

What You Don't Know

Little known code requirements for K-12 theater and auditorium stages. By Michael Fickes



Exit, Stage Right or Left? There is a separate set of rules or requirements when it comes to fire safety in areas of schools where there is a theater or stage. And, states are getting tougher about enforcing those regulations. Here is what to expect a fire marshal to look for.

Do you know what a fire curtain is? Do you know if yours is in working order? When is the last time you tested it? Did it work? If so, did you record the results so that you can prove that you tested it should it become necessary? If not, did you get it fixed, re-test it and create a written record that can prove what you did?

How about smoke vents? Same questions. And what about your theater or auditorium stage curtains? Are they certified as flame retardant? Do you have documents to prove it?

These three little known fire and life-safety tools — fire curtain, smoke vents and stage curtains — must be present and in working order if a fire marshal shows up and wants to inspect your theater or auditorium stage.

Don't think it won't happen in the future because it hasn't happened in the past. "We're seeing fire marshals and inspectors placing a relatively new emphasis on inspecting K-12 theaters and auditorium stages to make sure that the spaces comply with all the rules," says Craig Austin,

ETCP Certified Rigger-Theater, with Stage Services Company, a division of Portland Ore.-based Stagecraft Industries, Inc., and a specialty contractor that installs rigging systems.

Austin goes on to say that fire marshals in the 13 western states are actively enforcing the regulations concerning stage safety. "More than one fire marshal has said to me: 'I'm tired of non-compliance, and I'm tired of writing people up and seeing no action on their part.'"

Austin suspects the cause of inaction for K-12 theater facility managers might be confusion created by building codes. Prior to 1997, architects designed buildings to meet the Uniform Building Code (UBC). After 1997, however, the International Building Code (IBC) replaced the UBC, which has not been revised since 1997.

Even though the IBC has become the most widely used code in the U.S., it is vague in the area of fire and life safety systems for K-12 stages. "There were no enforcement measures, descriptions of expectations or instructions on how to install and use these systems," Austin says.

Because the IBC code is vague, the stage rigging industry proposed and adopted a standard under the aegis of the American National Standard Institute or ANSI to cover the fire curtain. The standard, ANSI Standard E1.22 was adopted in April 2009. If you look for this standard



Firewall? Special effects seem to be a part of any performance these days. Some of them involve a risk of fire. The image above shows how a fire curtain lowered in proscenium opening can isolate any stage accident from the audience.

and come across something designated BSR E1.22, that is an old standard. BSR E1.22 was revised nearly two dozen times as the industry developed ANSI Standard E1.22.

Its plain English name is the Standard for Entertainment Technology Fire Safety Curtain Systems, but it only covers fire curtains.

Other standards cover smoke vents and stage curtains. Specifically, the National

Fire Prevention Association (NFPA) 80 looks at smoke vents and NFPA 701 discusses cotton stage curtains.

Here's a look at the basic rules, one standard at a time.

Does Your Fire Curtain Work? And What Is a Fire Curtain, Anyway?

In older theaters, the fire curtain resides right behind the proscenium arch, the structure that divides the stage from the

ESTABLISH AN EAP AND DRILL IT

An article about fire safety details related to K-12 theaters and auditorium stages would be incomplete without making mention of the need for overall emergency planning that includes when and how to put fire curtains, smoke vents and stage curtains to use during an emergency.

Every building needs its own tailored emergency action plan (EAP), says Craig Austin, ETCP Certified Rigger-Theater Stage Services Co., a division of Portland Ore.-based Stagecraft Industries, Inc., and a specialty contractor that

installs rigging systems.

"What happens when a theater loses power during a performance, rehearsal or class?" asks Austin. "Do the faculty members in charge of those activities know what to do? A written plan should specify as a bare minimum response that the fire curtain should be lowered, the emergency lights should be turned on and a public announcement, scripted ahead of time for this kind of event, should tell people what to do."

For more serious events — a fire perhaps —

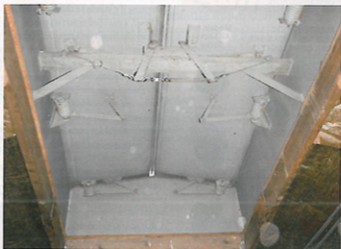
the protocol for the person in charge would also include calling the fire department by dialing 911 and breaking out the fire extinguishers.

Is 911 working in your jurisdiction? Can the faculty member in charge get through to the right emergency response center with a cell phone? Do the fire extinguishers work? Have you drilled these responses and made sure that you're not left without a 911 contact or working fire extinguishers or both when an emergency occurs?

audience. It is a fiberglass sheet that draws tightly across the proscenium opening. In a fire, a pin is pulled, and the fire curtain, pulled by gravity, drops to the floor of the stage and seals off the stage from the audience, preventing smoke and flames from getting out of the stage and into the area occupied by the audience.

"Historically, the problem with fire curtains is that they don't work," says Austin. "Many people don't even know they exist. But the new ANSI Standard, which is now the industry standard, requires the fire curtains to be tested annually at a minimum to prove that it is in working order."

The governing standard, ANSI E1.22 requires that a qualified professional inspect the fire curtain annually. Austin notes that even the fire department often lacks the qualifications to stage rigging and



Looking Up. Smoke rises, so in addition to a sprinkler system to extinguish the fire, it makes sense to provide smoke vent doors through the roof to allow any smoke to escape the building.

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determine if it is safe. In this highly technical world, a qualified expert is probably a professional from a well-regarded rigging company.

There is a proviso to all of this. Because of newer fire protection technology, especially the latest generations of sprinkler systems and non-combustible construction material, many newer stages may be exempt from the fire curtain requirements.

To make sure, you have to check: Do you have a fire curtain? If you don't, is the stage required to have one or not? How do you know? A fire marshal or someone with the proper authority must certify that the building has taken proper precautions during design and the specification of construction materials and does not need a fire curtain.

If you do have a fire curtain, make sure it works and that you make and preserve a record of when you ran what tests on it.

"Use a laminated paper chart and hang it beside the fire curtain's release station," Austin says. "Record your tests and the dates they were conducted."

Smoke Vents? Same Questions, Different Standard

In the ceiling of the stage, up beyond the rigging, smoke vents or hatches that open in case of a fire emergency provide a path of escape right through the roof for smoke. NFPA 80 covers these systems.

It says that the hatches must feature a fusible link that separates when the temperature reaches 160 degrees Fahrenheit. Some may have a manual release ring or handle to enable a fire official to pull the handle and trip a spring release and open the doors if they become stuck.

"These systems differ by geography," adds Austin. "In Maryland, for instance, the spring release must be heavier duty because of the possibility of heavy snow build up on roofs during the winter. In Arizona, not so much. But the point is that these hatches must be tested annually to make sure that they are working."

Austin also notes that roof replacements often render smoke vents inoperable. So if you have had a recent roof replacement without checking on the smoke vents over the theater, be prepared for some renovation work. And if a roof replacement is coming up, ask the roofing company how it plans to deal with the smoke vents in the theater roof. If you're not sure about what you learn, take the issue up with a rigging expert.

Curtain Call

NFPA 701 covers the cotton curtains that open the stage up to the audience at the beginning of the show as well as any other curtains located back stage. These curtains must all be treated with a flame resistant material. "New curtains typically have received flame treatments," explains Austin. "But those treatments, as a rule of thumb, will only last 10 to 12 years."

When purchasing curtains, continues Austin, make sure the vendor provides a certificate of flame resistance that lists approved chemicals and approved treatment processes. "Don't lose the certificate," warns Austin. "Make a photocopy of it and hang it on the wall right next to the curtains, each of them, where an inspector can find it easily."

And don't forget that the fire retardant treatments have a life cycle. The certificate should note the date of treatment and how long it will remain effective.

What you don't know can hurt you. Fire curtains, smoke vents and stage curtains can seem like small details in the larger scheme of managing facilities and risks for a K-12 school district. But that is not how fire marshals and other building code inspectors look at the issues. Their inspections over the past few years have turned up more out of compliance theaters than the inspectors can justify. As a result, they are taking a firmer, tougher stance.

Check your theater and auditorium fire safety technology. Make sure it is in compliance — before an inspector decides to make an example out of you. **ED**