

## The labors of July

THE MORGAN LIBRARY IN MANHATTAN recently showed “Now and Forever: The Art of Medieval Time,” which explored the way time and the calendar were represented during the Middle Ages. It wasn’t simple. Religious calendars overlaid the Julian Calendar, and the religious calendars were complicated by liturgical celebrations that were a combination of *temporale* (feasts of time) and *sanctorale* (feasts of the saints). Various tools were used to keep track of the year, with one being a perpetual calendar of concentric wheels. Around and around goes the year, with events recurring—but not exactly the same way they did before—and this gives me my lede for TSP News for this issue. We’ve gone through our March meetings, we are heading for our July meetings; some things are done, some are yet to do, and there will be new tasks. Here is a snapshot, written in May, as we prepare for the Labors of July.

### Three standards published

Three ESTA standards were approved recently by the ANSI Board of Standards Review. They can be purchased from ANSI and IHS at <https://webstore.ansi.org/> and <https://global.ihs.com/> respectively, or they can be downloaded at no cost from the TSP website at [tsp.esta.org/freestandards](https://tsp.esta.org/freestandards). The no-cost download is made possible by the sponsorship of ProSight Specialty Insurance.

**ANSI E1.6-2 – 2018, Design, Inspection, and Maintenance of Electric Chain Hoists for the Entertainment Industry**—This document 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. It is a revision of the 2013 edition. The changes are not many, but they are substantive.

**ANSI E1.14 – 2018, Entertainment Technology—Recommendations for Fog Equipment Manuals**—ANSI E1.14 is designed to establish guidelines for manufacturers to provide to the user the necessary information required for the safe and responsible use of fog equipment. This is a revision of the 2013 edition, with changes made to clarify what information needs to be hard-copy with the equipment and what might be located on a website or in



The image for July from a calendar page in the *Très Riches Heures du Duc de Berry*, a French Gothic manuscript.

some other format.

**ANSI E1.35 – 2013 (R2018), Standard for Lens Quality Measurements for Pattern Projecting Luminaires Intended for Entertainment Use**—ANSI E1.35 describes a method for measuring stage and studio luminaire lens quality with particular emphasis on contrast and perceived sharpness. It also offers a way for presenting these results on paper in a format that is readily understood by a typical end-user. Without this standard, there is no way to describe how clearly a stage lighting instrument projects an image, other than by showing a person with the actual instrument and gobo. The download from the [tsp.esta.org](https://tsp.esta.org) website is a ZIP file that includes an EPS graphic file of the test pattern in three common gobo sizes. This is a reaffirmation of the 2013 standard.

### ESTA standards in public review

None! ¡Nada! Gar nichts! 没有!

I last reported that 13 documents were in public review. Those reviews all timed out; there is nothing posted on the ESTA website for review as of now, but I can give you an idea of what happened.

A few received no comments, a few received a “Yes” response or two, and some received hundreds of objections. No comments or a simple “Yes” means those drafts are ready to be moved forward, unless their working groups decide to change them. The others will take months or years of work to resolve the objections.

**BSR E1.1, Construction and Use of Wire Rope Ladders**, describes the construction and use of wire rope ladders in the entertainment industry in order to promote worker safety. It received one comment: Yes. It can move forward if the Rigging Working Group wants.

**BSR E1.6-1, Powered Hoist Systems**, is a revision of the 2012 edition. It’s for the design, manufacture, installation, inspection, and maintenance of powered hoist systems used in theatres. The standard is being revised to clarify some of the language and refine some requirements. During public review, the draft received one “Yes,” one “Yes with comments,” and two “No with reasons” responses. Those will take some work to resolve, but that should take no more than a meeting cycle or two.

**BSR E1.8, Loudspeaker Enclosures Intended for Overhead Suspension—Classification, Manufacture, and Structural Testing**, addresses the requirements for flown speaker enclosures to help ensure that they don’t break and rain parts on concert-goers. It addresses only the structural characteristics relating to the suspension of the enclosure, and not how the speakers sound. The draft received one “No with reasons” from an employee of a speaker manufacturer, and that commenter has applied to join the Rigging Working Group. Good!

**BSR E1.11, USITT DMX512-A—Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories**, is the American National Standard version of USITT’s DMX512, first published almost 30 years ago. The existing *E1.11* standard is being considered for reaffirmation without any substantive changes. No comments were received, and the Control Protocols Working Group has voted to reaffirm it as an American National Standard. Richard Nix has filed a BSR-9 form with ANSI to have it approved.

**BSR ES1.19, Safety Requirements for Special Event Structures**, is one part of a larger suite of ES1 standards relating to special event safety being developed—which is essentially a project to make a suite of American National Standards derived from the Event Safety Alliance’s *Event Safety Guide*. This draft standard covers any temporary structure used for special events (e.g., concerts, award shows, dramatic plays) not otherwise addressed by existing standards, codes, or legislation. We received two “Yes with comments” responses, both suggesting that we cross-reference other relevant standards in this draft. That gives the Event Safety Working Group some work to do, but not a lot.

**BSR E1.30-11, EPI 33 – ACN Root Layer Protocol Operation on TCP**, is part of the *E1.30* suite of standards documents that specify how conforming implementations are to operate in a particular

environment or situation in order to guarantee interoperability. This part of *E1.30*, EPI 33, specifies the operation and formats for the ACN Root Layer Protocol operating on TCP. It received one “Yes” response, so it is good to go if the CPWG wants.

**BSR E1.33 – 201x, Entertainment Technology – x(RDMnet) – Message Transport and Device Management of ANSI E1.20 (RDM) over IP Networks**, describes a method of implementing *ANSI E1.20 Remote Device Management* messaging over an IP-based network. BSR E1.37-7 is closely tied to this document—so closely that the Control Protocols Working Group asked that the two draft standards be offered for public review together. BSR E1.33 received one “Yes,” one “Yes with comments,” and two “No with reasons,” covering 12 pages. These will take some time to resolve, and will delay BSR E1.37-7.

**BSR E1.37-4, Remote Device Management over DMX512 Networks – File Transfer Control with Firmware Upload Capabilities**, is part of the E1.37 project. It provides developers of RDM responder hardware with a standard for firmware upload using the basic communication structure provided by the *ANSI E1.20 RDM* standard. This was the first public review of E1.37-4, and it netted one “Yes” and four “No” responses, with 394 reasons for the “No” responses taking 31 pages to detail. It will take a long time to resolve these issues.

**BSR E1.37-7, Additional Message Sets for ANSI E1.20 (RDM) – Gateway & Splitter Messages**, provides additional Get/Set Parameter Messages for use with the *ANSI E1.20 Remote Device Management* protocol. This document contains messages relating to configuring managed splitters, proxy devices, et cetera. In public review, it got two “Yes” responses and two “Yes with comments” running four pages.

**BSR E1.42, Design, Installation, and Use of Orchestra Pit Lifts**, covers the design, construction, operation, inspection, testing, maintenance, alteration, and repair of permanently installed orchestra pit lifts and their associated parts, spaces, et cetera, in a theatre or a similar place of public entertainment. This is a revision of the standard that was published in 2016. The revision is being done “to see what lessons learned over the last year could be used to improve the standard.” The public review netted no responses, so there’s nothing to resolve.

**BSR E1.46, Standard for the Prevention of Falls from Theatrical Stages and Raised Performance Platforms**, is a revision of the 2016 standard, prompted by OSHA revising its standards so an inspector cannot cite an employer simply for not having a guardrail across the front of a stage. OSHA’s revision doesn’t make it okay for people to fall into the orchestra pit, but it does make an unprotected stage edge an item for discussion rather than automatically an item for a fine. No one commented during public review, and the Floors Working Group is now voting to accept it as an American National Standard.

**BSR E1.56, Rigging Support Points**, provides guidance for the design, fabrication, installation, and testing of permanent and

## A call for members

We have the staff; we need the volunteers. They are the people who do the work to write standards, to consider comments, and to rewrite standards.

ESTA's TSP works to maintain a balance of interest 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
- **Electrical Power:** Designers, custom-market producers
- **Event Safety:** Performing artists, event equipment manufacturers, insurance companies
- **Floors:** Custom-market producers, dealer/rental companies
- **Fog and Smoke:** Custom-market and mass-market producers, dealer/rental companies, designers, general interest—all categories except users.
- **Followspot Position:** Custom-market producers, dealer/rental companies
- **Photometrics:** Dealer/rental companies, designers, general interest, users
- **Rigging:** Designers
- **Stage Machinery** (previously called 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. 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://estalink.us/wg>.

temporary rigging points and rigging lugs and their connection to existing building and venue structures. The public review netted one “Yes” response; there are no objections to resolve.

**BSR E1.60, Guidelines for the Use of Raked Stages in Live Performance Environments**, is intended to provide guidance for the use of raked stages in live performance environments. The standard lays out a risk management procedure so that the risks associated with a sloped stage can be assessed and appropriate steps taken to mitigate the risk. No comments were received during the public review.

## Old stuff of note

We have well over 50 standards published and several guidance documents available for free download on our website at [tsp.esta.org/freestandards](http://tsp.esta.org/freestandards). You can buy them from ANSI and IHS if you

want, but a sponsorship from ProSight Specialty Insurance makes it possible for anyone to download the documents from our website for free, thus to read them with a minimal time investment and no monetary investment at all. Check them out! You might find a solution—or a suggestion for a solution—to a problem there.

I recently received an email from a person very concerned about the death of a technician and the hospitalization of two others on March 3 after a backstage room at a theatre filled with carbon dioxide. I don't know what went wrong, but I am sure killing and hospitalizing technicians wasn't an intended part of the show. There are resources available to help people avoid death and injury from carbon dioxide, and some of them dealing with CO<sub>2</sub> in our industry are available for free on our website.

ESTA's *Introduction to Modern Atmospheric Effects* is now in its fifth edition. The first edition was published 22 years ago to give people basic information about theatrical fog technologies: how they work, recognized hazards, and advice on how to address those hazards. One of those recognized hazards is suffocation from carbon dioxide, which is a particular hazard when dry ice or CO<sub>2</sub> dewars are stored in confined spaces, or when low-lying fog effects can cause CO<sub>2</sub> to collect in orchestra pits and trap rooms. The *Introduction* has fairly straight-forward advice for avoiding suffocation. The documents for ESTA's fog testing program, established 16 years ago and also available on the ESTA TSP website under “Safety & Stewardship,” are more specific, giving a method to monitor CO<sub>2</sub> levels using meters. Carbon dioxide meters don't cost much; today I can find meters online that cost less than \$150. That's about a tenth the cost of an ambulance trip to a hospital—the ambulance trip alone.

A broadly distributed email was forwarded to me from a lawyer representing a client who had fallen into the orchestra pit when the client tried to walk across the stage with the lights out. The theatre had a ghost light, but it had been disabled. He was asking anyone who would reply if there was anything written that said you shouldn't leave a stage totally black, thus making it hazardous to a person walking across it.

We don't have a standard that says you have to leave the lights on, but *ANSI E1.46, Standard for the Prevention of Falls from Theatrical Stages and Raised Performance Platforms*, does require you to have a plan to prevent people from falling off the stage, that you implement the plan, and that you review it regularly to make sure it works. The standard also gives some advice on things that can be used to keep people out of the pit. Lighting so people can see the edge of the stage would help, but so would a barrier. When there is no show going on, there is no good reason not to have a barrier; it's not going to ugly-up a show if there is no show. If the stage has a fire safety curtain, leaving that curtain down when there isn't a reason to have it up provides a barrier. In fact, it's required per clause 20.7.1.1 of *NFPA 80 – 2016, Standard for Fire Doors and Other Opening Protectives*, which says, “The fire safety curtain assembly shall be closed at

all times except when there is an event, rehearsal, or similar activity.” The lowered curtain will keep people on stage from going into the pit, and will keep tourists from wandering onto the stage from the house. Plus, if you regularly raise and lower the fire safety curtain, you are likely to find out if it needs repair before you need it to work in an emergency.

You can buy *NFPA 80* from the National Fire Protection Association website for \$54. You can download *ANSI E1.46* and *ANSI E1.22 – 2016, Entertainment Technology — Fire Safety Curtain Systems*, from [tsp.esta.org/freestandards](http://tsp.esta.org/freestandards) for free. Take your pick or do both.

## Staff changes

The staff changes ESTA President Jules Lauve reported in the Spring 2018 *Protocol* (Directions column, “Looking forward, embracing change”) are underway. In that column, Jules announce that Lori Rubinstein will be stepping down from the role of Executive Director of ESTA, with Assistant Technical Standards Manager Erin Grabe taking her place. Richard Nix is taking Erin’s place as Assistant Technical Standards Manager.

Richard Nix officially joined the ESTA staff on May 7. Erin has been teaching Richard what he needs to do to run the TSP, and Richard has been picking up many of the tasks. It has been a long time since I encountered anybody excited about *ANSI BSR-9* forms, but yesterday Richard finished one for the reaffirmation of *E1.11*, *DMX512-A*, and excitedly announced it to Erin and me! You can reach all three of us—Erin, Richard, and me—at [standards@esta.org](mailto:standards@esta.org). ■



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## New York State Society of Professional Engineers Names William Gorlin “Engineer of the Year”

The New York State Society of Professional Engineers (NYSSPE) awarded McLaren Engineering Group’s Vice President and Entertainment Division Chief, William Gorlin, PE, SE, the “Engineer of the Year” award at its annual ceremony on June 15, 2018. With experience that includes some of the world’s largest live theatres, concert touring sets, and amusement attractions, Gorlin is among the top global experts in entertainment engineering.

“From Broadway to Macau to Las Vegas, I’ve been fortunate enough to work on some of the most innovative entertainment projects around the world,” says Gorlin. “As an engineer for more than 30 years, it is an honor to be recognized for my contributions to the field.”

Gorlin’s standout projects include the Dancing Cranes in Singapore, the world’s largest animatronic structure; the two flying stages for Cirque du Soleil’s *KÀ* at the MGM Grand in Las Vegas; work at theme parks including Walt Disney World, Universal Studios, and SeaWorld; and productions and/or renovations in every Broadway theatre in New York City.

Most recently, Gorlin led a team that fully renovated the antique Helen Hayes Theatre and its neighboring St. James Theatre on West 44th Street in New York City as one unified project, as well as substantial renovations and alterations

for the current show at the Lyric Theatre on West 43rd Street.

“As the driving force leading our flourishing Entertainment Division, Bill is well-deserving of this prestigious award,” says Malcolm G. McLaren, President and CEO, McLaren Engineering Group. “This award is a testament to the thousands of world-class entertainment projects he has overseen over his 30-year career.”

Gorlin has been an active member of the ESTA Technical Standards Committee and the Rigging Working Group since 2008. He was instrumental in the development and broadening of the Outdoor Live Event standard *E1.21* as a member of its task group, and was the task group leader for the development of the Performer Flying standard *E1.43*.

A graduate of Cornell University, Gorlin has a Bachelor’s degree in Civil Engineering and a Master’s degree in Structural Engineering.



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