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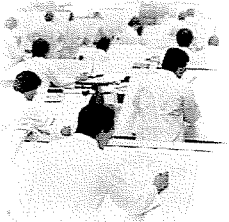
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Sprinkler Retrofits Can Be Fast and Cost-Effective

BY GARY JOHNSON, Steering Committee Member for Operation Life Safety, Member of the Board of Governors for the Int'l. Fire Sprinkler Assn., National Sales Manager for BlazeMaster, Cleveland



If you haven't finished a fire sprinkler retrofit recently, chances are you'll be starting one soon. College dorms, in particular, are a hotbed of activity, as are downtown high-rises. Why all the interest? Basically, there are three reasons driving the increase in fire sprinkler retrofits: First, more people are safety-conscious and see fire sprinklers as a means to save lives. Second, from a cost standpoint, a retrofit can lower insurance premiums—possibly paying for themselves within five to seven years. The third, and perhaps most significant driver, is changes in fire-protection code language in cities including Chicago and New York that now mandate the installation of fire sprinkler systems in many public and private facilities.

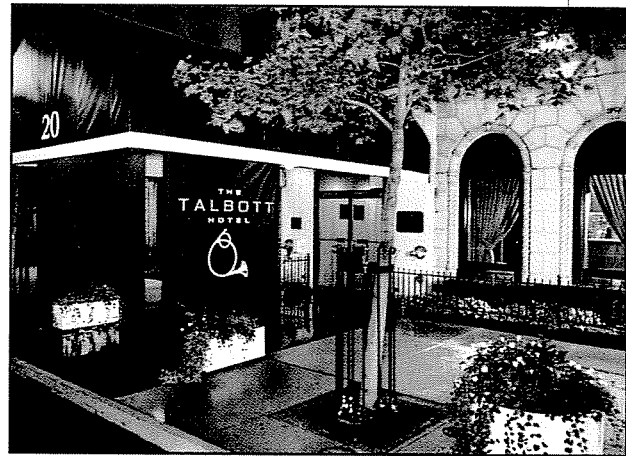
Regardless of the reason, there are two major factors to consider when starting a sprinkler retrofit: First is the cost of the system itself, which includes materials, design and labor needed to install and then conceal it. The second, and often the costlier element, is the impact on the facility's occupancy rate—in other words, income lost during the retrofit process. Hotels, hospitals and office buildings are particularly affected by the latter. For this reason, speed of installation is critical to minimize loss.

There are two major factors to consider when starting a sprinkler retrofit: the cost of the system itself (including materials, design and labor) and the impact on the facility's occupancy rate.

It's the same for college dorms, where the goal is to complete the retrofit before students return to class. So material and labor costs, in addition to ease of installation, often become the guide by which the various fire sprinkler technologies are judged.

Key sprinkler retrofit considerations

- *When to retrofit.* Retrofits should ideally be timed with other renovation projects. Since you need to get



Chicago's Talbot Hotel was an early adopter of the city's new sprinkler mandate; they saw it as an opportunity to land additional business.

behind walls or above ceilings, it's a good time to think about repainting, rewiring existing fire alarm systems and smoke detectors, and evaluating stand pipes and fire pumps. In the case of the latter initiatives, it is recommended that you conduct a water test and talk to your local AHJ to determine if your existing pipes and pumps will support a fire sprinkler retrofit or if a total replacement is necessary.

- *Design of the system.* Most sprinkler retrofits are designed in one of two ways. One way is to run pipe down the hallway and into each room, which means you will eventually need to hide the pipe and possibly move exit signs. The other option is to go through the walls from room to room. This method eliminates the need to hide the pipe in the hallway, but creates more holes that must be covered.

- *Selection of sprinkler head.* There are more than 2,000 different types of heads on the market today. The differences are in the aesthetics, cost and throw pattern. For the most part, heads are available in white or chrome. Exposed pendant heads are the most conspicuous but may be preferred by building owners who want to reassure tenants or guests. With concealed heads, all you see are inconspicuous white

How To

plates. In between these two options are semi-recessed heads and flush heads. Side-wall heads are frequently used over beds in hotels and hospitals.

Beyond appearance, however, throw pattern is a key consideration. If a head

can throw the water farther, you can reduce the number of heads needed to achieve the same results. You may need to purchase a larger pump to support the throw pattern, but often the money you save on fewer sprinkler heads more than

justifies the cost of a new pump, depending on the size of the building.

Piping technologies

Taking all of this into consideration, perhaps the biggest decision a fire-protection designer has to face when it comes to retrofits is the kind of sprinkler piping itself. There are essentially three technologies to choose from: copper, steel and CPVC. For purposes of this article, the discussion will focus on the last.

CPVC has grown in popularity recently, in part, due to its durability despite its light weight—approximately one-sixth the weight of steel. Furthermore, CPVC pipe and fittings can cut engineering time by about 50% since no prefabrication is required. In fact, it can arrive on a job site immediately and be altered on-site without delay to fit specific areas. Since no torches are required for installation, CPVC pipe can also be hung closer to the ceiling or even from side walls to accommodate tight design plans. This is especially appealing to facility managers and owners who are faced with an asbestos problem. In fact, a number of commercial facilities have been able to bypass an entire asbestos removal program when CPVC pipe could be hung from the walls; installers never had to touch the asbestos on the ceiling.

Speed of delivery is another driver for CPVC use. Pipe and fittings are typically bonded with a solvent system connecting joints easily and neatly, resulting in faster installations and cleanups. It can be moved and stored quickly, and in many cases, only one room needs to be closed off at a time. And its job-site flexibility means you can work around owners' needs and schedules, since you can virtually start anywhere in the system and work in either direction, stop, and start somewhere else.

This type of flexibility was important to Mercy Medical Center, a 476-bed hospital in Canton, Ohio that recently completed a multi-floor retrofit. CPVC was chosen because of tight space constraints above the ceiling. The technology's quiet installation also meant less disruption and intrusion for patients. And the project was completed in less than half the time projected for a steel system.

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The Talbot was sensitive to its decor, so CPVC was hidden in crown the molding.

Also important is the longevity of the system. Since CPVC pipe is naturally corrosion- and impact-resistant and immune to microbiologically influenced corrosion, it has a 50-plus-year life expectancy with a safety factor of two per ASTM test criteria.

Further, it is UL listed for light hazard applications as defined in NFPA 13, 13R and 13D. From a safety standpoint, it offers low flame spread and low smoke characteristics and has been fire-tested in accordance with UL 1821, Thermoplastic Sprinkler Pipe and Fittings for Fire Protection Service.

CVPC has also scored key victories with the more strict fire-protection jurisdictions, notably Chicago. In fact, one of the city's hotels, the Talbot, recently became the first building to undergo a fire sprinkler system retrofit using CPVC.

In December 2004 Chicago's building code was finally changed to mirror other large cities in the country and allow the use of CPVC pipe for high-rise retrofits. At the same time, the city also passed highly debated legislation requiring that commercial buildings constructed prior to 1973 be protected with automatic fire sprinkler systems. Such legislation was a direct result of several high-

profile, fatal fires that had occurred in unsprinklered buildings in the city. Under the new ordinance, building owners have up to 12 years to retrofit their high rises, with at least one-third of the work to be completed within four years and two-thirds of the retrofit to be done within the next eight years.

Basil Kromelow, president and owner of the Talbot, saw no reason to wait. "We knew that if we sprinklered, we had a better opportunity to pursue business that we couldn't in the past with a number of organizations," he said.

Many large corporations, as well as government agencies, require hotels to be fire-sprinklered in order to list them in an approved company listing or directory.

"We estimate that nearly 20% of our requests are associated with fire sprinkler requirements. So with fire sprinklers, we can accommodate a broader range of clients. Plus, we knew we could realize a savings as a result of better insurance rates," said Kromelow. **ICSE**

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