

The continuing adventures of ESTA's TSP



IN THE 1950S, when North American television was only in black-and-white, the *Mysterious Doctor Satan* enlivened Saturday morning TV with episodes in The Copperhead's struggle to thwart Doctor Satan's schemes for world domination. At the end of "Death Closes In," The Copperhead (the hero Bob Wayne in disguise), tries to save Professor Scott, but falls through a trap door into a locked cell. Doctor Satan throws a knife switch, starting a motor to drive the cell walls together to crush our hero. Will Bob Wayne escape? Find out in "Crack-Up!"

ESTA's Technical Standards Program isn't as exciting as that old Republic serial on Saturday mornings, but longer running (now in its 23rd year) and probably more useful. Here's an update of what has happened with some of the projects in the TSP since the last installment of *TSP News*.

Recently published

These standards are done—for now (everything is subject to revision; the only constant is change)—and you can download them for free, thanks to the sponsorship of ProSight Specialty Insurance, from the ESTA website at <http://tsp.esta.org/freestandards>.

ANSI E1.4-1 – 2016, Entertainment Technology—Manual Counterweight Rigging Systems, was approved by ANSI's Board of Standards Review on October 11 and is now published. The old *ANSI E1.4*

standard has been broken into three related parts, with this part one being the most direct heir of the old *E1.4* standard. The two other parts are for dead-hung battens and manually powered winch systems.

ANSI E1.15 – 2006 (R2016), Entertainment Technology—Recommended Practices and Guidelines for the Assembly and Use of Theatrical Boom and Base Assemblies, was approved by ANSI's Board of Standards Review on September 23 and is now published. It's a reaffirmation of the standard first published in 2006. (That's what "– 2006 (R2016)" means.) The standard sets minimum specifications for the assembly and use of variable and fixed-height luminaire support devices, commonly referred to as "boom and base assemblies."

ANSI E1.22 – 2016, Entertainment Technology – Fire Curtain Safety Systems, was approved on October 11, and it too is now published and on the ESTA TSP website. It's a revision of the 2009 standard, revised to better align it with the requirements stated in *NFPA 80*. The most interesting change, if not the most important, is that there is no reference to fusible links other than a clause telling the reader that they don't work as intended; they are no longer required for fire safety curtain systems in *NFPA 80* or *E1.22*.

ANSI E1.31 – 2016, Entertainment Technology – Lightweight Streaming Protocol for Transport of DMX512 Using

ACN, was approved October 11. It describes a mechanism to transfer DMX512A packets over a TCP/IP network using a subset of the ACN protocol suite. It's a revision of the 2009 standard, and includes DMX universe synchronization.

ANSI E1.40 – 2016, Recommendations for the Planning of Theatrical Dust Effects, was approved September 16. It's a revision of the 2011 standard, with words added to warn against deflagration as well as explosion with flammable dusts.

ANSI E1.41 – 2016, Recommendations for the Measurement of Entertainment Luminaires Utilizing Solid State Light Sources, and **ANSI E1.55 – 2016, Standard for Theatrical Makeup Mirror Lighting**, were both approved on September 16. Both are revisions to add the Fidelity Index (R_f) rating, as defined in *IES TM-30-15, IES Method for Evaluating Light Source Color Rendition*, for reporting or specifying color rendering. CRI is the commonly used measurement, but works very poorly with narrow-band emitters and is not well with wide-band white-light LED sources. The Fidelity Index (R_f) is better.

In public review now

As I write this, five ESTA standards are in public review. The reviews certainly will be over by the time you read my words, but this list will give you an idea of what we are working on. In alphanumeric order they are:

What "BSR" means

The draft standards as well as standards have "BSR" or "ANSI" prefixes before their alphanumeric designations. "BSR" stands for "Board of Standards Review," and means that the document is a draft intended to be an American National Standard. It is not an American National Standard—not yet. It's a draft. When it becomes an approved standard, the "BSR" goes away, and "ANSI" is put in its place.

The alphanumeric designation of a standard or draft standard, the letters following "BSR" or "ANSI," is its identity. The title of a standard is a rough description of what it covers; the alphanumeric designation is what ANSI uses to track a document. The name of a draft standard can be changed—and we have done this—without making a substantive change that triggers a public review, as long as the new name is not so radically different that it misleads the reader as to the scope of the document.

BSR E1.24 – 2012 (R201x), Entertainment Technology – Dimensional Requirements for Stage Pin Connectors (a reaffirmation). E1.24 is a configuration standard for mating male and female pin connectors. The electrical reliability and flammability requirements for pin connectors are outside the scope of this standard and would be covered by other standards. This document started as a USITT standard, but that got very little traction in the market, so USITT gave it to ESTA to make it into an American National Standard. Even with that status, it took a number of years for this standard to be adopted by industry, but now it has been. UL uses this standard for checking the intermateability of connectors from different manufacturers.

BSR E1.26 – 2006 (R201x), Entertainment Technology – Recommended Testing Methods and Values for Shock Absorption of Floors Used in Live Performance Venues (a reaffirmation). This document sets out the energy absorption requirements for floors in venues used for live performances, and the methods for testing them. The standard was originally published in 2006 and was last reaffirmed in 2012.

BSR E1.37-7 – 201x, Additional Message Sets for ANSI E1.20 (RDM) – Gateway and Splitter Configuration Messages (new standard). BSR E1.37-7 – 20xx provides additional Get/Set Parameter Messages for use with the *ANSI E1.20 Remote Device Management* protocol and BSR E1.33 RDMnet protocol. This document contains messages relating to configuring RDMnet gateways, managed splitters, and proxy devices.

BSR E1.50 – 201x, Entertainment Technology – Requirements for the Structural Support of Temporary LED, Video and Display Systems (a new standard). The scope of this draft standard covers temporary installations of large format modular display systems, LED, video, and other self-illuminating display structures not otherwise addressed by existing standards. The scope of this standard includes planning and site preparedness, assembly and erection, suspension and safety of components, special access requirements, use and dismantling of these systems.

BSR E1.56 – 201x, Entertainment Technology – Rigging Support Points (a new standard). This draft standard applies to stationary rigging points that are intended to be permanent. It provides minimum requirements for the design, fabrication, installation, inspection, and documentation of these rigging points for their use to support rigging loads.

New projects

As of this writing, ESTA has formally filed three new standards-drafting projects with ANSI. Materially affected parties are invited to become involved, either by commenting on draft documents in future public reviews or by joining the relevant working groups to help draft the documents. The projects are:

BSR E1.6-2 – 201x, Entertainment Technology – Design, Inspection, and Maintenance of Electric Chain Hoists for the Entertainment Industry (revision of *ANSI E1.6-2-2013*). E1.6-2 is part of the E1.6 powered entertainment rigging suite of standards. It covers the design, inspection, and maintenance of serially manufactured electric link chain hoists having capacity of 2 tons or less and used in the entertainment industry. This standard does not cover attachment to the load or to the overhead structure. Controls used for multiple hoist operation are excluded from the scope of this part of the standard. BSR E1.6-2 is a project of the Rigging Working Group.

BSR ESG1.X – 201x, Event Safety Guide: A Guide to Health, Safety, and Welfare at Live Entertainment Events in the United States (new standard). This draft standard is a joint project between the Event Safety Alliance and ESTA, and we have created a new working group, the Event Safety Working Group, to develop it. The now-published first edition of *The Event Safety Guide* is an excellent reference to help people plan and execute safe events, but it

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For its existence, ESTA's Technical Standards Program depends on the support of companies and individuals who make undirected donations. If you would like to help support the Technical Standards Program in its work, please consider joining the Investors in Innovation. Information about becoming an Investor in Innovation is available at <http://tsp.esta.org/invest>. See <http://estalink.us/0t07s> to see the list of companies and individuals who already have become supporters. As we go to press, 52 companies and individuals have made multi-year pledges to help support the TSP; they are listed at <http://estalink.us/j47ap>.

Since April 15, 2013, all of the standards published by ESTA's Technical Standards Program are available to download free of charge at <http://www.tsp.esta.org/freestandards>, thanks to the sponsorship of ProSight Specialty Insurance. At present, 52,314 standards have been downloaded with a retail value of \$1,625,195.00 by 9,128 users (as of December 17, 2016). The ProSight sponsorship has been invaluable in making ESTA's standards part of the way the entertainment industry does business and talks about our industry with other standards organizations and government. However, this sponsorship is not enough to fund ESTA's TSP by itself. Please join with ProSight and your colleagues to help fund the TSP by visiting <http://tsp.esta.org/invest>, typing in an amount, and clicking on "Donate Now."

needs expansion and revision for a second edition. Furthermore, American National Standard status would help the *Guide* gain wider recognition and more people using it. Indeed, its Project Initiation Notification System announcement published in ANSI's Standards Action netted the first response to such an announcement in the TSP's 23-year history: a letter from the National Fire Protection Association noting the NFPA standards that are referenced in the current *Event Safety Guide* and other NFPA standards that touch on some of the topics in the *Guide*. Simply announcing the project

has enhanced the visibility of the *Guide* in the AHJ community.

BSR E1.60 – 201x, Guidelines for the Use of Rakes in Live Performance Environments (new standard). This project is to develop a standard to provide guidance for the use of raked stages in live performance environments. The standard intends to define a rake, and to offer guidance for production elements to mitigate the risks for the protection of actors and technicians. This is a project of the Floors Working Group.

A cliff-hanger

At the July 2016 Rigging Working Group meeting a motion was made to accept **BSR E1.47, Entertainment Technology - Recommended Guidelines for Entertainment Rigging System Inspections**, as an American National Standard. The draft standard is not so much about rigging systems as it is about the process of inspecting them: inspector qualifications and responsibilities, the scope and frequency of inspections, the content of the rigging inspection report, and related information concerning the inspection process. The letter ballot to approve the motion timed-out in late November. Fifty-seven of the 68 voters voted "Yes" or "Yes with Comments." Two voted to abstain. Seven didn't get around to voting. Two voted "No with comments." Those No votes have triggered a lengthening of the ballot period to allow voters to consider the objections and to change their votes to defeat the motion, if they feel that the arguments are persuasive. The objections suggest making substantive changes to the draft standard. If those changes are made, the standard would have to go through the public review process again before another motion to accept it as an American National Standard could be considered.

Many of the voting procedures in ESTA's Technical Standards Program are different from what people are accustomed to—with the letter ballots for final approval of a draft standard being an extreme. People are used to votes in which there is one ballot, and

the majority of votes cast determines the winner. It may be that only a few people voted, or it may be that the majority was only ahead by one vote. Voting doesn't work that way with ESTA's American National Standards. First, with a motion to approve a document as an American National Standard, our goal is consensus. Unanimity would be preferred, but is often not possible, so we settle for consensus. That has the operational definition of being Yes votes for more than 50% of the entire voting body and for at least two-thirds of those who actually voted. (The Yes votes must out-number the No votes two-to-one.) Second, if there are comments offered with a "Yes with comments" vote or reasons offered to support a "No with reasons" vote, those comments and reasons have to be sent back to the voting body, and an opportunity given for people to change their votes after they consider those comments or reasons. Thus, doubts and objections have a mechanism by which they can be considered and by which they can't be ignored—and that often means that we are not finished with a project, although the end is tantalizingly close.

At the end of "The Human Bomb," the Copperhead, in hot pursuit of Doctor Satan's henchmen on a winding mountain road, drives into a wall of flame. His car explodes at the edge of the cliff. Does the Copperhead survive? How? Find out in episode five, "Doctor Satan's Man of Steel."

Does the motion to accept BSR E1.47 as an American National Standard pass the vote? Or, is it modified once again and offered for a fourth public review? Or, do the voters in the Rigging Working Group get discouraged at ever reaching consensus and abandon the project? Find out in the next *TSP News* column in *Protocol*—or join the Rigging Working Group to find out first-hand. ■



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Call for members

ESTA's TSP works to maintain a balance of interest 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:** Custom-market producers, general interest
- **Electrical Power:** Designers in particular but also any other categories except users
- **Event Safety:** Performing artists, event insurance companies, event equipment manufacturers
- **Floors:** Custom-market producers, dealer/rental companies
- **Fog and Smoke:** Custom-market producers, dealer/rental companies, and designers
- **Followspot Position:** Designers, dealer/rental companies
- **Photometrics:** Custom-market producers, dealer/rental companies, users
- **Rigging:** Custom-market producers, designers
- **Stage Lifts:** Users, mass-market producers

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. More information about becoming involved in the Technical Standards Program and links to blank application forms are available at http://tsp.esta.org/tsp/working_groups/index.html.