



ANSI E1.34 – 2009 (R2014)

Entertainment Technology  
Measuring and Specifying the Slipperiness of  
Floors Used in Live Performance Venues

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This document was approved as an American National Standard by the ANSI Board of Standards Review on 29 May 2014. It is a reaffirmation of the 2009 edition.

This standard was originally published when the Entertainment Services and Technology Association was operating under the name of PLASA North America. ESTA has reverted to its original name, and this document has been rebranded with the current corporate name and logo. No changes have been made to the contents of the standard.

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## **The ESTA Technical Standards Program**

The ESTA Technical Standards Program was created to serve the ESTA membership and the entertainment industry in technical standards related matters. The goal of the Program is to take a leading role regarding technology within the entertainment industry by creating recommended practices and standards, monitoring standards issues around the world on behalf of our members, and improving communications and safety within the industry. ESTA works closely with the technical standards efforts of other organizations within our industry, including USITT and VPLT, as well as representing the interests of ESTA members to ANSI, UL, and the NFPA. The Technical Standards Program is accredited by the American National Standards Institute.

The Technical Standards Council (TSC) was established to oversee and coordinate the Technical Standards Program. Made up of individuals experienced in standards-making work from throughout our industry, the Council approves all projects undertaken and assigns them to the appropriate working group. The Technical Standards Council employs a Technical Standards Manager to coordinate the work of the Council and its working groups as well as maintain a "Standards Watch" on behalf of members. Working groups include: Control Protocols, Electrical Power, Event Safety, Floors, Fog and Smoke, Followspot Position, Photometrics, Rigging, and Stage Lifts.

ESTA encourages active participation in the Technical Standards Program. There are several ways to become involved. If you would like to become a member of an existing working group, as have over four hundred people, you must complete an application which is available from the ESTA office. Your application is subject to approval by the working group and you will be required to actively participate in the work of the group. This includes responding to letter ballots and attending meetings. Membership in ESTA is not a requirement. You can also become involved by requesting that the TSC develop a standard or a recommended practice in an area of concern to you.

The Floors Working Group, which authored this Standard, consists of a cross section of entertainment industry professionals representing a diversity of interests. ESTA is committed to developing consensus-based standards and recommended practices in an open setting.

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### Acknowledgments

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#### Interest category codes:

[DE] = designer  
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[G] = general interest  
[MP] = mass-market producer  
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## 1 Scope

This standard describes means of measuring and specifying the slipperiness of floor surface materials used by performers in live entertainment venues. The standard is not intended to be applied to normal walking and working surfaces, but only to those floor surface materials used by actors, dancers, and other similar artists when rehearsing or performing.

## 2 Application

This standard offers two procedures for measuring and specifying the slipperiness of floor surface materials used by performers to address particular measurement problems. The two testing procedures are to address two different uses for measurements of floor slipperiness.

The first testing procedure, the [General Testing Procedure](#), is intended to render a number that can be used in comparing the relative slipperiness of floor materials when the friction materials are the floor surface and stainless steel. It is likely to be useful for marketing purposes and for comparisons between floor materials, but it may not be representative of the slipperiness experienced by a performer in a particular situation, since the performer is unlikely to have footwear with soles and heels made of stainless steel.

The second testing procedure, the [Specific Testing Procedure](#), provides a means of rendering a slipperiness number for a floor surface when specific footwear material is contacting it. This procedure may be useful for helping solving problems when a performer reports that a floor is too slippery or too sticky by allowing objective measurement of the slipperiness. Having an objective measurement can help facilitate finding different floor or footwear materials that are less slippery or sticky to satisfy the performer.

Clauses marked with an asterisk have a corresponding explanatory note in Annex A. The note has the same clause number but has an "A." prefix. All the explanatory notes in Annex A are informational and do not add or remove any requirements from this standard.

## 3 Basic Test Equipment

The basic test equipment consists of a dragsled, a spring balance or force gauge, and a push stick, which serves as a means of drawing the dragsled across a sample of floor surface material.

### 3.1 The dragsled

**3.1.1\*** The dragsled shall be a rigid body, approximately 240 mm long by 120 mm wide, with a uniformly distributed mass of 5 kilograms, plus or minus 25 grams.

**3.1.2** The dragsled shall be supported on three cylindrical stainless steel feet, each machined at the tip to provide a flat bearing surface of 7 mm diameter and provided with a chamfer of 2 mm radius to allow the test foot to slide unimpeded across the test piece.

**3.1.2.1\*** The stainless steel feet shall be made of type 304, X5CrNi18-10, or 18/8 stainless steel alloy.