

Minutes
Followspot Position Working Group Meeting
Thursday, 24 January 2008
Dallas/Ft. Worth Airport Marriott South
Ft. Worth, Texas

Presiding chairman: Jack Schmidt; Special Lighting Solutions, representing Ballantyne of Omaha, Inc.;
P; MP

Recording secretary: Karl G. Ruling; ESTA

Members attending:

R. Duane Wilson; George C. Izenour Associates, representing the Amer. Society of Theatre
Consultants; P; G (joined at this meeting)
Chip Purchase; Jones Hall (Foundation for Jones Hall); P; U
Charles I. Swift; Graham, Swift & Company, LLC; P; G
Edwin S. Kramer; I.A.T.S.E. Local 1; P; U
Richard Logothetis; Lycian Stage Lighting; P; MP
Richard J. Nix; Entertainment Structures Group (Steven Schaefer Associates); A; G
Jerry Gorrell; Theatre Safety Programs; O; U
William L. Maiman; I; G

Visitor: Louis Bradfield; Bally's Las Vegas

1 Opening remarks

Jack Schmidt called the meeting to order at 19:03.

2 Patent and Anti-Trust statements

2.1 Patent statement

Jack Schmidt read the following statement aloud to the assembly:

"ESTA intends not to publish any standard that contains protected intellectual property, unless that information can be licensed by anyone for a reasonable fee. ESTA uses a process of open patent and copyright disclosures to implement its intent. ESTA does not conduct patent or copyright searches and does not warrant that its standards contain no protected intellectual property.

"In keeping with the open disclosures policy, I ask if anyone present wishes to notify this working group of the existence of a patent or copyright or other intellectual property that might protect material in a standard being developed by this working group. You need not be the holder of the patent or copyright to notify this working group of its existence."

No protected intellectual property was brought to the attention of the assembly.

2.2 Anti-trust statement

Charles I. Swift, the co-chairman, read the following statement aloud to the assembly:

"The ESTA Board of Directors, the Technical Standards Committee, and the leadership of this working group will reject or nullify any actions that unlawfully restrain trade. Anyone who feels that such an action is being or has been taken is requested to bring that matter to the attention of the chair immediately. Anyone who feels that actions in restraint of trade have been taken and not properly annulled is requested to notify the TSC chair or ESTA president immediately.

"ESTA legal counsel has informed us that violations of the anti-trust laws can have serious consequences. Individuals engaged in certain unlawful conduct can be found criminally liable. An individual convicted of a criminal violation of the Sherman Act may be fined as much as \$1,000,000 and imprisoned for up to ten years. An easy to read pamphlet describing restraint of trade issues is available from the Technical Standards Manager."

Karl Ruling held up some of the easy-to-read pamphlets to show that they were available.

No restraint of trade issues were brought to the attention of the assembly.

3 Attendance & membership

3.1 Introductions

Those present introduced themselves.

3.2 Taking attendance

A blue attendance sign-in sheet was circulated.

3.3 Requirements for membership

Jack Schmidt reminded people that membership in the working group is open to all who are affected by the work of the group. Voting members are required to attend meetings and to vote on letter ballots. Voting members and their alternates may not miss three consecutive meetings without a loss of voting status.

3.4 Determination of quorum

Schmidt asked for a show of hands of voters. He counted them and then announced that we have a quorum.

3.5 Processing of new membership requests

One application had been received:

R. Duane Wilson; George C. Izenour Associates, representing ASTC; P; G

Eddie Kramer moved that Wilson's application be accepted. The motion was seconded and then approved with a show of hands.

The full consensus body during the time of this meeting, including those not present, was:

Name	Company	Representing (This is the sort field.)	Voting status	Int. cat.
R. Duane Wilson	George C. Izenour Associates	Amer. Society of Theatre Consultants	P	G
Jack Schmidt	Special Lighting Solutions	Ballantyne of Omaha, Inc.	P	MP
Chip Purchase	Jones Hall	Foundation for Jones Hall	P	U
Charles I. Swift	Graham, Swift & Company, LLC	Graham, Swift & Company, LLC	P	G
Edwin S. Kramer	I.A.T.S.E. Local 1	I.A.T.S.E. Local 1	P	U
Richard Logothetis	Lycian Stage Lighting	Lycian Stage Lighting	P	MP
Fred Lindauer	Robert Juliat USA	Robert Juliat SA	P	MP
Stephen Vanciel	Stephen Vanciel	Stephen Vanciel	I	U
Shawn Nolan	Entertainment Structures Group	Steven Schaefer Associates	P	G
Richard J. Nix	Entertainment Structures Group	Steven Schaefer Associates	A	G
William L. Maiman	William L. Maiman	William L. Maiman	I	G
		Total votes	10	
		Votes by interest category	0	CP
			3	MP
			0	DR
			3	U
			4	G

4 Approval of minutes from the Thursday, 12 July 2007 meeting

Document FP/2007-9005, see file FPmin07-2007.pdf.

Eddie Kramer moved that the minutes be accepted as written. The motion was seconded and then approved with a show of hands.

5 Approval of agenda

Eddie Kramer moved that the draft agenda be approved. The motion was seconded and then approved with a show of hands.

6 Old Business

None.

7 New Business

There was a discussion of possible resolutions for the comments received on BSR E1.28 during the public review from 30 November 2007 through 14 January 2008.

Jack Schmidt said that he was heartened by the number of constructive comments.

In an effort to respond to the comments that fall into the "general objection" (or shocked and dismayed) categories, Charles Swift felt that it would be appropriate to address the question of scope and procedure: Is this within the scope of the technical standards program? Also, is there a process to stop projects, and, if so, why are we not stopping this one? He also felt that it would be valuable to include language acknowledging specialty design professionals as part of the process in determining follow spot locations, access and amenities.

There was discussion of these points. Karl Ruling pointed to 14.6 in the P&P, which describes how to end a project.

Bill Maiman pointed out that one of the commenters had suggested an informative booklet rather than a standard. The pros and cons were discussed. The public review process used to develop standards is likely to make for a better document. Making it an ANSI project is no more work than not making an ANSI project; the process is the same.

The consensus was, that while we cannot recommend that a design professional be hired, we can add a statement that this document is not a substitute for the services of a design professional.

Karl Ruling offered to take on responding to the general objection comments. He argued that he can't help with the other comments, and making an argument for the usefulness of the TSP is within the marketing work he already does. If he works on these, the rest of the working group can focus on the comments that require their technical expertise. The consensus was that the working group shall accept Ruling's offer.

There was a discussion of the inclusion of metric dimensions on the informational drawings. It was decided to include the SI equivalents as a secondary measurement in parenthesis. Schmidt said he would write the response to Joachim Stoecker's comment that all the measurements should be in metric.

Keith Rigden's comments were discussed:

Typo 4.4.2 "and should not refract in (a) manner..."

Response: Accept. This was a typographical error. We will add the "a."

4.7 Space Planning. Should include language addressing recommended space allocations when utilizing multiple instruments in a shared space so that adjacent spotlights do not interfere with each

other when panning. Designers should be aware of the dimensions of the instruments being utilized. Inadvertent collision during operation could cause serious damage and personal injury. Space required for instrument maintenance should also be considered. This language can reference the included drawings.

Response: Accept. We'll change clause 4.7 as follows:

4.7 Space planning

Followspot positions shall be designed to permit movement of the followspot and operator throughout its complete range of motion without obstructions, including possible obstructions from collisions with adjacent followspots, equipment, or operators. Location and space planning shall consider the relationship of the followspot to the audience, both seated and standing, and of all architectural and structural features of the venue that may interfere with the followspot's intended range of motion. ~~See definition 2.9 above.~~ See ~~appendix~~ the informative Annex for notes and drawings depicting some possible a followspot placed placements in a booth.

There was a discussion of the drawings. Some commenters read the drawings as suggesting that multiple spotlights are recommended. We can add a note that two or more are shown, but that this is not a recommendation.

The general notes that the images are too hard to read we'll deal with by accepting the comments and noting that we will increase the size and clarity of the images. They do need work.

McMackin's comments were discussed. He suggested deleting 4.1.1 and 2.1.2. [SIC. Should be 4.1.2]. These clauses recommend specific tilt angles. He suggested some replacement language. The group felt that his language accurately described the situation, but that it did not help a person decide what the vertical angle should be.

Response. We reject deleting the angle recommendations, but we shall including McMackin's language in addition.

McMackin recommended that we delete the drawings and the toilet.

Response. The drawings are informational only. The toilet is not required in the text.

His general comment that we should abandon the project will be addressed by Karl G. Ruling in dealing with the general negative comments. We will clarify the language so that it is highly unlikely that anyone intelligent enough to successfully run a business will misunderstand the recommendations in the document, and we will work to ensure that the recommendations are good.

Bob Davis's comment about vertical angles was discussed.

Add to the end of 4.1.1 . "In addition, allow for steeper or shallower tilt angles when needed, for example to allow lighting the conductor in the orchestra pit, to allow lighting performers on forestage extensions, or to allow lighting performers on top of tall scenery, all of which are common occurrences." 4.1.2 Pan Angles was qualified in this way, and 4.1.1 should be qualified the same way.

Response: Accept in principle. We do not wish to give specific examples. We shall add: "In addition, allow for steeper or shallower tilt angles when needed."

Add to the end of 4.1.1 "Television lighting tilt angles are critical to the quality of the televised image and differ substantially from lighting angles for non-televised events. Seek the advise of a qualified television lighting specialist in planning followspot tilt angles where television origination is a possibility."

Response: Accept in part. We will add language that says, "Seek the advise of a qualified lighting specialist in planning followspot tilt angles where any special event is a possibility." Television lighting tilt angles are critical, but they are within the range already given. An occasional televised event might need a temporary position, which would be outside the scope of this document.

There was a discussion of the need to define performance area. The consensus was that we needed to do this, and to define it as the space typically used, since performances indeed could be given anywhere in a venue (the lobby, the aisles), but that it is not practical to try to provide followspot positions capable of lighting all of them.

Bob Davis commented 7.2 *Is so weak as to be dangerous. I suggest: "Use of followspots that require non-recirculating forced exhaust of poisonous fumes to outside air is declining, but special exhaust may be required. Follow the codes that apply."*

Response: Reject. There are no followspots now made that create poisonous gas that could exceed permissible exposure levels. None of have been made in the USA for over thirty years.

A.4 Plan and Side View Arena: The diagram shows wire mesh screen in the optical path. In our experience some followspot optics show a shadow or image of even the finest wires, so wires of any diameter should be forbidden in the optical path. With fixed lights the wire shadows are present in the light beam on stage but are not apparent to the eye, but when a followspot moves the stationary wire shadows instantly become plainly visible and very objectionable. The ESTA standard should warn designers about potential problems with wires in the optical path.

Response: We will add a note to 5.4.4 that states that some followspot optics show a shadow or image of even the finest wires, so the use of wire mesh or wire rope may be problem with some followspots.

A.4 Many of the diagrams show a short wall below the followspot window with a note that the height varies. This is one of the most important details in the followspot room, the factors and criteria that bear on the height of the sill should be mentioned in the standard, and in many steep positions there is no wall here at all, the sill is on the floor.

Response: The drawings are informational only, not mandatory. We will make sure that they are clearly marked as informational only. Clause 4.4.1 already deals with the need for an unobstructed path for the light.

A.4 Some diagrams show a toilet adjacent to the followspot position and some do not. The text does not mention toilets. Surely crew toilets are up to the owner and their shop steward and are not a matter for inclusion in an ESTA standard.

Response: The drawings are informational only, not mandatory. We will make sure that they are clearly marked as informational only. There is no requirement in the text for toilets.

4.3.2 Access should include the idea that in all venues the followspot operators come and go during the performance, so if their coming and going would disturb the audience then the means of access to the followspot position should be invisible to the audience.

Response: Reject. This is such a basic circulation issue that any architect should understand this, so additional advice in this document is not needed. By the way, the addition of a toilet near the followspot position will reduce the amount of coming and going by followspot operators during a show, but we are not mandating toilets for the followspot operators.

Annex A.1 gives a conversion of watts to BTU/hr that every mechanical engineer knows by heart already and needn't be duplicated in this standard.

Response: Make no change. This is may be true, but some other commenters liked this information. We will make a change to the informational planning note as follows:

Planning note: For more exact figures (factoring in the xenon power supply, etc.), add 10% to the above numbers for a switching power supply installation, or 30% for high reactance power supply.

The standard does not address the question of followspot quantity, but from the diagrams an unsuspecting architect might mistakenly infer that ESTA intends there to be room for four followspots in the booth. I'm also guessing that the committee decided not recommend a quantity for followspots because it's difficult to do so. I suggest that one of these two things must be done to avoid giving the wrong impression, either: 1) the diagrams must show the space needs for one and only one followspot, or 2) the diagrams can show four but text must then be added to discuss quantity. Lucia di Lammermoor and Francesca da Rimini, for example, both require six, yes six, followspots. And Radio City Music Hall is happy with how many? 12? 24? Nowhere are box boom followspots mentioned. Nowhere is the alternative spot scheme of using two booths, one each side of center line, to give off-center lighting for heavy TV venues mentioned. So I'm afraid as written the standard imposes the average 1960's municipal auditorium followspot booth on everyone, and it absolutely shouldn't.

Response: We will clearly mark the drawings as informational, not mandatory. The number of followspots and the number of followspot positions is a matter to be decided by the client and the design professionals on the project. Our goal is to offer guidance on the design of the followspot positions—however many as the design team decides are needed, to house as many followspots as the design team decides are needed.

The Theatre Projects Consultants combined response was discussed.

Title - Add "front of house" to read "Guidance on planning front of house followspot positions in places of public assembly."

Response: Reject. We see no reason to restrict the document to front of house positions.

1.1 Intent - Change sentence to read "The intent of this document is to define recommended technical guidelines for the placement of followspot positions for proscenium theatres or large venue arenas". This document does not address churches or community centers therefore "places of public assembly" is too broad. Delete "permanent" because the technical guidelines should be the same whether temporary or permanent.

Response: Reject. We see no reason to exclude churches or community centers. We will change 4.1.1 and 4.1.2 to read:

4.1.1 Tilt angles

Followspot positions should be located to provide tilt angles as follows:

In theatres and similar venues, the tilt angle should be at least 25 degrees, but should not exceed 55 degrees.

In arenas and similar venues, the tilt angle should be at least 30 degrees, but should not exceed 55 degrees.

4.1.2 Pan angles

For theatre venues and similar venues, the followspot position should be located to allow the followspot's light beam to reach from one side of the stage or performance area to the other without obstruction.

For arenas and similar venues, the pan angle should be a minimum of 135 degrees, or as necessary to include the entire performance space, whichever is greater.

The users of this document can decide if their particular application is most like a theatre or most like an arena.

We do not wish to enlarge the scope to include temporary installations. There is no reason why a planner of such a position might not use this document, but temporary installations are so varied that it is difficult to deal with them in the same document as one dealing with permanent installations.

1.2 Scope - Delete the word "permanent" (see above). "physical space requirements" - See notes on sketches below.[A note about the sketches - We believe that ESTA's mission in creating the TSP's was to define "technology requirements" and not space planning requirements. Doors, windows, bathrooms and other architectural elements are not needed in a technical guidelines document. We suggest showing plans and sections of followspots only with required angles and clearances.]

Response: Reject. We do not wish to expand this to temporary positions. They would be better dealt with in a separate document. They are too varied for this document. The drawings are not mandatory, and will be clearly marked as such. The windows and doors are concerns of this document in that light must shine through the windows and doors must be large enough to allow the equipment to be moved into position.

2.11 Tilt angle - Delete "downward". Followspots can (and do) light things at or above the horizontal plane.

Response: Accept. James Read had suggested the following, which we have accepted, and this addresses TPC's concern with 2.11:

1. Change 2.11 Tilt Angle to read like "Pan Angle", i.e.

"2.11 Tilt Angle - The included angle formed by the followspot's vertical limits of movement, measured at the followspot's beam centerline."

This would then include those occasional times when followspots are required to illuminate something above the horizontal.

2. Then change 4.1.1 to read:

"In theaters, the downward tilt angle should be . . ."

"In arenas, the downward tilt angle should be . . ."

This would make the document consistent with 1. above.

4.0 Architectural - Replace "architectural design recommendations" with "technical guidelines".

Response: Accept. We will also change the title of 4.0 to "Space And Location" and will change the TOC to show this. We will change the first paragraph to read:

The intent of this section is to provide ~~architectural design recommendations~~ technical guidelines for permanent followspot positions. ~~This section refers to various other reference standards that should be used in conjunction with this standard.~~

In discussion we decided we need to add a disclaimer in the intent that local codes must be followed. This document shall not be used as an argument to violate local codes.

TPC comment:

4.1 Location - How do tilt and pan angles address lighting actors or scenery in the audience areas or above the proscenium? (ie. Phantom of the Opera). We also suggest that a sectional sketch showing angles would help to clarify min and max angles.

Response: We shall add to 4.1.1: "In addition, allow for steeper or shallower tilt angles when needed." We reject adding a sectional sketch showing minimum and maximum angles because we fear that the sketch would confuse anyone not understanding what minimum and maximum angles are, and we also fear that too much specificity in the informational sketches may make them look too prescriptive. Some commenters are concerned that they already are too prescriptive.

4.3.1 Equipment access - Add "and be compliant with all applicable building codes" after "Minimum obstructed vertical clearance should be 72".

Response: We will put this into the intent statement at the beginning of the document.

4.4.1 Size - Sentence reading "Consideration should be given to the placement of the booth window and its impact to the acoustics of the venue", is in conflict with sketches showing glazing at 90 degrees to the floor. Furthermore, we know of no acoustician that would allow operable booth glass. Revise to fixed.

Response: Reject. The pictures are not mandatory. We recommend that acoustics be considered, and that is enough. Some of the theatre consultants on the working group work with acousticians who are willing to accept movable glass, and movable glass is needed in some applications.

4.4.2 Transparency - We suggest the addition of a paragraph describing quality of glass (ie. low iron) to prevent coloring the beam. We suggest adding a paragraph defining seams and mullions. We also suggest adding language describing access to cleaning of the glass.

Response: Accept in part. Change 4.4.2 Transparency to read:

Window glass should not allow any reflection of light back into the eyes of the followspot operator, and should not refract in manner that creates a secondary image, or distorts the light beam. The glass should not color the beam and the need to clean the glass should be considered. There is no need to define seams and mullions as these are words that can be found in a standard dictionary.

4.6 Floor surfaces - Delete "...and without floor openings". TPC sometimes designs followspot booths with cable passes in the floor. Provide clearances to potential floor penetrations instead.

Response: Accept in part. Change to read: " The floor surface should be smooth, and without unprotected openings through which an operator is likely to drop tools or the contents of his or her pockets.

4.7 Space planning - Delete second sentence as redundant. Add new sentence clarifying followspot usage with audience circulation. Delete reference to definition 2.9 above. This is not a temporary position.

Response: In response to Rigden's comment, we have changed the clause, which we think also addresses your concern, to read:

4.7 Space planning

*Followspot positions shall be designed to permit movement of the followspot and operator throughout its complete range of motion without obstructions, including possible obstructions from collisions with adjacent followspots, equipment, or operators. Location and space planning shall consider the relationship of the followspot to the audience, both seated and standing, and of all architectural and structural features of the venue that may interfere with the followspot's intended range of motion. ~~See definition 2.9 above.~~
See appendix the informative Annex for notes and drawings depicting some possible a followspot placed placements in a booth.*

6.4 Data - Delete line "Type 1- no data lines recommended" and add Type 1 to 2 and 3. We often provide Ethernet taps in followspot booths of all sizes as required by program and users. Why limit future flexibility?

Response: Change 6.4 to read:

6.4 Data

Data lines compatible with an extension of the lighting data network may be brought to areas where followspots are used. Data lines should be isolated from the main data lines in a way that electrical malfunctions at the followspot will not adversely affect the data network.

Type 1 - Data lines optional.

Types 2 and 3 – Data lines recommended.

6.5 Booth Lighting - Delete second paragraph that begins "A local switch...." TPC does this switching remotely.

Response: Reject. The followspot operators on the working group strongly feel, based on experience, that local lighting must be locally controlled.

7.4 Heat Load - We don't believe that this paragraph is true. A 2500w Xenon lamp does not produce 2500w of heat. The chart on the next page (Annex A) is useful however, and we would like to see the specs for a 400w HTI lamp added to it.

Response: The paragraph is true, so make no change. Only a small fraction of the input power is projected on to the stage as light, and all of the input power is converted to heat when the douser is closed.

We will add an entry for 400 W conversion to BTUs. It is one quarter the value for 1600 W.

A.3 Miscellaneous notes - "Electrical planning note" - TPC typically provides a panel board in the followspot booth, Therefore the suggestion of oversizing the conduit to the followspot position is not necessary. Please reword the intent of this statement. "In larger booths we....." Who is "we"?

Response: Accept in principle: Change to read: " When new conduit is being run for branch circuits to followspot positions, it is recommended that the size . . . " Also change the last sentence to read:

~~"In For~~ larger booths ~~we often~~ it is recommended that a ~~provide~~ a bus duct be provided to cover potential portable equipment loads, ..."

Jack Schmidt asked that Karl Ruling compile the remaining comments and send them to the group and that I send out the work that has been done here to the group. Then people should write their responses and send them to Richard Nix.

Jerry Gorrell raised some problems with the existing clause 5.3, Fall Restraint Systems. He proposed new language to make it comply with current code.

5.3 Fall Protection, Positioning and Travel Restraint Systems

5.3.1 All followspot positions that contain removable railings, unprotected openings, or that are not otherwise fully enclosed shall require the mandatory use of fall protection, positioning or travel restraint systems per ANSI/ASSE Z359 Fall Protection Code.

5.4 Railings

Except as otherwise permitted, railings shall conform to the requirements of OSHA 1910.23(c)

5.4.1 Removable railings shall require the use of fall protection, positioning or travel restraint systems.

8 Other Business

None.

9 Schedule of future meetings

Jack Schmidt announced that the next working group meeting is scheduled for Thursday, 20 March 2008, 19:00 to 23:00, at the Hilton Americas in Houston, Texas.

10 Changes of voting status

The following voting members have missed the previous two consecutive meetings, and will be moved to observer status if this meeting is also missed:

None

11 Adjournment

Chip Purchase moved that the meeting adjourn. The motion was seconded. The motion was approved with a unanimous show of hands. Jack Schmidt declared the meeting adjourned at 23:08.

Working Group Membership and Contact Information as of 22 February 2008

Name	Company	Representing	Voting status	Int. cat.
R. Duane Wilson	George C. Izenour Associates	Amer. Society of Theatre Consultants	P	G
Jack Schmidt	Special Lighting Solutions	Ballantyne of Omaha, Inc.	P	MP
Cary Feher	CaRyEATIONS	CaRyEATIONS	O	U
Chip Purchase	Jones Hall	Foundation for Jones Hall	P	U
Charles I. Swift	Graham, Swift & Company, LLC	Graham, Swift & Company, LLC	P	G
Edwin S. Kramer	I.A.T.S.E. Local 1	I.A.T.S.E. Local 1	P	U
Thomas Paterson	Lux Populi SA de CV	Lux Populi SA de CV	O	G
Richard Logothetis	Lycian Stage Lighting	Lycian Stage Lighting	P	MP
Fred Lindauer	Robert Juliat USA	Robert Juliat SA	P	MP
Steve Rust	Sachs Morgan Studio	Sachs Morgan Studio	O	G
Stephen Vanciel	Stephen Vanciel	Stephen Vanciel	I	U
Richard J. Nix	Entertainment Structures Group	Steven Schaefer Associates	P	G
John Tedesco	The Phoebus Company, Inc.	The Phoebus Company, Inc.	O	MP
Curtis Kasefang	Theatre Consultants Collaborative, LLC	Theatre Consultants Collaborative, LLC	O	CP
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	O	U
William L. Maiman	William L. Maiman	William L. Maiman	I	G

Key to codes:

P	principal	MP	mass-market producer
A	alternate	CP	custom-market producer
I	individual	DR	dealer or rental company
O	observer	U	user
		G	general interest