BSR E1.4-2 – 202x
Entertainment Technology – Statically Suspended Rigging Systems

Approved by the ANSI Board of Standards Review on [Insert Date]

Rig/2015-2023r5a

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Voting members:

Observer (non-voting) members:

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 GENERAL

1.1 Scope
This document addresses statically suspended rigging systems permanently installed in performances spaces, places of assembly, and other areas used for entertainment purposes where not covered by other ANSI Entertainment Technology standards. This standard intends to establish minimum performance criteria, recommendations and guidelines that can be used for installation, use, maintenance and inspection purposes.

1.2 Purpose
This standard is intended to establish minimum requirements for statically suspended rigging systems to safeguard health, safety and general welfare.

1.3 Application
This standard applies to the design and installation of permanently installed static rigging entertainment equipment including but not limited to traverse track, lighting positions, audio equipment, loudspeaker, pipe grids, exhibits & displays, video equipment, projection screens, and acoustical treatments.

1.4 Alternative Designs
This standard is not intended to prevent alternative designs, materials or technology. Alternative designs, materials or technology shall comply with the intent of this standard, as deemed applicable by a qualified person.

1.5 Exclusions

1.5.1 This standard does not apply to the building or other existing structure from which the rigging system is suspended.

1.5.2 This standard does not cover rigging systems designed to support dynamic loads such as powered hoist systems or aerial performers.

1.6 References
The following documents are listed for informational purposes. Only specifically noted sections of these documents will be incorporated into this standard by means of a reference.

ANSI E1.2 - *Design, Manufacture and Use of Aluminum Trusses and Towers*
ANSI E1.4-1 - *Manual Counterweight Rigging Systems*
ANSI E1.8 - *Loudspeaker Enclosures Intended for Overhead Suspension - Classification, Manufacture and Structural Testing*
ANSI E1.47 - *Recommended Guidelines for Entertainment Rigging System Inspections*
ASME B30.26 *Rigging Hardware*
National Association of Chain Manufacturers, *Welded Steel Chain Specifications*

2 DEFINITIONS

2.1 Batten. A pipe, tube, or other singular structural shape that is secured to the suspension media for the purpose of connecting loads to the supporting structure.

2.2 Design factor. (a) A ratio of the design load limit to the yield strength of a material or component; (b) A ratio of the design load limit to the ultimate strength of a material or component where the material does not plastically deform prior to failure.

2.3 Design load. The maximum anticipated load that will govern design parameters.

2.4 Fly bars. Metal brackets or frames used for the suspension of speaker cabinets or video walls.

2.5 Load carrying device. The component(s) of the suspension system that connect a suspended load to the suspension media (e.g. batten, truss, hook).

2.6 Peening. An intentional use of a punch, chisel or other tool to slightly deform or foul the machined surface (e.g. threads on a bolt of nut) preventing the fastener from completely loosening.

2.7 Qualified person. A person who by possession of a recognized degree or certificate of professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work.

2.8 Safety line assembly. A redundant connection from the structure to the load to help prevent the load from falling in the event of a catastrophic failure within the load path.

2.9 Static load. The maximum force applied to a component of a suspension system resulting from normal intended operating conditions while the system is at rest. This includes the apportioned fractions of the working load limit (WLL) and self-weight, including that of load carrying devices, lifting media and other hardware.

2.10 Supplemental structure. Secondary structural framing spanning between the primary building framing used to support a suspended rigging system.

2.11 Suspension media. Any component(s) used in tension to extend distance between the structure and the load.

2.12 Working load limit (WLL). The maximum rated capacity of a component or system during normal operating conditions, as determined by the component manufacturer, or as determined by a qualified person for a specific application.

3 DESIGN

3.1 All equipment shall be designed to comply with the standards listed herein and any applicable recognized codes or any applicable jurisdictional regulation.

3.2 Statically suspended rigging systems shall be designed by a qualified person. The qualified person shall determine when a registered design professional is required to specify the rigging system and its impact to the supporting structure. Supporting structure shall have adequate strength to support the design loads from the rigging system. (See Annex Reference)

3.3 Design Factors: All statically suspended rigging systems shall be calculated based upon the weakest component. Supplemental structure added as part of a statically suspended rigging system shall use a minimum design factor of 3 to 1 based on design load against ultimate breaking strength and a design factor of 2:1 shall be used based upon the design load against yield, as applicable. Attachment hardware and vertical suspension media shall have a design factor of 5 to 1 based on design load unless otherwise determined by a risk assessment conducted by a qualified person.

3.4 The system designer shall identify the working load limit (WLL) for the suspension system and its components. In installations when variable loads will be applied to a load carrying device(s), maximum allowable loads for each suspension point and maximum allowable uniformly distributed loads shall be provided.

3.5 The allowable load on pre-engineered components intended for use as a beam (such as strut channel and truss) shall be determined from the component manufacturer’s published load tables and design factors.

3.6 System shall be designed to facilitate ease of inspection and maintenance of all components.

3.7 Component selection shall consider the anticipated environmental conditions of the installation; this includes but is not limited to, seismic, temperature, humidity, wind, snow, ice, ultraviolet exposure, harsh and corrosive environments.

3.8 All single point suspensions (from attachment through load carrying device) shall incorporate a redundant point or safety line assembly as an additional safety feature unless otherwise determined in a risk assessment by a qualified person considering the single point failure hazard. The safety line shall be as short as possible to minimize the shock load on the components and anchor point. Anchor points or supporting structure shall be

designed to withstand the anticipated shock load imposed by the safety line assembly. See section 7 for inspection criteria.

3.9 Suspension media shall not contact any part of the building structure, adjacent systems, or other equipment not intended for contact. (See Annex Reference)

3.10 Installations shall be in compliance with all applicable codes.

3.11 Low clearance obstructions and protrusion hazards shall be marked for the safety of personnel. Protrusion hazards shall not occur in public areas. (See Annex Reference)

4 COMPONENTS

Components of statically suspended rigging systems may be classified as A) attachments, B) suspension media, and C) load carrying devices. In some instances, an individual component may overlap into multiple classifications.

4.1 General

Component assemblies shall withstand all design loads without deformation or damage.

4.1.1 All statically suspended rigging system components shall contain rated, traceable hardware throughout the load path of the system.

4.1.2 Any custom fabricated component shall be designed by a qualified person. The qualified person shall determine when a registered design professional's review is required.

4.1.3 All welding shall be performed in accordance with applicable American Welding Society standards.

4.1.4 Fasteners

4.1.4.1 Unless otherwise specifically noted, fasteners shall have a minimum SAE J429 Grade 5 or be appropriately rated for the intended application.

4.1.4.2 Threaded fasteners shall have nuts of equivalent grade or rating.

4.1.4.3 Fasteners shall be self-locking or secured by alternate means to prevent loosening.

4.1.4.4 Fasteners shall be installed in accordance with manufacturer's instructions.

4.1.4.5 Attachments made through slotted, elongated, or oversized holes (more than 1/16" over the fastener diameter), shall use appropriate flat washers.

4.2 Attachments

4.2.1 Wall Attachments

4.2.1.1 Threaded pipe connections such as couplers, elbows, flanges, etc. are not permissible along the load path.

4.2.1.2 Cast couplers, elbows, flanges, etc. not designed for rigging applications may be permitted when used solely to stabilize movement such as horizontal sway. Such items shall not be used in the tension load path. Any such use shall be reviewed by a qualified person.

4.2.2 Beam Clamps

4.2.2.1 Design

4.2.2.1.1 All beam clamps shall be installed according to the manufacturer's instructions.

4.2.2.1.2 Double flange beam clamps shall be used whenever possible. All double flange beam clamps shall use a mechanical locking or adjustable style clamp.

4.2.2.2 Installation

4.2.2.2.1 In cases where bridled suspension is required, single flange beam clamps shall only be used when the resultant load bears into the beam.

4.2.2.2.2 In some installations it may be necessary to prevent incidental horizontal movement of the beam clamp along the beam. Slip resistance of beam clamps shall not be solely dependent on friction.

4.2.2.2.3 Scissor-type adjustable beam clamps shall be secured by alternate means to prevent loosening.

4.2.3 Eye Bolts and Eye Nuts

4.2.3.1 Shoulder eyebolts or swivel lifting rings shall be used for all off axis loading and de-rated according to the manufacturer's specifications. Such attachments shall be seated and torqued appropriately.

4.2.3.2 Open hooks and bent eye bolts shall not be used.

4.2.3.3 Eyebolts and eye nuts shall incorporate a thread locking method (e.g. jamb nut, lock washer and nut, thread locking adhesive or peening).

4.2.3.4 Eyebolts without shoulders and eye nuts shall only be used for in-line loads and shall not be subjected to any side loads.

4.2.4 Other Clamps

4.2.4.1 All clamps shall be permanently marked with the manufacturer's identification or information shall be indicated in the system reference documents as required in section 6.3 Manuals.

4.2.4.2 Clamps shall be properly sized and fully secured to the suspension device.

4.2.4.3 Clamps shall be used in accordance with the manufacturer's recommendations.

4.2.5 Shackles

4.2.5.1 All shackles shall be forged carbon or alloy steel permanently marked with the manufacturer's identification, size and load rating.

4.2.5.2 Screw pin shackles shall be provided with a redundant fixing means to prevent pin rotation.

4.2.6 Quick Links

4.2.6.1 All quick links shall be permanently marked with the manufacturer's identification, size, and load rating.

4.2.6.2 Quick links shall be used with the major axis in-line with the load path and oriented so that the coupling nut threads closed in a downward direction. The coupling nut shall thread down until fully engaged.

4.2.7 S-Hooks. S-hooks shall not be used in rigging systems covered by this standard.

4.2.8 Threaded Fasteners and Concrete & Masonry Anchors

4.2.8.1 All bolted connections shall be secured by through-bolting unless reviewed and approved by a qualified person. Pre-engineered products shall not require engineering review providing that design loads are within the product's specifications and hardware is assembled in accordance with the manufacturer's specifications.

4.2.8.2 Building structure (beams, braces, purlins, angles, tube, et cetera) shall not be drilled for through-bolting unless reviewed and approved by a registered design professional.

4.2.8.3 Lag bolts, wood screws, and sheet metal screws shall only be used under the recommendation of a qualified person and installed in accordance with the manufacturer's recommendations.

4.2.8.4 Installation and use of concrete and masonry anchors shall be done in accordance with manufacturer's instructions and specification.

4.2.9 Wire Rope and Chain Slings

4.2.9.1 Roundslings shall not be used for permanent installations. (See Annex Reference)

4.2.9.2 Wire rope slings shall comply with 4.3.1 of this standard.

4.9.2.3 Chain slings shall comply with 4.3.2 of this standard.

4.3 Suspension Media

4.3.1 Wire Rope

4.3.1.1 Wire rope shall be sized for the application by a qualified person based on the manufacturer's rating for minimum breaking strength.

4.3.1.2 Wire rope shall be protected from damage.

4.3.1.3 Wire rope shall be loaded in tension only.

4.3.1.4 Excluding terminations, wire rope shall conform to a minimum D:d ratio of 8:1 on all bends or wraps around other objects.

4.3.1.5 Terminations

4.3.1.5.1 All wire rope eye terminations shall use metal thimbles that shall be sized in accordance with the wire rope diameter.

4.3.1.5.2 Wire rope clips shall be installed according to the manufacturer's instructions and using the specified quantity for the cable size.

4.3.1.5.3 Wire rope clips shall be forged steel. Malleable wire rope clips shall not be permitted.

4.3.1.5.4 Swage-type wire rope fittings shall be selected and applied in accordance with the fitting manufacturer's recommendations, based on the rope material, construction type and environmental considerations.

4.3.1.5.5 Alternative termination methods are acceptable so long as they meet the intent of this standard.

4.3.2 Chain

4.3.2.1 Unused links shall move freely and not be captured or restricted.

4.3.2.2 Usage and D:d ratio shall be approved by the chain manufacturer.

4.3.2.3 Chain shall be loaded in tension only.

4.3.2.4 Weldless chain shall not be used.

4.3.2.5 Loading along the minor axis shall not be permitted (e.g. Chain run over a hard edge). (See Annex Reference)

4.3.2.6 Chain – *Welded Steel Chain Specifications* as published by the National Association of Chain Manufacturers shall govern chain selection and use. For overhead suspension (static loads) a load rated chain shall be used.

4.3.2.7 All chain shall be carbon or alloy steel.

4.3.2.8 All chain shall be permanently marked with the manufacturer's identification and grade or as specified in section 6.2 of this standard.

4.3.3 Threaded Rod

4.3.3.1 Threaded rod shall comply with section 4.1.4 of this standard.

4.3.3.2 Threaded rod shall only be used in straight tension.

4.3.3.3 Statically suspended rigging systems shall be stabilized to prevent the bending of threaded rod.

4.3.3.4 Bending or other deformation of threaded rod shall not be permitted.

4.3.3.5 Welding of threaded rod shall not be allowed as the primary method of attachment unless approved by a registered design professional.

4.3.4 Fiber Rope

4.3.4.1 Fiber Rope shall not be used as a load-bearing component of permanently installed statically suspended rigging systems.

4.3.4.2 In architecturally sensitive applications and where design may necessitate fiber rope aesthetics, fiber rope may be used as a cover concealing a load bearing wire rope core. Only the strength of the wire rope shall be considered in the design.

4.3.5 Supplemental Structure

4.3.5.1 Components including but not limited to I-beams, angle iron, strut channel, and square tube may be mounted to the building structure to accommodate suspension points. All components used as supplemental structure shall meet the design requirement of this standard.

4.3.5.2 The structural component(s) shall be rated with a minimum design factor of 3:1 based upon the design load against ultimate breaking strength and a design factor of 2:1 shall be used based upon the design load against yield, as applicable.

4.3.5.3 Bolts used for the attachment of load bearing components shall be a minimum grade 5 and incorporate a thread locking method (e.g. jamb nut, lock washer and nut, thread locking adhesive or peening) unless otherwise specified by the manufacturer.

4.3.6 Turnbuckles

4.3.6.1 All turnbuckles shall be forged carbon steel or alloy steel and permanently marked with the manufacturer's identification and size.

4.3.6.2 Turnbuckles shall only be used for in-line loads.

4.3.6.3 No part of the turnbuckle shall be replaced with common hardware regardless of grade.

4.3.6.4 Turnbuckles shall be provided with a redundant fixing means to ensure they hold position.

4.3.7 Forged Rings

4.3.7.1 All forged rings shall be permanently marked with the manufacturer's identification, size and working load limit.

4.3.7.2 Forged rings shall be used with the load path resulting on the major axis, according to manufacturer's recommendations.

4.3.7.3 Forged rings should have load angle markings.

4.4 Load Carrying Devices

4.4.1 Typical Batten

4.4.1.1 The typical batten shall be fabricated using materials that support the design loads in accordance with the requirements of this standard.

4.4.1.2 The number of splices in a finished batten length shall be minimized as much as possible. Batten splices shall be constructed in a manner that retains at least the same strength as the unspliced batten material. The use of threaded pipe fittings shall not be permitted as a splicing method.

4.4.1.3 Battens shall be protected against corrosion.

4.4.1.4 The battens shall be capable of supporting at minimum 45 kg/m (30 lbs/ft) of uniformly distributed load (UDL). Battens shall be capable of sustaining a point load of 45 kg (100 pounds) at mid-span between any two suspension points with a maximum span deflection of 1/180 of the span.

4.4.1.5 Battens shall be suspended in a manner to avoid single catastrophic failure unless otherwise determined in a risk assessment by a qualified person.

4.4.2 Alternate Batten Construction

4.4.2.1 Alternate batten and splicing designs that meet the intent of this standard shall be permitted. (See Annex Reference)

4.4.2.2 Battens intended for lower design loads shall be permitted, provided that the batten design, loading and support conditions are approved by a qualified person.

4.4.2.3 Maximum deflection for a uniformly distributed load or a concentrated point load shall not exceed 1/180 of the span distance between adjacent suspension points.

4.4.2.4 Engineering specifications for all truss-batten systems shall be developed to meet the performance criteria of the specific application. Aluminum truss systems shall comply with ANSI E1.2, *Entertainment Technology – Design, Manufacture, and Use of Aluminum Truss and Towers.*

4.4.3 Pipe Grids

4.4.3.1 Pipe grids shall be adequately braced against lateral movement to resist incidental side loads from normal equipment, maintenance operations and seismic forces. Acceptable bracing includes direct anchorage to side structures, vertical or diagonal bracing to the supporting structure. The lateral load resistance should be a minimum of 200 Lbs.

4.4.3.2 Cross pipes shall be installed above supporting pipes when possible. If cross pipes must be installed below supporting pipes, appropriately rated hardware shall be used.

4.4.3.3 Pipe intersections shall be secured from lateral and rotational movement utilizing appropriate connection hardware.

4.4.3.4 Pipe intersection hardware shall be capable of transferring the intended vertical and horizontal loads between the pipes.

4.4.4 Traverse Track (See Annex Reference)

4.4.4.1 All traverse track shall have load rating equal to or greater than the total design load.

4.4.4.2 Traverse tracks shall be adequately supported to carry working loads including operating forces. (See Annex Reference)

4.4.4.3 End stops shall prevent carriers from being able to fall or otherwise become dislodged from the track.

4.4.4.4 Traverse track hardware shall use lock washers, lock nuts, or other means to prevent unintentional loosening.

4.4.4.5 Tracks shall be suspended in a manner to avoid single catastrophic failure unless otherwise determined in a risk assessment by a qualified person.

4.4.5 Electrical Raceways and Plugging Strips

4.4.5.1 Unless specifically designed to carry loads, electrical raceways and plugging strips shall not be considered as a load-bearing component of the load path. Where they are designed to be load-bearing, they shall meet or exceed the design requirements of the applicable sections of this standard as determined by a qualified person.

4.4.5.2 Electrical raceways and plugging strips shall be included as a connected load when determining the system's capacity.

4.4.6 Audio Enclosures

4.4.6.1 Flown or suspended loudspeaker enclosures shall comply with the current *ANSI E1.8 Entertainment Technology-Loudspeaker Enclosures Intended for Overhead Suspension-Classification, Manufacture and Structural Testing* standard.

4.4.6.2 Suspension of loudspeaker enclosures shall utilize two or more suspension points identified by the manufacturer unless otherwise determined in a risk assessment by a qualified person considering the lack of redundancy hazard. All suspension hardware shall be rated to support the design load.

4.4.6.3 Enclosures using carry handles as the primary means of suspension shall not be permitted unless the carry handles are designed, tested, and documented as rigging points by the enclosure manufacturer.

4.4.6.4 Brackets, fly bars, frames, or other support structures for audio enclosure groupings shall be designed and manufactured for the intended use.

4.4.7 Video Equipment

4.4.7.1 General

4.4.7.1.1 Video Equipment including but not limited to projectors, CRT/Plasma/LCD/LED displays or monitors, projection screens, and video tile arrays.

4.4.7.1.2 Frames and mounts shall be installed so that the video equipment cannot become dislodged from the frame or mount if bumped or shifted.

4.4.7.1.3 Brackets, fly bars, frames, or other support structures for video equipment shall be purpose built for its intended use.

4.4.7.2 Projectors

4.4.7.2.1 Projectors suspended from a mount utilizing threaded schedule 40 or other pipe shall incorporate an appropriately rated and attached safety line.

4.4.7.2.2 Vertical mounts relying entirely on set screws to suspend the projector shall not be permitted without a safety line or backup means of securing the load.

4.4.7.2.3 Projectors not equipped with rigging, suspension, or mounting points shall be suspended in such a way that the projector cannot shift out of the suspension media in any direction.

4.4.7.3 CRT/Plasma/LCD/LED Displays and Monitors and Tile Walls

4.4.7.3.1 Video displays suspended from a mount utilizing threaded schedule 40 or other pipe shall incorporate an appropriately rated and attached safety line. Vertical mounts relying entirely on set screws to suspend the display shall not be permitted without a safety line or backup means of securing the load.

4.4.7.3.2 Brackets, fly bars, frames, or other support structures for video enclosure groupings shall be purpose built.

4.4.7.4 Projection Screens

4.4.7.4.1 Open hooks shall not be used in the suspension of projection screens.

4.4.7.4.2 Pipe or tubing frames for tension screens shall incorporate continuous lengths of framing material where possible. Where continuous material is not possible, spliced framing material shall have at least the same overall capacity, deflection and strength as the component material. Threaded couplers shall not be permitted.

4.4.7.4.3 Framed projection screens shall be supported adequately at regular intervals.

4.4.7.4.4 Roller screens (manual or motorized) shall be suspended using the attachment points provided by the manufacturer.

5 INSTALLATION

5.1 System hardware and components shall be installed under the direct supervision of a qualified person.

5.2 Threaded hardware and fasteners (e.g. bolts, wire rope clips, quick links, clamps) shall be installed in accordance with the designer’s or manufacturer’s recommendations and tightened to meet appropriate torque requirements.

6 LABELING AND MARKING

6.1 Language

All signs or labels shall be in English. If operating personnel are not familiar with English, additional signs or labels in the appropriate language shall be provided.

6.2 Capacities and Sizes

The working load limit, manufacturer's name and grade reference mark (as applicable) shall be permanently displayed on each piece of equipment and hardware. If the hardware or equipment is size-specific (e.g. wire rope clips), the size shall be displayed on the product. Where permanent labeling or marking of individual components is impractical (e.g. wire rope), the working load limit, manufacturer and grade reference information (as applicable) shall be indicated in the system reference documents as required in section 6.3 Manuals.

6.3 Manuals

6.3.1 All rigging installations shall include an operations and maintenance manual (“Systems Manual”) for the system. All unique elements of the particular system shall be clearly detailed. The systems manual shall include as-built drawings, applicable maintenance requirements, servicing guidelines, and a listing of component working load limits.

6.3.2 The system manual shall contain contact information providing the name, address and phone number of the primary system contractor and manufacturers of the system equipment.

6.3.3 The system owner shall keep and maintain a supplemental maintenance log, describing all inspections, modifications and repairs to the system, and identifying the person(s) performing such actions.

7 INSPECTIONS

7.1 General Requirements

7.1.1 All systems shall be visually inspected for proper installation according to the design documents. Qualified persons shall oversee the inspection and testing process, and shall certify that all inspection requirements have been met.

7.1.2 Inspections should comply with ANSI E1.47– 2017, *Entertainment Technology – Recommended Guidelines for Entertainment Rigging System Inspections.*

7.1.3 Inspection of hardware shall comply with ASME B30.26.

7.2 Initial Inspection

All systems shall be inspected after installation and prior to first use and one year after installation. Inspections shall meet the requirements of this section, but additional requirements shall be permitted.

7.3 Regular Inspection

7.3.1 Installed systems components shall be inspected to comply with ANSI E1.47, *Entertainment Technology – Recommended Guidelines for Entertainment Rigging System Inspections*, “Frequency of Inspections Chart” or as determined by a qualified person per the manufacturer's recommendations and applicable code requirements but no less frequently than every 5 years.

7.3.2 Inspection procedures and results shall be documented, and the inspection documentation or report shall be retained by the owner.

ANNEX A
This annex contains informative notes that are not part of the normative requirements of the standard.

A3.2 Building equipment like HVAC units on a roof may be using some or all of the capacity of structural members. All existing loads must be verified before calculations are made. In existing facilities, it is common to have new structure or equipment that has been added but does not appear on the building plans. Structure loading should be reviewed by a registered design professional.

A3.9 In some cases building structure or building mechanical systems may be installed in the path of the suspension media. Conflicts with structural supports, HVAC, electrical, sprinklers and plumbing, et cetera must be resolved with an appropriate method prior to system finalization. Suspension media cannot breast around or bear into obstructions.

A3.11 Examples of marking protrusion hazards.

a) Post signage at the access points to these hazards.
b) Specific hazards should be identified with bright or reflective markings.
c) Apply softeners of non-combustible, compressible material to soften edges.

A4.2.9.1 Roundslings, whether polyester or Galvanized Aircraft Cable (GAC), are not accepted in this standard as they cannot be fully or adequately inspected without removal from the system.

A4.3.2.5 Supplemental protection to the hard edge may be appropriate to increase the D:d ratio to an acceptable level.

A4.4.2.1 Alternate batten construction and splicing should be reviewed by a registered design professional. Finished batten should be capable of supporting the design load without deformation, fracturing, or excessive deflection.

A4.4.4 This standard does not apply to loads (e.g. soft goods, scenic elements) attached to traverse track carrier; however, traverse track attachment to the statically suspended rigging system is considered as covered under this standard.

A4.4.4.2 Anchor points should be appropriately rated for the track size, working load and external dynamic forces on the track. Examples of external dynamic forces could include vertical forces on walk along track and downward pull on the soft goods. For smaller tracks, the anchor point load rating should not be less than 150lbs.