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FIRE RESCUE®

A Twist on the Classics

Apparatus manufacturers
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PLUS!

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in your wildland line
pack, p. 54

speaker (earbud) for the radio in the other. Those required to operate the various gas-powered engines should be supplied with, and required to use, these items or even a full earmuff type protection. Engineers, standing for hours next to the pump panels, fall into this category and should be supplied with, and required to use, an earmuff type hearing protection with a noise cancelling mic, which can be plugged directly into the engine's radio system or into a handheld radio on their belt.

If you're concerned about hearing cries for help while searching a structure, there are some earplugs that allow you to hear regular voices but cut out too-loud impact noises. They are more expensive but well worth it.

When buying earplugs or earmuffs, the noise reduction rating (NRR) is the critical number to pay attention to—always seek out the highest NRR. The NRR is shown on the container, and it is a logarithmic scale, meaning a NRR of 23 is twice as effective as an NRR of 20.

The issue at most fire scenes is the continuous noise, not sudden sharp noises. No hearing protection is more expensive than the potential payout to a firefighter with a documented job-related hearing loss. And a handful of the high NRR earplugs from your local gun shop are well within the budget of the most cash-strapped volunteer department.

NEW TOOLS

Over the longer term, a gradual replacement of gas-powered tools with new, battery-operated tools will remove many of the sources of continuous noise. I have had personal experience with the new, battery-operated LED scene lights, and it was very positive. With the silent lights, we could hear commands over the radio or by direct voice, as well as voice warnings about potential hazards. And since each light has its own battery, there were no power cables to trip over and they could be located at great distances from each other.

Replacing extrication tools with battery-powered ones will have a similar positive effect, and the same is true for electric chainsaws. But tool replacement

must wait until the batteries are perfected so they will last long enough for even the biggest scene.

THINK LONG TERM

Some noise will always remain, from our efforts to force exterior and interior doors, bend metal parts of cars, and participate in the 1,001 other noise-generating tasks on the fireground. But reducing the overall noise level means the next generation of firefighters will be able to hear cries for help at the fire scene, as well as their partner's soft words, and their children and grandchildren laughing and crying, without needing hearing aids. Even the station TV will sound clearer.

The current situation cannot be tolerated. With the low cost of earplugs and earbuds for radios, these should rate high on the list of health and safety items to be acquired for your department. The lights, extrication tools and saws will of course take more time and money. But success will be measured when you don't have to yell to be heard at a retirement party—particularly your own.

Seth Nadel served with a small volunteer fire department for six years, rising to the rank of captain and training officer. He has written for *FireRescue* and can be reached at Sleuth@wildblue.net.

| News |

Model Approach

Fire science students learn approaches to construction types from architectural models

By Jane Jerrard

Fire science students at Harper College in Palatine, Ill., have an effective new classroom aid to help them visualize how fire affects certain construction types. Instead of studying textbook illustrations or viewing PowerPoint slides of building construction, they can peer inside detailed, lifelike models to



Harper College students can peer inside detailed, lifelike models to see precisely how buildings are constructed, how a fire is likely to affect a specific type of building, and what that building's failure points are.



When discussing how to approach a structural fire, the model is brought out and significant features are pointed out.

see precisely how buildings are constructed, how a fire is likely to affect a specific type of building, and what that building's failure points are.

"I thought about [having the models built] for a few years," says Samuel Giordano, professor and department coordinator for Harper's fire science technology & emergency management programs. "At first, I thought there had to be something like this out there, but I started looking around—first locally, then eventually nationally—and was surprised that I couldn't find anything." So he went to a local company that builds models for architectural firms and commissioned the pieces.

ONE-OF-A-KIND MODELS

Beginning in June 2013, Giordano worked with Dean Caminiti of Architectural Artists in Palatine for over a year. "He drew it up, and I'd review each step as he worked," recalls Giordano. "He also worked with architects to make sure each one was on target." Because the first model was custom-made and took a lot of research, it cost \$6,000. Giordano predicts a second model might be less expensive.

The construction model is actually five separate structures, one for each of the methods of construction identified by the NFPA: 1) fire-resistive (pre-cast concrete slabs), 2) non-combustible (e.g., steel with protective fire coating), 3) exterior-protected masonry (wood interior), 4) heavy timber (e.g., solid or laminated heavy timber), and 5) wood frame (platform frame and balloon frame).

A NEW TEACHING STRATEGY

The model has a permanent home in the fire science technology classroom. "It's on display all the time. Instructors can use it whenever they want to," explains Giordano. "We use the individual models to show students the failure point in each [construction type] so that they can determine a burning building's stability. Can you just go inside to fight the fire, or do you need to stay outside and attack it from there?"

There are several hundred undergraduates enrolled in Harper's fire science technology program every semester, and Giordano believes the model is particularly useful to them. "It's all about visual literacy," he points out. "Today's students need a visual to learn—this model addresses that. I can talk about the five types of construction and even use a slide show, but with this they can see the components. This really helps them understand."

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Christopher Snively, an undergraduate in the fire science technology program, agrees. “The model is awesome—it really helps you learn. We’re not just reading; we can see it right in front of us,” he says. “And there are a lot of hands-on learners in fire classes.”

Although this semester’s students aren’t learning anything different than those in previous classes, they have the added component of seeing inside an actual building—although one that is small enough to hold. When discussing how to approach a structural fire, the model is brought out and significant

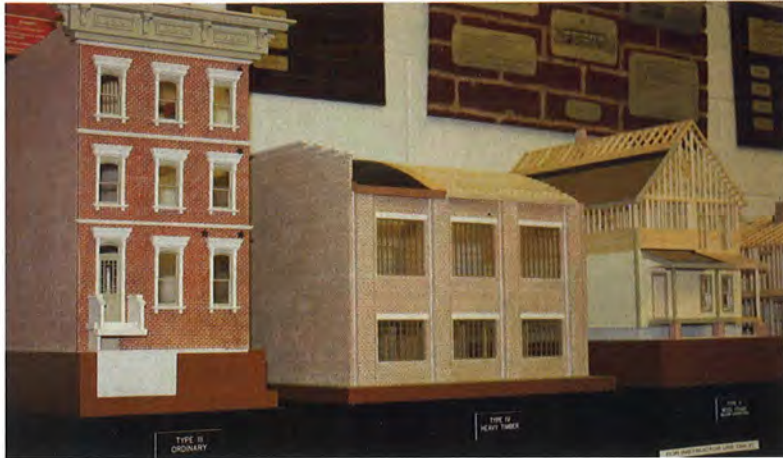
features are pointed out. “I’ve told the students that they have to understand what the fire is doing to the building and what the building is doing to the fire,” says Giordano. “[There are factors] that can lead to a flashover or a structural collapse. Studying the models can help them anticipate these things.”

Snively says he and his classmates have used the models to recognize different types of construction. “I can tell what is real brick versus a brick veneer,” he says. And they’ve absorbed how buildings are constructed, how fire affects them and how they can fail. “The model shows how dangerous certain buildings can be,” Snively says. “It’s easy to see how fire can work, and how a building can fail. One example is a bowstring truss—if one fails, they can all fail. You can see it right there in the model.”

SIMPLE & EFFECTIVE

Giordano has found a simple, effective addition to teaching the strategies and tactics of approaching fires in different types of structures. “I’ve heard great feedback from students and from the faculty,” he says. “I can’t believe I haven’t found anyone who’s done anything like this.”

Jane Jerrard lives in Chicago and writes regularly for FireRescue magazine.



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