly to remain in the opening for the predetermined test exposure. The door opening must be tested to ensure the overall assembly achieves the fire rating so the entire opening can be considered fire rated.

TESTED BY HOSE STREAM

UL 10C also includes a hose stream test in which, from 20 feet distance, a fire hose sprays a stream at 30 psi over a fire-tested door. The stream is swept over the core to determine if the door will be damaged allowing fire to penetrate. However, just as the standard fire exposure is not intended to be representative of any or all actual fire conditions, the standard hose stream exposure is not intended to be representative of any actual fire-fighting or fire-suppression activity.

GAINING CERTIFICATION

All the work that leads up to the certification test is well worth it when both the furnace and hose-stream tests are passed and a listing is issued. Once the core is certified, the certifying agency closely observes the manufacturing process to ensure the manufacturing quality control produces an identical core to the tested product.

DOOR CORE SOLUTIONS

Door manufacturers of hollow metal doors expect a fire-rated door core manufacturer to provide tested and certified doors.

Two door manufacturers – Steelcraft and DKS Doors – recently turned to PyroPhobic Systems and its patented TempRCORE™ core to meet their door core needs.

Carter Kemper, Mechanical Engineer at Steelcraft, an Allegion company, says his firm chooses a door core based on affordability, availability and the

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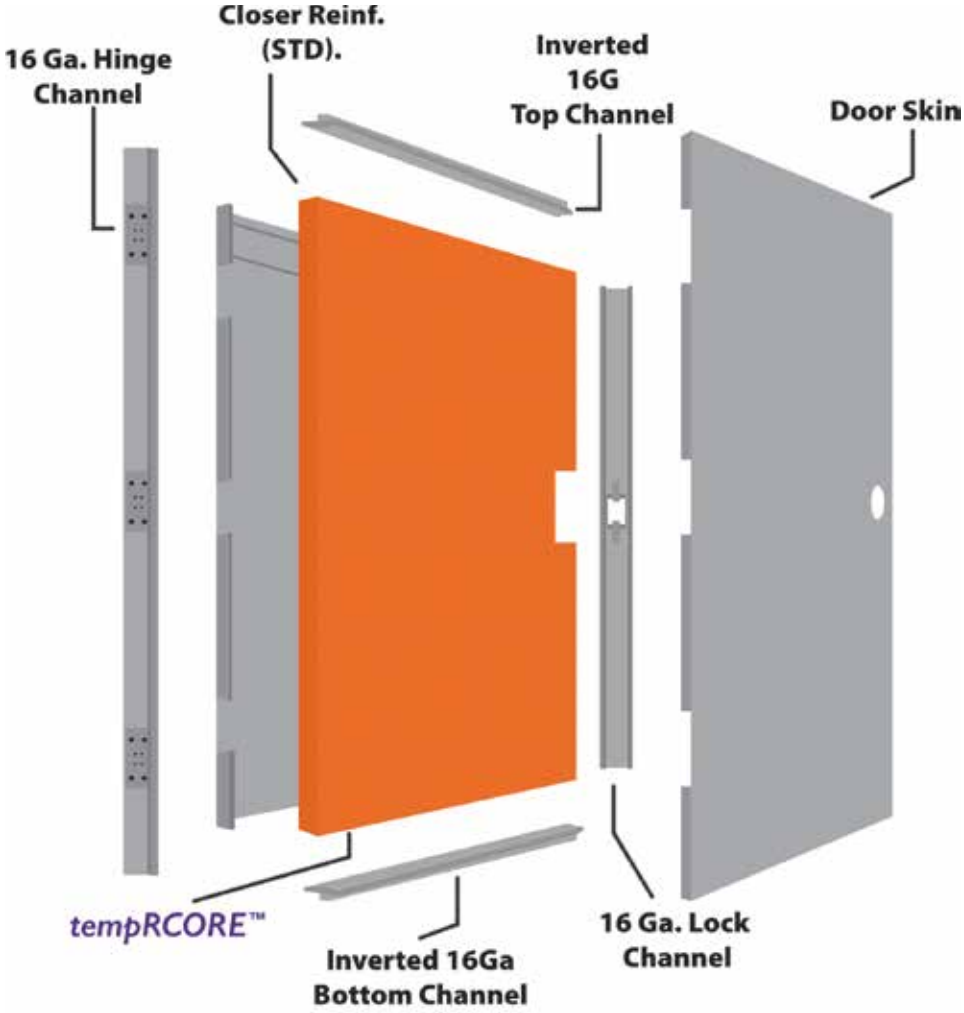

product's UL testing, as that eliminates the need for an expensive fire testing program.

DKS Doors recently chose the door core to meet the needs of its global manufacturing and logistics system for steel doors. Dave Kesler of DKS Doors notes, "Global technical support is necessary to make it possible for the DKS global supply chain to provide a complete solution." Transportation without damage is instrumental in the successful use of a core.

Both companies rely on manufacturers of fire-rated cores to make significant investments in the research, development, testing and manufacturing of certified cores.

"A new product development program requires capital and a long-term commitment as it can take years to achieve a certified listing," says John Page, President of PyroPhobic Systems. "It also requires a belief that there is a mutual need for a product that offers unique properties to achieve the industry's confidence. In addition to the testing program, a well-designed core needs to be efficiently priced and easy to handle. It must also be manufactured with little to no dusting, shipped without damage and compatible with a range of manufacturing processes. A door is ready for the market only when it meets all these needs."

PyroPhobic Systems is also an experienced manufacturer of fire resistant, intumescent composites that are injection molded to produce fire resistant components used in a wide range of fire barrier applications.

PyroPhobic Systems leveraged this expertise to develop a new manufacturing process and now has the capability to extrude large sheets of intumescent composite materials.

PyroPhobic Systems leveraged this expertise to develop a new manufacturing process and now has the capability to extrude large sheets of intumescent composite materials. These fire-resistant materials solve many of the challenges encountered when working with mineral cores. +

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