BY **KARL G. RULING**

The joy of standards

"LIFE IS A LOT EASIER when you can plug in to any socket," is the subhead of "The Joy of Standards" essay in the February 17 "Sunday Review" of the *New York Times*. It's an article that ESTA President Jules Lauve pointed out to ESTA staff and that ANSI President Joe Bhatia encouraged all ANSI members to share with others to "spread the word about 'the Joy of Standards.'" ANSI was very pleased with the "positive tone and accuracy of this article, highlighting the critical importance and ubiquitous impact of standards. . . ." (You can read the essay at http://estalink.us/o7m2m.)

"Standards are to help us, not to indict us."

I like the essay because it advances an idea I promote: Standards are to help us, not to indict us. There is a tension in the standards and regulatory community between standards, and the regulations derived from them, being tools for enforcement and standards being good advice, the consensus of the standards community about what you should and shouldn't do, and what you might consider. In the past we've had arguments in ESTA TSP working group meetings about using "enforceable language." That is, writing statements that clearly say what "shall be permitted" and what "shall not be permitted." The argument is that unless clear shall and shall not requirements are given, no regulatory body will adopt the standard and no Authority Having Jurisdiction will enforce it. If nobody with legal authority enforces a standard, it won't be followed.

There is something to be said for this argument. As I write this, NPR is reporting dozens of children feared dead in the collapse of a building in Lagos, Nigeria, saying, "Building collapses are not uncommon in Lagos . . . where developers often circumvent building codes and use subpar materials." That's the news today, but examples can be found in North America, too. However, I come from a family of engineers and educators; while the argument for enforcement has merit, I don't find it compelling. Enforcing discipline was one of the least interesting parts of running a public school for my father. He found it much better to help a child understand why fists are not good conflict resolution tools than it was to punish him for fighting.

I think we need enforcement for some standards, but emphasizing enforcement tends to encourage people to ignore standards when there isn't any obvious enforcement. Even if there isn't someone saying "You shall do this!" following standards is a good idea. They help you do your work safely with less hassle, and that means more profitably.

Richard Nix and I did a presentation at the CITT/ICTS Rendez-Vous last August entitled "Standards Evangelist." Richard dreamed up the title, and it was a good one for our message. We were evangelists urging people to embrace standards as helpful tools for doing their work, not as rules to get them in trouble. We were preaching a happier, more productive life, not threatening doom. The latter is not often a successful pitch. There were street evangelists outside the Anaheim Convention Center at NAMM shouting about eternal damnation. One berated long-haired male NAMM attendees for having hair offensive to God. I did not see one person in the hundreds that walked by stop to ask, "Tell me more." "God loves you" might have gotten at least one person to stop, but perhaps these evangelists didn't believe that.

"[Standards] help you do your work safely with less hassle, and that means more profitably."

I do believe that standards written by people in our industry for our industry help our industry. Let me run through the laundry list of some of the documents now in public review, and explain how they help—and, if you are reading this on a computer or personal electronic device, you can thank the thousands of people who wrote the standards to make that possible. If you are reading this hard-copy, you still have standards and the people who wrote them to thank. It's been a long time since Joseph Whitworth developed the first national screw thread standard in 1841, making it possible for nuts and bolts from different manufacturers to work together, but I have

never seen a modern printing press held together without bolts.

Eight ESTA TSP documents in public review

As this is being written, eight ESTA documents are available for public review at http://estalink.us/pr. Certainly they won't be there by the time you read this, but some other ones will be. We have lots of projects in the works—and even when they are finished, more to come. In alphanumeric order, the documents are:

BSR E1.6-3, Selection and Use of Serially Manufactured Chain Hoists in the Entertainment Industry—The 2012 edition of *ANSI E1.6-3* is being revised. It is one of a four-part set of standards covering motorized rigging used in the entertainment and special events industry. All the *E1.6* hoist standards, including this one, besides giving guidance on how to use hoists safely in our industry, set out these hoists as different from those used in manufacturing and warehousing. Those hoists are covered by a range of *ASME B30* standards, and those standards all say that people shall not stand under the suspended loads. That is an effective way to manage risk in a factory: there is no chance of people being squashed by a dropped load if no one is under it, and factory work can be planned so that people are never under the load. However, "never under the load" is hard to manage on stage during performance, so we need to do other things to make sure the show goes on safely. The suite of *E1.6* standards helps us in that work.

BSR ES1.9, Crowd Management—This standard is part of a suite of standards currently in development, being derived from the ESA's *Event Safety Guide*, to address requirements for special event safety. It defines "crowd management" as distinguished from "crowd control," provides an overview of crowd management theory, and applies this theory to reasonably foreseeable risks associated with live events. There are existing standards that have requirements, for example saying that a "life safety evaluation" shall be conducted for an assembly occupancy venue that shall include consideration of the "nature of the events and the participants and attendees." That's useful, but this draft standard gives some advice on how this might be done, in language familiar to people who do shows.

BSR E1.21, Entertainment Technology—Temporary Structures Used for Technical Production of Outdoor Entertainment Events—*ANSI E1.21* covers what the title says, which are structures easily recognized by readers of *Protocol* as outdoor stages, delay towers, followspot lighting positions, and more, erected for a season or less for a concert, outdoor Shakespeare festival, or the like. The existing *ANSI E1.21-2013* is being revised to enhance the requirements for operations management plans, designated person responsibilities, and related requirements—things that are critical for a safe event. I have heard some people say that this planning would be unnecessary if we built temporary structures as strong as permanent structures. Stronger construction alone is not perfect protection, as was demonstrated by the EF-4 tornado that swept through eastern Alabama in early March, killing 23 people. We need planning, even if we build with steel and stone.

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BSR E1.44, Common Show File Exchange Format for Entertainment Industry Automation Control Systems—*ANSI E1.44 – 2014* is up for reaffirmation, since it is now about five years since it was approved, and ANSI requires regular review. The standard offers a lowest common denominator stage machinery cue file format. It was developed to help cut the work and the opportunities to make mistakes when moving a show from one venue to another. It's not clear that the standard is being used often—it's been downloaded from the ESTA website 541 times, but we don't know what people do with it—but it provides a reasonable starting point for developing any show file system and some other standards we may develop.

BSR E1.47, Recommended Guidelines for Entertainment Rigging System Inspections—*ANSI E1.47-2017* is being revised to expand and to clarify its recommendations for inspections of rigging systems used in the entertainment industry. This standard is to address the problem I often get phone calls about: a rigging inspection provider is trying to offer inspection services to a school with a theatre and is getting push-back along the lines of "How do we know this is what needs to be done and you're not just trying to get in here to sell us stuff?" Rigging systems really do need to be inspected regularly. This standard and the standards relevant to the systems (e.g., *ANSI E1.4-1, Entertainment Technology—Manual Counterweight Rigging Systems*) help clarify what must be done.

BSR E1.59, Entertainment Technology—Object Transform Protocol (OTP)—This standard describes a mechanism to transfer object transform information, such as position, orientation, and velocity, over an IP network using a subset of the ACN protocol suite. If you've seen a concert recently with moving screens and projected images, someone somehow did a lot of work to synchronize the scenery and the images. This standard should make that easier in the future.

BSR E1.62, Minimum Specifications for Mass-Produced Portable Platforms, Ramps, Stairs, and Choral Risers for Live Performance Events—The standard covers mass-produced portable platforms, stair units and ramps used with those platforms, and choral risers, designed to be used for the presentation of music concerts, dramatic plays, fashion shows, and other special events. The units covered by this standard are of a size and weight that allows them to be moved and erected by one or two people. This standard is being written to address a problem revealed by some other phone calls I get. A manufacturer will call to ask what standards might apply to his product. That leads to a long conversation. An owner or user of the platforms will call because his boss wants to know what there is to say these platforms are safe. Another long conversation. E1.62, when it is finished, should shorten those calls.

The Introduction to Modern Atmospheric Effects, Sixth Edition—*The Introduction to Modern Atmospheric Effects* was written initially in the mid-1990s to be an introductory text on fog and haze effects. Back then the ingredients in fog fluids were treated as trade secrets, with the only information being offered by manufacturers to people who breathe the fog being that it is made of "food-grade" components. Nobody believes it's okay to inhale a Twinkie, so that was not reassuring. The first edition offered a factual presentation on various types of effects, how they work, and basic cautionary advice. The current edition is the fifth edition; a sixth edition has been developed to give information about formal monitoring techniques and air sampling methods that may be needed to control fog exposure. The new text is to introduce the reader to these monitoring methods; the details on how to do air sampling are given in other publicly available sources cited.

A few that are done for now

ANSI E1.48 – 2014 (R2019), A Recommended Luminous Efficiency Function for Stage and Studio Luminaire Photometry, was approved by the ANSI Board of Standards Review on 1 February and published by ESTA on 13 February. *ANSI E1.48* specifies a V(λ) function for photometry that more accurately reflects the response of the human eye at the extreme blue and red ends of the spectrum than the 80+ year-old function used with many light meters. The differences between the *E1.48* and the older function are not great with continuous spectrum white light but are quite significant when measuring the output of RGB LED luminaires—just the kind of equipment we use!

ANSI E1.34, Entertainment Technology—Measuring and Specifying the Slipperiness of Floors Used in Live Performance Venues, was approved by the ANSI Board of Standards Review Friday, 8 March 2019. It was published the following Monday. It describes a very simple drag-sled for measuring the slipperiness of a performance floor, and two procedures to use with the sled. One uses standardized stainless steel feet on the sled to give a coefficient of friction number that can be used to describe the floor in a general

A call for members

ESTA's TSP works to maintain a balance of the interests represented by the volunteers on the working groups to help ensure that the standards developed are for the benefit of everyone: the people who make equipment, the people who sell or rent it, the people who specify it, and the people who use it. To do this, periodically the TSP issues a call for new members in particular interest categories. At this time, the following working groups are looking for voting members in the noted interest categories to help balance the interests in the working group.

Control Protocols: General interest, dealer/rental companies, designers

Electrical Power: Custom-market producers, designers, general interest

Event Safety: Performing artists, insurance companies

Floors: Custom-market producers, designers, dealer/rental companies

Fog and Smoke: All categories except users.

Followspot Position: Custom-market producers, dealer/rental companies, mass-market producers

Photometrics: Dealer/rental companies, designers, general interest, users

Rigging: Designers

Stage Machinery: Users, dealer/rental companies

Voters in the Technical Standards Program are required to attend meetings and to vote on letter ballots. Membership in ESTA or any other organization is not a requirement for participation in ESTA's Technical Standards Program, but there is a $100 a year per person participation fee—a flat rate, regardless of voting status or the number of working groups a person joins. The fee is levied to help defray the costs of running the TSP, which has always run a deficit. There is a scholarship fund, with an initial endowment from Chris Kaiser, to help those who would like to participate for whom the participation fee would be a hardship. More information about becoming involved in the Technical Standards Program and links to application forms are available at http://tsp.esta.org.

way. The second procedure measures the slipperiness with a performer's shoe sole materials. *ANSI E1.34* was written to shorten arguments about floors that are too slick or not slick enough, or that were "fine" until someone mopped it.

These new editions are available at https://tsp.esta.org/freestandards at no cost, the free download being made possible by the generosity of ProSight Specialty Insurance—"a gift to the industry from ProSight," says insurance broker Neil Huff. There are also available for purchase for $40 and $15 respectively from ANSI and IHS.

A new project

ESTA's Rigging Working Group has approved the start of a project to draft a new standard, **BSR E1.67, Design, Inspection, Maintenance, Selection, and Use of Hand-Operated Chain- and Lever-Hoists for the Entertainment Industry**. The standard is to cover pretty much what the title says. These type of hoists are widely used in the entertainment industry to lift and suspend loads overhead. Currently, ASME standards *B30.16* and *B30.21*, which cover hand-operated chain- and lever-hoists, are not relevant to how these hoists are used in the entertainment industry. Having a standard covering these type of hoists as they are specifically used in the entertainment industry, will help to make the industry safer by documenting the practices that are widely acceptable and agreed-upon by the entertainment industry user—plus it may avoid some hassles with AHJs only familiar with the *B30* standards.

Anyone interested in working on this project can do it in either or both of two ways:

1. look for the document to be posted in public review and comment then, or
2. join the Rigging Working Group to help work on drafting the text.

If you are interested in joining the Rigging Working Group or any other working group, please see "A Call for Members" accompanying this story. ■

Karl G. Ruling is ESTA's Technical Standards Manager. He also serves as *Protocol*'s Technical Editor. Karl can be reached at karl.ruling@esta.org.