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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 Machinery.

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 Rigging 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.
Investors in Innovation, supporters of ESTA's Technical Standards Program

The Technical Standard Program (TSP) is financially supported by ESTA and by companies and individuals who make undirected donations to the TSP. Contributing companies and individuals who have helped fund the TSP are recognized as “Investors in Innovation.” The Investors in Innovation when this standard was approved by ANSI’s Board of Standards Review include these companies and individuals:

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<tr>
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<td>ProSight Specialty Insurance</td>
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<tr>
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<td>Cisco</td>
<td>Robe</td>
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<td>Columbus McKinnon Entertainment Technology</td>
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<tr>
<td>Altman Lighting, Inc.</td>
<td>Rose Brand</td>
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<td>German Light Products</td>
<td>Stage Rigging</td>
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<tr>
<td>JR Clancy</td>
<td>TMB</td>
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<td>McLaren Engineering Group</td>
<td>Tyler Truss Systems, Inc.</td>
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<th>Visionary Leader</th>
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<tr>
<td>About the Stage</td>
<td>John T. McGraw</td>
</tr>
<tr>
<td>B-Hive Industries, Inc.</td>
<td>Mike Garl Consulting</td>
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<td>Scott Blair</td>
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<td>Reed Rigging</td>
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<td>Reliable Design Services</td>
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<tr>
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<td>Alan Rowe</td>
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<tr>
<td>Tracey Cosgrove &amp; Mark McKinney</td>
<td>David Saltiel</td>
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<td>Doug Fleenor Design</td>
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<td>Neil Huff</td>
<td>Steve Terry</td>
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<td>Hughston Engineering Inc.</td>
<td>Theatre Projects</td>
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<td>Interactive Technologies</td>
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<td>Lankey &amp; Limey Ltd.</td>
<td>Vertigo</td>
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<td>Jules Lave</td>
<td>Steve A. Walker &amp; Associates</td>
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<td>Brian Lawlor</td>
<td>Westview Productions</td>
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<td>Limelight Productions, Inc.</td>
<td>WNP Services</td>
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<tr>
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<td>Barbizon Lighting Company</td>
<td>NAMM</td>
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<td>Golden Sea Professional Equipment Limited</td>
<td>Rosco Laboratories</td>
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<td>IATSE Local 728</td>
<td>Texas Scenic Company</td>
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<td>IATSE Local 891</td>
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**INVESTOR** ($1,500–$4,999; 20–100 employees/members)

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<td>American Society of Theatre Consultants</td>
<td>Morpheus Lights</td>
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<td>Area Four Industries</td>
<td>Niscon Inc.</td>
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<td>BMI Supply</td>
<td>Syracuse Scenery and Stage Lighting</td>
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<td>City Theatrical Inc.</td>
<td>Tomcat</td>
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<td>InterAmerica Stage, Inc.</td>
<td>XSF Xtreme Structures and Fabrication</td>
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<td>Lycian Stage Lighting</td>
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<td>INVESTOR ($200–$499; &lt;20 employees/members)</td>
<td>Benjamin Cohen, Bright Ideas Custom Electronics Inc., Bruce Darden, Guangzhou Ming Jing lighting Equipment Co., K5600, Inc., Indianapolis Stage Sales &amp; Rentals, Inc.</td>
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<td>Ian Foulds, IATSE Local 873, Harlequin Floors, Thern Stage Equipment</td>
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**Planned Giving donor:** Ken Vannice

All donations to the TSP support the Technical Standards Program in general and are not directed to or for the benefit of any particular technical standard project or any Working Group working on any particular standard or project.
Acknowledgments
The Rigging Working Group members when this document was approved by the working group on 04 September 2018 are shown below.

Voting members:
Jesse Adams; Rose Brand; DR
Tracie Allen; Tyler Truss Systems; CP
Dana Bartholomew; Silver State Wire Rope and Rigging; DR
William Beautyman; Limelight Productions, Inc.; DR
Ian Bevan; Walt Disney Parks & Resorts; U
Tyler Bland; Walt Disney Parks & Resorts; U
William Bradburn; Aerial Arts, Inc.; U
Bennett Brian; Reed Rigging Inc.; DR
Joseph Champelli; Entertainment Project Services, LLC; DE
Jay Cid; R&M Materials Handling / Stagemaker; MP
Dan Culhane; Wenger Corp.; MP
Bruce Darden; InterAmerica Stage, Inc.; CP
Jonathan Deull; JSD Projects LLC; U
Brad Dittmer; Stage Labor of the Ozarks; U
Russ Dusek; I Weiss; MP
Don Earl; Earl Girls, Inc.; DR
Nick Fleming; Columbus McKinnon Corp.; MP
Jack Gallagher; R&M Materials Handling / Stagemaker; MP
Mike Garl; Mike Garl Consulting LLC; DE
Sarah Gascoine; PSAV Presentation Services; U
Ethan W. Gilson; Entertainment Rigging Services, LLC; U
William B. Gorlin; M. G. McLaren, P.C.; G
Jerry Gorrell; Theatre Safety Programs; G
Pat Grenfell; Hoist Sales & Service; DR
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Robert Haycock; UC Berkeley; U
Jeremy Hodgson; Cirque Du Soleil, Inc.; U
Donald Hoffend, III; Avista Designs, LLC; G
Joseph Jeremy; Show Distribution Group, Inc.; CP
Ted Jones; Grand Stage; U
Christine L. Kaiser; Syracuse Scenery & Stage Lighting Co., Inc.; DR
Theresa Kelley; Xtreme Structures and Fabrication; MP
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Bill McIntyre; Show Distribution Group, Inc.; CP
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Steven Michelman; Entertainment Project Services, LLC; DE
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Rick Montgomery; Motion Laboratories, Inc.; MP
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Chris Moulton; Contract Services Administration Trust Fund; U
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Will Todd; Area Four Industries; MP
Elmer Veith; Total Structures; MP
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Mike Webb; Motion Laboratories, Inc.; MP
Charlie Weiner; Eurotruss; MP
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Marty Wesstrom; Mountain Productions Inc.; DR
Jeff Wilkowski; Thern, Inc.; MP
R. Duane Wilson; Amer. Society of Theatre Consultants; DE
Max A. Wilson; Applied Electronics; MP
Stephan Jon Wood; Tait Towers Manufacturing LLC; CP
Paul Zagajeski; Wenger Corp.; CP

Observer (non-voting) members:
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Matthew Antonucci; Contract Services Administration Trust Fund; U
Brent Armstrong; Alpine Rigging & Structural Design; CP
William Ian Auld; Auld Entertainment; U
Robert Barbagallo; Solotech Inc.; DR
Roger Barrett; Star Events Group Ltd.; DR
Roy Bickel; Roy Bickel; G
Keith Bohn; Keith Bohn; G
David Bond; Kinesys; MP
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Robert Dean; ZFX, Inc.; CP
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James M. Garner; Walt Disney Studios; G
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Michael P. Gosenski; Rigging Systems LLC; U
Pete Happe; Pete Happe; G
Sean Harding; Port Lighting Systems; G
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Ford Sellers; Chauvet Lighting; MP
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Knut Skjonberg; Skjonberg Controls, Inc.; CP
Todd Spencer; PSAV Presentation Services; U
Stewart Stephens; JSAV; DR
Ross Taylor; Taylor & Taylor Associates; G
James Tomlinson; Team Tomlinson; G
Stephen Vanciel; IATSE Local 631; U
Patrick Wallace; PSAV Presentation Services; U
Drew Wending; PSAV Presentation Services; DR
Mike Weston; PSAV Presentation Services; DR
Greg Williams; PSAV Presentation Services; G
Nicholas Gill Wright; I.A.T.S.E. Local 16; G
Jeong Sik Yoo; Ghost LX; DE

Interest category codes:
CP = custom-market producer
DR = dealer rental company
MP = mass-market producer
DE = designer
G = general interest
U = user
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1 Scope
This standard shall apply to the construction and use of wire rope ladders in the entertainment industry.

The entertainment industry includes, but is not strictly limited to, musical productions, live concerts, live theater, film production, video production, corporate events, trade shows, and broadcast production.

Wire rope ladders are distinguished from other ladders by having flexible rails, and are used in applications where ladders with rigid rails are impractical to use, or where a rigid ladder would pose a greater danger to the user or other workers in the area. Wire rope ladders are used for vertical access by personnel to lighting trusses, temporary follow spot platforms, and other areas of a temporary nature. Such areas cannot be practically served by rigid ladders because the floor underneath is not level or clear, the elevated work area is not rigidly fixed in place, or the ladder must coil for storage or to allow clear access beneath the elevated work area.

This standard does not address the construction or use of fixed or portable ladders with rigid rails.

2 Purpose
This standard is designed to:

(a) prevent most injuries and to minimize the remaining injuries to workers by prescribing safety requirements;

(b) provide direction to owners, employers, and any other individuals such as supervisors who are responsible for wire rope ladders; and

(c) guide governments and other regulatory bodies in the development and enforcement of the appropriate safety directives concerning wire rope ladders in entertainment venues.

3 New and Existing Installations
(a) Effective Date. The effective date of this standard for the purpose of defining new and existing installations shall be one year after its date of issuance.

(b) New Installations. Construction, installation, inspection, testing, maintenance, and operation of equipment manufactured after the effective date of this standard shall conform with the mandatory requirements of this volume.

(c) Existing Installations. Inspection, testing, maintenance, and operation of equipment manufactured prior to the effective date of this standard shall be done as applicable, in accordance with the requirements of this standard.

It is not the intent of this standard to require replacement of existing equipment. However, when an item is being modified, its performance requirements shall be reviewed relative to the current Standard. If the performance differs substantially, the need to meet the current requirements shall be evaluated by a competent person selected by the owner (or user). Recommended changes shall be made by the owner (or user) within one year of the evaluation.

4 Mandatory and Advisory Rules
Mandatory rules are characterized by the word “shall.” Advisory statements use the word “should.”