

Minutes
Floors Working Group
23 March 2001
Westin Hotel
Long Beach, CA

Chair: Tim Hansen; Oasis Stage Werks; principal; producer
Recording secretaries: Karl G. Ruling and William Maiman, ESTA

1 Opening Remarks

Tim Hansen noted that three voting members were present, announced that we have a quorum, and called the meeting to order at 13:06.

2 Introductions and taking of roll

A chartreuse sign-in sheet was passed. While it was passed, those present introduced themselves.

2.1 Attending:

Members: Keith Sklar; Actors' Equity Association; observer; general interest
Ken Greenwood; Actors' Equity Association; observer; general interest
Bob Dagger; Harlequin floors; principal; producer; (joined at this meeting)
Ted Paget; Jones & Phillips Associates, Inc.; principal; general interest
Tim Hansen; Oasis Stage Werks; principal; producer
Tim Cox; PLASA; principal; general interest
Michael Sean Graves; Rosco Laboratories; principal; producer (arrived at 14:08)

Visitors: Mark Elliott, Walt Disney Corporation
John Mayberry, Assistant Professor, Dept of Theatre, York University

2.2 Requirements for membership

Tim Hansen reviewed the requirements for membership. Membership is open to all who have a material interest in the work of the group. Voting members are also required to attend meetings and participate in votes by letter ballot. Membership in ESTA is not a requirement.

2.3 Processing of new membership requests

Nevin Kleege applied as a principal representing Kleege Industries Inc. in the general interest category. Ted Paget moved that Kleege be accepted as an observer member because his lack of attendance does not indicate a willingness to attend meetings, and that the secretary send a letter to Kleege explaining why he was not accepted as a principal. The motion was seconded. The motion was approved unanimously by a show of hands. Michael Sean Graves was not present for this vote.

Bob Dagger applied as a principal representing the American Harlequin Corporation in the producer interest category. Ted Paget moved that Dagger's application be accepted as a principal. The motion was seconded. The motion was approved unanimously on a show of hands. Michael Sean Graves was not present for this vote.

3 Approval of the minutes of the previous meeting

Ted Paget moved that the minutes from the previous meeting be accepted. The motion was seconded. The motion was accepted unanimously on a voice vote.

4 Call for patents

Tim Hansen read aloud the call for patents:

“ESTA intends to publish no standard that contains protected intellectual property, unless that property can be licensed by anyone for a reasonable fee. ESTA uses a process of open patent

disclosure to implement this intent. ESTA does not conduct patent searches and does not warrant that its standards contain no protected intellectual property.

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

No patent or copyright issues were brought to the attention of the chair.

5 Anti-Trust Statement

Tim Hansen read aloud the anti-trust statement:

"The ESTA Board of Directors, the Technical Standards Committee, and the leadership of this working group will reject or nullify any actions that restrain trade. Anyone who feels that an action restraining trade is being or has been taken is requested to bring the 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 any member of this working group may be found individually liable for any action that restrains trade taken by this working group. An individual convicted of a violation of the Sherman Act may be fined as much as \$100,000 and be imprisoned for up to three years. An easy to read pamphlet describing restraint of trade is available from the Technical Standards Committee."

No anti-trust issues were brought to the attention of the chair.

6 Approval of agenda

Tim Cox moved that the agenda be approved. Bob Dagger seconded the motion. It was accepted unanimously on a voice vote.

At this point in the meeting, Ted Paget asked that his voting status be changed from principal to observer. His request was granted by acclamation.

The voting body for the rest of the meeting was thus:

Name	Company	Representing	Voting status	Interest category
Tim Hansen	Oasis Stage Werks	Oasis Stage Werks	principal	producer
Gary Justesen	Oasis Stage Werks	Oasis Stage Werks	alternate	producer
Tim Cox	PLASA	PLASA	principal	general interest
Michael Sean Graves	Rosco Laboratories	Rosco Laboratories	principal	producer
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	principal	user
Steven Wiese	Wenger Corp.	Wenger Corp.	principal	producer
			5 votes	3 producers 1 user 1 general int.

7 Old Business

7.1 Status of BSI testing machine

Tim Hansen reported that the machine to test slippage per BSI 7044: Part 2: Section 2.2 is built but that it has not been used yet. It will be used to test some surfaces and the results will be presented at the July meeting.

A discussion of testing procedures followed this report.

Bob Dagger noted that there are approximately six different testing methods currently being used, most of which are some variety of a pendulum device. The problem with these pendulum testing methods is that the results with different surfaces used for dance all end up in a very narrow range. That is, the great differences perceived by dancers are expressed with this testing method as very small differences in the test result numbers.

Because of this deficiency in current testing methods, Dagger said that American Harlequin was developing a machine that drags a spring-loaded stainless steel pad across the floor test surface. A device similar to "a butcher's hook" (i.e. a spring scale) then provides a measurement of the drag. The device was expected to be finished by Sunday (25 March). Dagger offered to share the machine design and technical data for use by others, and he will report on the details at the July meeting.

The discussion included the notes that the current testing of floors is highly subjective, with different forms of dance and different companies preferring different floors. In addition, men and women performers prefer different floors.

Mark Elliott says that the commonly recommended coefficient of friction for walking is 0.5 or higher. This is what is used by Disney for general walking areas.

7.2 Dr. Evans' studies, et cetera

Keith Sklar distributed three studies relevant to the issues of rake and its effect on performers:

- R. W. Evans, R. I. Evans, S. Carvajal, and S. Perry, "A Survey of Injuries among Broadway Performers," American Journal of Public Health, Volume 86, No. 1, pp. 77- 80.
- R. W. Evans, R. I. Evans, and S. Carvajal, "Survey of injuries among West End performers," Occup. Environ. Med. 1998; 55: 0-0.
- P. B. Wenning and D. O'Connell, "Plantar Stresses Induced by Inclined Surfaces While Standing: A Pilot Study," Medical Problems of Performing Artists, December 1999, pp. 180-186.

Discussion ensued on the interpretation of the studies presented and how to obtain representation from the medical community on the Floors Working Group. Michael Sean Graves asked if we have contacted the International Association of Dance, Medicine and Science. (Website URL is www.iadms.org). Bob Dragger said that Harlequin is a member. Graves also suggested that the Harkness Center for Dance Injuries (www.danceinjury.com) is another source of information and noted that Fay Dilgen is a physical therapist there – or, at least, was when Graves wrote his thesis on dance floors. Tim Hansen said that he is trying to contact Dr. Lonnie Paulus at the orthopedic specialty hospital in Utah.

The consensus was that these issues will be discussed further at the July meeting after the documents have been reviewed by the working group members. Various members will seek to contact dance affiliated medical personnel and review their possible participation on the working group.

7.3 DIN 18032 standard in English

Bill Maiman reported that we're working on having the document translated since an English version from DIN or an authorized version from a testing lab using the standard is not available. John Mayberry offered to check with OISTAT to see if a translation of the DIN standard is available, and Bob Dagger said that he would see if he has a source of an official English version of the DIN standard.

7.4 News from Rosco Italy and Rosco Russia

Michael Sean Graves reported that he had no reports from Rosco Italy and Russia. He said he'll have a report will be presented at the next meeting. The report will be forwarded to the ESTA office for distribution prior to the July meeting.

7.5 Other Standards

Three standards had been distributed to the committee:

- ASTM F355-95, Standard Test Method for Shock-Absorbing Properties of Playing Surface Systems and Materials
- ASTM F2048-00, Standard Practice for Reporting Slip Resistance Test Results
- UL 410, Standard for Safety for Slip Resistance of Floor Surface Materials.

These were discussed briefly, and were not found to be particularly useful.

8 New Business

Sklar suggested that "resilience" on the website lists of tasks should be replaced with "stiffness and energy absorption." This led to a discussion on terminology. No formal motion was made or vote taken, but the consensus was that the working group's Mission Statement should be changed by removing the word "resiliency" and replacing it with the phrase "stiffness and energy absorption." The mission statement would then read as follows, after the "and" is deleted for grammatical reasons:

"The floors working group shall develop or identify standardized methods for testing the stiffness, energy absorption, and slip resistance of performance floors. The working group shall develop recommended values or ranges of values for these parameters to promote safety for workers performing on these floors. The working group shall also develop recommendations for practices for the use of performance floors that will help to maintain the desired properties of the floor. The floors working group shall also develop recommendations for limitations on the amount of floor rake."

This change should be reflected in the ESTA website.

9 Other business

Keith Sklar pointed out that articles had recently been published recently in [Entertainment Design](#) ("Dance Floors," by Bob Dagger) and [Stage Directions](#) ("Stage Flooring: the World Beneath a Performer's Feet," by Rebecca Webber) about stage floors. Sklar suggested that the working group members read them. "Great job on both of them."

10 Schedule for future meetings

Karl Ruling announced that the next meeting is scheduled, for Saturday, July 14, from 08:00 to noon at the Dallas/Ft. Worth Airport Marriott in Irving, Texas.

11 Adjournment

Michael Sean Graves moved that the meeting adjourn. The motion was seconded by Bob Dagger. The motion was accepted unanimously by a show of hands. Tim Hansen declared the meeting adjourned at 15:05.

Floors Working Group Membership List at the End of the Meeting

Name	Company	Representing	Voting status	Int. cat.
Keith Sklar	Actors' Equity Association	Actors' Equity Association	O	G
Ken Greenwood	Actors' Equity Association	Actors' Equity Association	O	G
Fred Allen	Fred Allen & Associates	Fred Allen & Associates	O	U
Edward Paget	Jones & Phillips Associates, Inc.	Jones & Phillips Associates, Inc.	O	G
Nevin Kleege	Kleege Industries	Kleege Industries	O	G
Seth Popper	League of American Theatres and Producers, Inc.	League of American Theatres and Producers, Inc.	O	G
Tim Hansen	Oasis Stage Werks	Oasis Stage Werks	P	P
Gary Justesen	Oasis Stage Werks	Oasis Stage Werks	A	P
Tim Cox	PLASA	PLASA	P	G
Michael Sean Graves	Rosco Laboratories	Rosco Laboratories	P	P
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	P	U
Steven Wiese	Wenger Corp.	Wenger Corp.	P	P

Voting status

- O Observer, non-voting
- P Principal voting on behalf of an organization or company
- A Alternate voting member representing an organization or company
- I Individual voting member representing no entity other than him or herself

Interest category

- G General interest
- U User of floors or flooring products
- P Manufacturer of floors or flooring products