ANSI E1.53 - 2016
Overhead mounting of luminaires, lighting accessories, and other portable devices: specification and practice

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Interest category codes:

CP = custom-market producer
DE = designer
DR = dealer rental company
G = general interest
MP = mass-market producer
U = user

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1 Introduction (informative)

This Standard is being drafted to address a problem that concerns Actors' Equity and its members. The Chief Outside Business Representative for Actors' Equity wrote to ESTA Technical Standards Manager, describing some near-misses with falling lighting equipment, and asking what standards exist or might be drafted to cover the proper rigging of equipment so it does not fall and endanger performers. There is very little now written that would tell anybody hanging lighting equipment how it should be hung and accessories installed, and if a safety cable should be used.

UL 1573, Stage and Studio Luminaires and Connector Strips, has tests for the structural strength of a luminaire and its mounting hardware, and also tests for safety cables and safety chains, but these tests only apply to the manufactured luminaires, not to after-market accessories. Furthermore, the standard says nothing about how a stage technician is to use these mounting devices.

The European standard for stage and studio luminaires, EN 60598-2-17, is similar to the UL standard in that it gives strength requirements for suspension devices, but it goes beyond the UL standard in that it requires a back-up suspension device (e.g., a safety cable) to be provided. However, the C-clamp or other primary mounting is optional—a luminaire can be considered complete even without any mounting device—and it doesn't require anyone to use it or a safety cable.

Luminaire manufacturer's instructions would be expected to tell a person how to safely hang an instrument. However, very few do, and those that do do not cover all aspects of instrument hanging.

Falling equipment is a big problem for the person standing under the equipment when it falls. Furthermore, equipment is falling often enough that actors are worried about it and are complaining to their business representatives. Worry is something that can grow with very little to feed it. Uncontrolled worry is a problem that affects the success of any show. The easiest way to control worry is to remove the source of it—in this case by reducing the frequency of falling equipment and by making it clear what wasn't done but should have been done when equipment does fall.

2 Scope (normative)

This Standard shall apply to the mounting of portable stage and studio luminaires and accessories mounted overhead in stages, auditoriums, and other places of public assembly, and also in film and video studios. It shall also apply to the mounting of portable effects machines such as fog machines, bubble machines, and other devices and loudspeakers of size and weight similar to that of stage and studio luminaires and normally mounted in a similar manner (e.g., mounted with c-clamps, hook-clamps, or similar luminaire suspension hardware).

This Standard does not apply to permanently mounted architectural luminaires or fixtures, nor does it apply to track lighting luminaires that are both supported and powered by electrical contacts that engage power buses inside a lighting track.

3 Definitions (normative)

Accessories: devices that are field-attached to equipment to modify its performance. Examples include barndoors, top-hats, and color changers attached to luminaires, and hoses or fans attached to fog machines.

Intended Load: the total weight that is to be supported by a mounting device. For example, the Intended Load for a C-clamp supporting a luminaire outfitted with a color changer and barndoors would be the sum