



## My own private towering inferno

When confronted by a high-rise fire, over-extended firefighters need not be beasts of burden if we take advantage of equipment caches.

As I look back on my experiences as a firefighter, one of the more unusual ones was my first high-rise fire. It was in a senior citizens complex called Bethel Towers. It was 19 stories tall, which made it literally the first high-rise building built in the city of Costa Mesa, Calif., in the 1960s.

What made the experience interesting was the fact that at the very first high-rise fire I ever saw I was actually the incident commander. However, just because it was the first time I had ever seen a high-rise fire, that didn't mean I didn't know how to fight it.

### RONNY J. COLEMAN

On the contrary, an interesting experience of mine that preceded this fire was studying high-rise firefighting under Chief Ben Renfro of the Los Angeles City Fire Department. It's unlikely that many of the current generation of firefighters will remember Renfro, but he was a true pioneer in the early days of high-rise firefighting. After listening to him lecture at a Southern California Training Officers Association meeting, I made a simple request: Would it be possible to come out to Los Angeles or ride along with him to learn the ropes?

Over a couple of months, Renfro invited me to participate in several training programs, including a high-rise drill in Century City. Many of the techniques that firefighters take for granted today were brand-spanking new at that time. Moreover, some of them were not only new, they were downright experimental. It's not that high-rise fires were invented in the 1960s — the fire service was expanding at that time and we had a whole new generation of firefighters to learn those techniques, myself included!

The very first lesson I probably learned in coping with these vertical nightmares was the idea that it took an awful lot of individuals to take equipment from the ground up to the "fireground." Many of the concepts developed in high-rise firefighting, such as stairwell support and lobby control, centered on the massive amount of personnel required to cope with these kinds of fires.

That was then, this is now. Fire departments are still experiencing high-rise fires, but 30 years ago we actually had a lot more firefighters on individual companies, for the most part, than we have today. What hasn't changed is what firefighters have to do. We still have to have the ability to do our best job when we finally arrive on the floor below the fire to make our attack.

In addition to staffing, one of the changes since the 1960s is the whole idea of sprinklering high-rise buildings. There's no doubt that the installation of automatic sprinkler systems has materially changed the nature of many high-rise fire problems. Granted, there aren't as many buildings retrofitted with sprinklers as could or should be, but very little new construction takes place without the installation of the firefighter's friend, the automatic sprinkler head. But is that enough?

The reality is that we still have high-rise fires in sprinklered buildings. Low-challenge fires can often result in extremely smoky conditions, even in a fully sprinklered building. When 911 rings in the alarm center, a full structural response is still required for a fire of this nature.

That's because sprinklers may not make a difference in the number of firefighters needed to respond to a fire on a building's 25th floor. To address that disparity, one of the concepts that we need to revisit is an idea that emerged at the dawn of early high-rise firefighting — equipment caches, or equipment that's available on the fire floor.

The entire purpose behind this concept is to eliminate the need for large numbers of personnel to be tied up serving as donkeys. In this sense, donkey is not a pejorative word. It's an acknowledgment of the fact that if all of an initial attack crew's equipment is on the fire truck outside of the lobby and it's needed on the 25th floor, then someone has to take it up there. Of course, elevators are not an option.

When it comes to water, we solved this problem a long time ago with the standpipe system. As a matter of fact, many of our fully sprinklered buildings are combination systems, where pumping into the standpipe provides fire water for a 2½- or 1½-inch hoseline attack on the fire floor while simultaneously providing enough pressure for the sprinkler heads to do their job.

A new innovation in the concept of high-rise caching applies to one of the most important of life-saving "devices" — air. There is a contemporary technology that now will allow us to pipe air from the bottom of the building all the way up to the fire floor so that instead of hauling large numbers of air cylinders up to a staging area below the fire floor, we actually can refill them in the near vicinity.

The system I am referring to is called Rescue Air. In Fremont, Calif., the fire prevention bureau has been installing this system in low-rise buildings to expedite fire attack processes. The relatively simple system consists of high-pres-

sure steel piping installed in the stairwells parallel to the fire department standpipe system. The system is then equipped with appropriate outlets at the ground level so that the fire department's air unit can provide high-pressure air into cylinders. Other units have been installed with compressors located in the building or cascade systems that provide the necessary air support.

The principle is fairly simple. As we pump air from the ground level to the fire floor, a high-pressure system allows firefighters to replenish their air supply in an area immediately adjacent to where they're using the equipment.

In addition to the air replenishment system, Fremont Fire has worked with several property owners to create caches on alternate floors so that other heavy equipment won't have to be hauled to the fire floor, such as fire cylinders, fire hose, personal entry equipment and more.

The various systems installed in Fremont are actually a result of an ordinance that requires their installation in certain types of occupancies. Excerpts of one such adopting ordinance reads as follows:

*"Air Replenishment Systems: All group B (office) and Group R, Division 1 (hotels and apartments; congregate residences, each having floors used for human occupancy located more than seventy five (75) above the lowest level of the fire department vehicular or personnel access (whichever access is more restrictive as determined by the Fire Chief or designee) shall be equipped with an approved rescue air replenishment system. Such system shall provide an adequate pressurized fresh air supply through a permanent piping system for the replenishment of portable life-sustaining air equipment carried by fire department, rescue and other personnel in the performance of their duties. Location of access station to, installation and maintenance of such air replenishment systems shall be made in accordance with the requirements of the Fire Chief or designee of the Fire Department."*

As many fire departments struggle with the issues of deployment and operational efficiency, a concept such as this is a viable option. It doesn't replace staffing at all, and in any case, very few fire departments establish their staffing pattern based on only one or two risks, such as the low-rise or even medium high-rise buildings in their community.

Instead, cache systems provide fire departments with an

opportunity to leverage their existing staffing when they arrive at the scene of a fire. Generally speaking, the initial attack and even the full first-alarm assignment on a high-rise building can be consumed very quickly just with the logistical needs. An air replenishment system is a value-added component to the built-in fire protection for these types of occupancies. The taller the building, the more that this particular system can contribute to overall effectiveness.

As I recall Renfro's lectures, I can remember some of his experiments along similar lines. For example, I once watched him lay hose from the ground all the way to the top of a high-rise building using a helicopter. Those of you who are students of ancient fire service history may even recall when we had a "flying platform" that was intended to get firefighters up to the fire floor more quickly. There also have been numerous inventions designed to help people get out of buildings, such as the polyester slide-of-life tube, but these innovations seldom enjoy widespread use.

Building logistical support in buildings is a viable idea. It's low-tech in the sense that it doesn't require a great deal of maintenance or additional deployment requirements to use. Those fire departments that demand equipment rooms or fire caches are moving in the right direction, and those departments that use technology such as Rescue Air are expanding the concept by providing one more tool for fire-ground operations.

Finally, one of the advantages associated with this approach is the effect it has on firefighter health and safety. In spite of our desire to keep our firefighters fit and healthy, humping a lot of equipment from the ground floor to the 15th is no picnic, even for the most athletic of firefighters. Using this approach is actually in the best interest of firefighter health and safety. When you get to the fire floor, it's a lot better to be able to go into combat right away instead of rehab.

A 40-year veteran of the fire service, Ronny J. Coleman is the president of the Fire & Emergency Television Network, which features career development and succession planning in its *Command Transfer* series. He has served as fire chief in Fullerton and San Clemente, Calif., and was the fire marshal of the State of California from 1992 to 1999. He is a certified fire chief and a master instructor in the California Fire Service Training and Education System. A Fellow of the Institution of Fire Engineers, he has an associate's degree in fire science, a bachelor's degree in political science and a master's degree in vocational education. **FC**

Reprinted with permission from the August 2002 issue of *Fire Chief*.<sup>®</sup>  
Copyright 2002, PRIMEDIA Business Magazines & Media Inc. All rights reserved. FIRE-03-DH



751 Laurel Street #416  
San Carlos, CA 94070  
ph: (650) 654-6000  
fx: (650) 654-6002