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4 unique centers, p. 50

10 innovative props, p. 60



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Flashover
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tips, p. 116

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August 2009 | Read It Today, Use It Tomorrow

FDNY HIGH-RISE SIMULATOR

New York, N.Y.

By Battalion Chief Phil Ciaravino
& Lt. Joseph Connolly

Considering the abundance of high rises in New York City, the NYC Fire Academy long had a huge void in its training arsenal: Despite having the capabilities to train firefighters on all other types of structures, it didn't have a high-rise fire training building.

All that has changed now, thanks to a generous donation from the FDNY Foundation (www.fdneyfoundation.com) and the Leary Foundation (www.learyfirefighters.org). On March 19, the city unveiled a \$4.2 million high-rise simulator on Randalls Island, where all FDNY engine and ladder companies will eventually train on fire- and non-fire applications in high-rise structures.

HIGH-RISE SPECS

The 4,000-square-foot, state-of-the-art high-rise simulator is a "Class 1" fireproof building that features a fire and flashover simulator, central smoke system, dry standpipe system, mock elevators and three stairways. It also has video hookups on each floor for review and a simulated fire command station, courtesy of Crossfire Inc. The Kidde Fire Training System handles the smoke and fire simulators, which are computer-controlled.

There are also many other scenarios that trainees can practice, including life-saving roof rope rescue, firefighter personal safety escape systems and a wind-driven fire evolution.

The floors in the four-story building are labeled 40-43. The simulator features a dry standpipe system, which is fed through a Siamese in the front of the building via an engine company. The building also has true "scissor" stairs, simulating the city's housing project buildings. We can set up the building to simulate a high-rise office building or a high-rise multiple dwelling.

The electronic fire control panel helps our battalion chiefs understand building systems and manage HVAC systems. The high-rise fire control panel, located in an authentic-looking lobby, simulates an actual panel found in high-rise buildings regulated by NYC Fire Code (class "E" buildings), complete with a Fire Safety Director's desk.

The Kidde Fire Training System allows us to select any combination of floors, including the lobby, to fill with smoke. The third floor has a propane-fed, live-fire prop simulating a couch on fire in a bedroom. This prop can get the room temperature up to 750 degrees F, and it shoots flames 8 feet above the couch.

With the press of a button on the trainer's remote, the system can send fire across the ceiling (giving a rollover effect) and out the entrance door. This teaches our firefighters the importance of controlling the door and staying low to the ground.

The fire room also has an internal stairway, which

can simulate either the access stairs to the floor above, common in many high-rise office buildings, or the stairway in a duplex or triplex apartment.

On the fourth floor is another fire prop that simulates fire extension in a wall as well as a plenum space—the area above the ceiling in a commercial occupancy that allows the return of air flow of the HVAC system. This space can allow the spread of fire and smoke, and our ladder companies can check for extension by actually pushing up on one of the hinged panels.

The fourth floor access stairs can also be used the opposite way: to teach a firefighter how to fight a cellar fire or a duplex apartment fire by going down the stairs with a charged hoseline. The instructors can cause a rollover at the ceiling level on the third floor, which puts the fire directly at the descending members. Full firefighting PPE is always required.

A computer monitors an automatic safety system, which limits the amount of burn time (15 minutes) and rollover time (5 seconds). If the room goes over 750 degrees F, the computer will know there's a problem and automatically engage exhaust fans and shut down the fire(s).

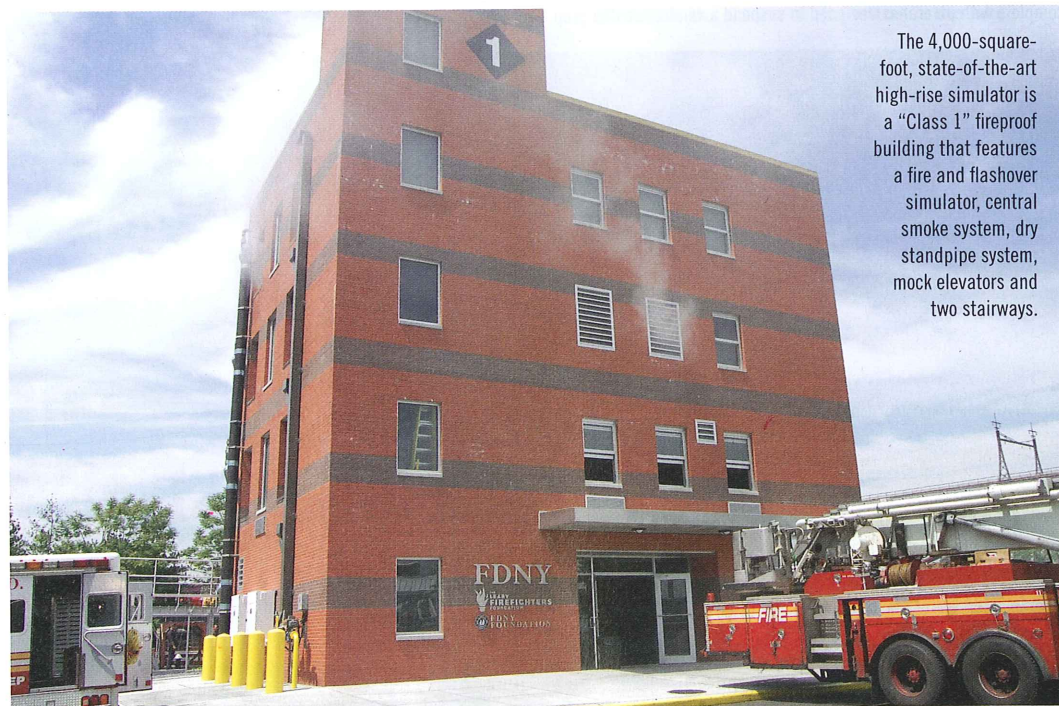
FUTURE USE

We plan on working the drills in this building on a rotating basis. One month we will set up the inside of building as a residential high-rise multiple dwelling, then the next month it will be set up as a high-rise office building. To make it even more realistic, we have actual furniture throughout the building making up different rooms.

This building is versatile and used for many different types of drills. Everyone involved worked hard in the planning and design of this building, which will enable firefighters to hone their skills for many more years to come.

Battalion Chief Phil Ciaravino has been with the FDNY for 20 years and is currently assigned as a training coordinator for the Bureau of Training.

Lt. Joseph Connolly has been with the FDNY for 12 years and is currently assigned to the Bureau of Training.



The 4,000-square-foot, state-of-the-art high-rise simulator is a "Class 1" fireproof building that features a fire and flashover simulator, central smoke system, dry standpipe system, mock elevators and two stairways.

PHOTO COURTESY LT. JOSEPH CONNOLLY

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