

Minutes
Rigging Working Group
January 21, 2000, 7:00 p.m.
Dallas/Ft. Worth Airport Marriott
Irving, TX

Chair: Mike Garl; James Thomas Engineering, Inc.; Principal; Producer

Recording secretary: Karl G. Ruling, ESTA

Members attending: Richard Nix; Sacramento Theatrical Lighting; Principal; Gen. Interest
Jerry Gorrell; Theatre Safety Programs; Principal; Gen. Interest
Reid Neslage; H & H Specialties Inc.; Principal; Producer
Andrew T. Martin; ATM Group, Inc.; Principal; Producer
Tim Hansen; Oasis Stage Werks; Principal; User
Kent H. Jorgensen; MPS Grips, Local 80; Observer; Gen. Interest
Keith Bohn; Tomcat USA, Inc.; Principal; Producer
Edwin S. Kramer; IATSE, Local 1; Principal; User
Thomas S. Young; J.R. Clancy Inc.; Alternate; Producer
Louis Bradfield; Louis Bradfield; Individual; User
Peter Happe; Walt Disney Imagineering (Walt Disney); Principal; User
Wally Blount; CM Lodestar (Columbus McKinnon); Principal; Producer

1 Opening remarks

The meeting was called to order at 19:10 by Mark Garl. Garl thanked all those who braved the weather for coming.

2 Attendance and membership

2.1 Introduction of those present

Garl asked people to introduce themselves, so they did, proceeding in a counter-clockwise direction around the table.

2.2 Call for quorum we have a quorum

Garl asked voting members to raise their hands, and more than seven did so. (The quorum requirement had been reduced to seven from nine, because seven voting members had lost their voting status due to failure to vote on three consecutive letter ballots.)

2.3 Requirements for Membership

Mike Garl reminded people that every principal member of the working group is required to attend meetings. Any principal member or voting alternate who misses 3 consecutive meetings will have their membership status changed from principal member to observer. This action will be taken as the last item of business at each meeting and recorded in the minutes of that meeting.

Karl G. Ruling reminded people that a requirement to vote on letter ballots is also written into the P&P. Those who miss three letter ballots lose their voting privileges and become observers. Ruling noted that seven members had been changed to observer as a result of non-response to the three letter ballots, despite the warning letter and e-mails that had been sent, specifically warning those who had not voted as the ballot deadlines neared. Those whose voting status has been changed to observer are:

Steve Butner; Aerial Rigging & Leasing
Mark V. Witteveen; Chicago Flyhouse
Ron Fogel and Jason Friedman; Creative Realities
Perry Langstein, International Theatre Consultants

George Stingel; Kleege Industries
Roo Dunn; Roo Dunn
Rocky Paulson and Dean Hart; Stage Rigging, Inc.

3 Processing of New Membership Requests

None had applied, so none were processed.

4 Approval of Minutes from the Previous Meeting

Garl called for any additions or corrections to the draft minutes. Richard Nix moved that we accept the minutes as written. The motion was seconded. The motion was accepted unanimously by a show of hands.

5 ESTA Declarations

5.1 Anti-Trust Statement:

Mike Garl read the following:

"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 maybe 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."

Ruling said he had some anti-trust issues in regard to BSR E1.4 and would bring them up at the time. Mike Garl said he would do the same with some in regard to BSR E1.8

5.2 Call for Patents:

Mike Garl read the following:

"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 disclosures 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 that might protect material in a standard being developed by the working group. You need not be the holder of the patent in order to notify the working group of its existence."

No intellectual property issues were identified by the group.

6 Approval of Agenda

Mike Garl suggested we discuss the definitions of "competent" and "qualified" under "Other business." Jerry Gorrell asked that we discuss the possibility of a floor standard under "New business."

Jerry Gorrell moved we accept the agenda with these two additions. The motion was seconded. The motion was accepted unanimously by a show of hands.

7 Old Business

7.1 ANSI E1.1 - Wire Rope Ladder – Publication details

Karl Ruling said the standard is in print and a handed out order forms. A copy will be sent to each principal of the working group, gratis.

7.2 E1.2 - Aluminum Truss & Towers – Comment Resolution & Revised Draft

Mike Garl presented the proposed comment resolutions. Wally Blount moved that the group accept the resolutions. The motion was seconded. By show of hands, the vote was 12 in favor, with none opposed, and

no abstentions. With 20 voting members now in the group, this constituted a supermajority, and the motion was accepted.

Richard Nix moved that E1.2 (Rig/1997-2000r4), which incorporates the resolutions, be accepted as a standard and forwarded to the TSC for approval. The motion was seconded. by roll call ballot:

Name	Company	Parent Company or organization represented	Voting status	Int. cat.	Accept	Accept in principle	Accept in part	Reject	Abstain
Brad Dittmer	Associated Theatrical Contractors	Associated Theatrical Contractors	P	U					
Andrew T. Martin	ATM Group, Inc.	ATM Group, Inc.	P	P	Y				
Wally Blount	CM Lodestar	Columbus McKinnon	P	P	Y				
Reid Neslage	H & H Specialties Inc.	H & H Specialties Inc.	P	P	Y				
Edwin S. Kramer	IATSE, Local 1	I.A.T.S.E. Local 1	P	U	Y				
Rodney F. Kaiser	J.R. Clancy Inc.	J.R. Clancy, Inc.	P	P					
Jack Suesse	J.R. Clancy, Inc.	J.R. Clancy, Inc.	A	P					
Thomas S. Young	J.R. Clancy Inc.	J.R. Clancy, Inc.	A	P	Y				
Mike Garl	James Thomas Engineering, Inc.	James Thomas Engineering, Inc.	P	P	Y				
Mervyn Thomas	James Thomas Engineering Ltd.	James Thomas Engineering, Inc.	A	P					
Tray Allen	James Thomas Engineering, Inc.	James Thomas Engineering, Inc.	A	P					
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	Jay O. Glerum & Associates, Inc.	P	U					
Andrew Smith	Jeamar Winches Inc.	Jeamar Winches Inc.	P	P					
Chuck McClelland	Jeamar Winches Inc.	Jeamar Winches Inc.	A	P					
Louis Bradfield	Louis Bradfield	Louis Bradfield	I	U	Y				
Tim Hansen	Oasis Stage Werks	Oasis Stage Werks	P	U	Y				
Frederick L. Smith	Olaf Soot Associates	Olaf Soot Associates	P	P					
Tim Cox	PLASA	PLASA	P	G					
Tony Douglas-Beveridge	PLASA Standards Office	PLASA	A	G					
Teddy Van Bommel	PRG Lighting Division	PRG	P	U					
George Sabbi	PRG Lighting Group	PRG	A	U	Y				
Richard Nix	Sacramento Theatrical Lighting	Sacramento Theatrical Lighting	P	G					
Bill Sapsis	Sapsis Rigging, Inc.	Sapsis Rigging, Inc.	P	U					
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	P	G	Y				
Keith Bohn	Tomcat USA, Inc.	Tomcat USA, Inc.	P	P	Y				
Mitch Clark	Tomcat USA, Inc.	Tomcat USA, Inc.	A	P					
Mark Newlin	Tomcat USA, Inc.	Tomcat USA, Inc.	A	P					
John James	Tomcat USA, Inc.	Tomcat USA, Inc.	A	P					
Peter Johns	Total Structures, Inc.	Total Structures, Inc.	P	P					
Ian Coles	Total Structures, Inc.	Total Structures, Inc.	A	P					
Peter Hind	Total Fabrications Ltd.	Total Structures, Inc.	A	P					
Doug Recher	Total Structures, Inc.	Total Structures, Inc.	A	P					
Peter Happe	Walt Disney Imagineering	Walt Disney	P	U	Y				
					12				

This 12, with no negative votes and no abstentions, again constituted a supermajority, and the motion passed.

7.3 E1.4 - Manual rigging systems

7.3.1 Comment resolution vote status report

Karl Ruling presented the results of the letter ballot to accept the comment resolutions (Rig/2000-2004, appended to these minutes). The ballot closed at 3:00 p.m. Wednesday, 19 January 2000. The resolutions were accepted, but there were some dissenting votes with comments that will need to be addressed and resolved.

Richard Nix moved that we accept those comment resolutions that have been accepted without any negative votes or comments to be resolved. The motion was seconded. The motion was accepted unanimously on a voice vote.

Karl Ruling said that in his opinion the draft E1.4 standards document and the public review comment resolutions restrain trade. To support his claim, Ruling drew the working group's attention to the resolution to one of his own comments, number 91 in the comment summary document (Rig/1999-2033). His comment had questioned the prohibition against aluminum swages, and suggested that if a manufacturer says the fittings are designed for overhead lifting, they should be allowed. The task group had responded that the "Prohibition on aluminum sleeves was added at the request of polled manufacturers." Thus, Ruling argued, the task group has polled a group of unknown manufacturers and allowed them to write certain technologies out of the standard, without technical justification, over the objections of an end-user. Ruling stated that this procedure is contrary to ESTA procedures for standards drafting. Ruling also pointed out that there are other instances in which existing products were written out of the standard without offering justifications based on safety concerns.

In general, Ruling said, the standard is a construction-based standard rather than a performance-based standard. It describes the existing products of certain manufacturers, and in the process leaves out other manufacturers' products or future products. The document limits the market and stifles technical innovation without enhancing product safety.

Ruling said that he, as a commentor, was not satisfied with the resolutions to most of his public review comments, and would be formally objecting to them when he receives the official comments resolution document. Comments that have not been resolved to the satisfaction of the commentor must be revisited by the working group, and if they continue to be unresolved become part of the documentation that is forwarded up through the TSC and eventually to ANSI.

Richard Nix moved that we send the comment resolutions that received negative comments during the working group vote to accept the resolutions back to the task group to be re-addressed. Jerry Gorrell seconded the motion. The motion was accepted unanimously on a voice vote.

7.3.2 Revised draft

The revised draft (Rig/1997-2002r4) had been sent to the working group in advance of the meeting, but no motions regarding it were offered.

7.4 E1.6 – Powered Rigging Systems

7.4.1 Comment resolutions

The task group had drafted a new version of the BSR E1.6 document (Rig/1997-2016r2), but it is so thoroughly reworked from the previous version that the task group has not been able to prepare a comment by comment resolution document.

Jerry Gorrell moved that we send the new draft to the commentors with an explanatory letter stating that this is our response to their comments, and that the document has been radically altered and that it will need to be sent for a second public review. The motion was accepted unanimously on a voice vote.

7.4.2 Revised Draft

At the November 1999 working group meeting the group had resolved an objection over sending BSR E1.13 to public review that had been based on the possible overlap in the scope of it and BSR E1.6. The resolution was to compare the two documents when E1.6 was at a point where there was something to compare. At this meeting, now that there is a new draft of E1.6, there was a discussion of this potential overlap. The consensus was that Tom Young and Wally Blount should get together with the drafts of the two documents and see if there is a conflicting overlap in scopes.

7.5 E1.7 - Recommended Practice for Flying Performers

Ruling reported that the public review comment period had closed 5:00 p.m. Eastern Time, December 21, 1999, and that the summary of the comments (Rig/2000-2001) had been distributed to the working group in the first week of January along with the other documents for this meeting. A response from the task group had not yet been received.

7.6 E1.8 - Speaker Enclosures Rigging Standard

Karl Ruling presented the results of the letter ballot to accept the comment resolutions (Rig/2000-2002 is appended to these minutes). The ballot closed at 3:00 p.m. Wednesday, 19 January 2000. The resolutions were accepted, but there were some dissenting votes with comments that will need to be addressed and resolved.

Mike Garl notified that group that a complaint had been received by Karl Ruling and forwarded to the TSC that this standard is being drafted in restraint of trade, and that it's drafting is being controlled by commercial interests. The TSC is dealing with the complaint, but working group members should be keep in mind that it is their diligence that is one of the most important checks against commercial dominance in the standards drafting process.

Peter Happe moved that we accept the resolutions that were accepted unanimously, and that we send the other ones with negative comments to be resolved back to the task group. The motion was seconded. The motion was accepted unanimously on a voice vote.

7.7 E1.10 - Building Structural Requirements

7.7.1 Comment resolution vote status report

Karl Ruling presented the results of the letter ballot to accept the comment resolutions (Rig/2000-2003 is appended to these minutes). The ballot closed at 3:00 p.m. Wednesday, 19 January 2000. The resolutions were accepted, but there were some dissenting votes with comments that will need to be addressed and resolved.

Jerry Gorrell moved that we accept the resolutions that were accepted unanimously, and that we send the other ones with negative comments to be resolved back to the task group. The motion was seconded by Reid Neslage. The motion was accepted unanimously on a voice vote.

7.7.2 New draft document

The draft document had been distributed in advance of the meeting, but was not discussed. Not all the comment resolutions have been fully accepted, so the draft document distributed may be further modified.

7.8 E1.13 - Arena Scoreboards and Speakers

Karl Ruling reported that the TSC had approved the public review. The document is now available on the ESTA website, and will be though most of the day on 11 April 2000.

7.9 Update on British rigging standards

Tim Cox was not present. No report.

8 New business

Jerry Gorrell discussed the stage floor issues raised by Actors Equity in their comments and the possibility of another working group to address this.

By consensus the group decided that a floor project does not belong in this working group. Karl Ruling and Jerry Gorrell will look at assessing the interest from Equity and assembling a working group if it is substantial. Tim Hansen volunteered to be on the group if it is formed.

9 Other business

"Competent" and "qualified" definitions: Mike Garl reported that the TSC voted down adopting standard definitions to be used in all ESTA standards for these things. It was decided it should be left up to the working groups to decide.

10 Schedule for Future Meetings

Mike Garl announced that the next meeting will be at 7:00 p.m. (19:00) on March 22, 2000 in Denver, CO at the Adams Mark Hotel. Garl said he will not be able to attend because of family obligations. He will ask another to chair the meeting.

Garl pointed out that at USITT ESTA is not handling room reservations for the Denver meeting. Attendees need to contact the USITT Housing Bureau in Denver.

The following meeting will be July 14, 2000 in Irving, Texas.

11 Changes of membership status resulting from lack of attendance.

None.

12 Adjournment

By unanimous acclamation the meeting was adjourned at 22:26 (10:26 p.m.)

Rigging Working Group Membership List at End of 21 January 2000 Working Group Meeting

Name	Company	Parent Co./Org Represented	Vot. Stat.	Int. Cat.
Steve Butner	Aerial Rigging & Leasing, Inc. (SB)	Aerial Rigging & Leasing, Inc.	O	P
Jim Fletcher	American Sling Company, Inc.	American Sling Company, Inc.	O	P
Brad Dittmer	Associated Theatrical Contractors	Associated Theatrical Contractors	P	U
Andrew T. Martin	ATM Group, Inc.	ATM Group, Inc.	P	P
Lee J. Bloch	Bloch Design Group Inc.	Bloch Design Group Inc.	O	G
Eric Todd	BML Inc.	BML Inc.	O	P
Paul Tardue	BML Inc.	BML Inc.	O	P
Robert Mullett	Bose Corporation	Bose Corporation	O	P
Joachim Stoecker	CAMCO GmbH	CAMCO GmbH	O	P
Mark M. Witteveen	Chicago Flyhouse Inc.	Chicago Flyhouse Inc.	O	U
Marty Lazarus	Chicago Spotlight, Inc.	Chicago Spotlight, Inc.	O	U
Ted Jones	Chicago Spotlight, Inc.	Chicago Spotlight, Inc.	O	U
Wally Blount	CM Lodestar	Columbus McKinnon	P	P
Jason Friedman	Creative Realities, Inc.	Creative Realities, Inc.	O	G
Ron Fogel	Creative Realities, Inc.	Creative Realities, Inc.	O	G
Harry Donovan	Donovan Rigging, Inc.	Donovan Rigging, Inc.	O	U
Wes Jenkins	Down Stage Right Industries	Down Stage Right Industries	O	P
David M. Campbell	Geiger Engineers	Geiger Engineers	O	G
Paul Brady	Grand Stage Company, Inc.	Grand Stage Company, Inc.	O	U
Reid Neslage	H & H Specialties Inc.	H & H Specialties Inc.	P	P
Delbert Hall	Hall Associates Inc.	Hall Associates Inc.	O	U
Edwin S. Kramer	IATSE, Local 1	I.A.T.S.E. Local 1	P	U

Name	Company	Parent Co./Org Represented	Vot. Stat.	Int. Cat.
Perry Langenstein	International Theatre Consultants	International Theatre Consultants	O	G
Jack Suesse	J.R. Clancy, Inc.	J.R. Clancy, Inc.	A	P
Rodney F. Kaiser	J.R. Clancy Inc.	J.R. Clancy, Inc. (USITT on TSC)	P	P
Thomas S. Young	J.R. Clancy Inc.	J.R. Clancy, Inc.	A	P
Mike Garl	James Thomas Engineering, Inc.	James Thomas Engineering, Inc.	P	P
Tray Allen	James Thomas Engineering, Inc.	James Thomas Engineering, Inc.	A	P
Mervyn Thomas	James Thomas Engineering Ltd.	James Thomas Engineering, Inc.	A	P
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	Jay O. Glerum & Associates, Inc.	P	U
Andrew Smith	Jeamar Winches Inc.	Jeamar Winches Inc.	P	P
Chuck McClelland	Jeamar Winches Inc.	Jeamar Winches Inc.	A	P
John Kaes	John Kaes	John Kaes	O	U
John R. Burgess	John R. Burgess	John R. Burgess	O	U
George Stingel	Kleege Industries	Kleege Industries	O	U
Ian J. Warhurst	Lite Structures (GB) Ltd.	Lite Structures (GB) Ltd.	O	P
Louis Bradfield	Louis Bradfield	Louis Bradfield	I	U
Charles E. Gorgen	Minnesota Crane Corp.	Minnesota Crane Corp.	O	P
Kent H. Jorgensen	MPS Grips, Local 80	MPS Grips, Local 80	O	G
Ted Hickey	OAP Audio Products	OAP Audio Products	O	P
Gary Justensen	Oasis Stage Werks	Oasis Stage Werks	O	P
Tim Hansen	Oasis Stage Werks	Oasis Stage Werks	P	U
Frederick L. Smith	Olaf Soot Associates	Olaf Soot Associates	P	P
Joseph Rapier	Parkhill, Smith & Cooper, Inc.	Parkhill, Smith & Cooper, Inc.	O	P
Patrick Stansfield	Patrick Stansfield Assoc., Inc.	Patrick Stansfield Assoc., Inc.	O	U

Name	Company	Parent Co./Org Represented	Vot. Stat.	Int. Cat.
Roo Dunn	Pennsylvania Convention Center	Roo Dunn	O	U
Peter Letzelter-Smith	Peter Letzelter-Smith	Peter Letzelter-Smith	O	U
Billy Phillips	Phillips Rigging	Phillips Rigging	O	P
Tim Cox	PLASA	PLASA	P	G
Tony Douglas-Beveridge	PLASA Standards Office	PLASA	A	G
Michael Akrep	Polar Focus, Inc.	Polar Focus, Inc.	O	P
Teddy Van Bemmel	PRG Lighting Division	PRG	P	U
George Sabbi	PRG Lighting Group	PRG	A	U
Scott Mohr	R&R Cases and Cabinets	R&R Cases and Cabinets	O	G
Mark Fitch	Renkus-Heinz, Inc.	Renkus-Heinz, Inc.	O	P
Rikki Newman	Rikki Newman	Rikki Newman	O	U
Randall W. A. Davidson	Risk International & Associates, Inc.	Risk International & Associates, Inc.	O	U
Heinz Siller	RST Präsentationssysteme	RST Präsentationssysteme	O	G
Richard Nix	Sacramento Theatrical Lighting	Sacramento Theatrical Lighting	P	G
Bill Sapsis	Sapsis Rigging, Inc.	Sapsis Rigging, Inc.	P	U
Luigi Sbalzarini	Selvolina SNC	Selvolina SNC	O	P
Michael Wood	Slick Systems International (UK)	Slick Systems International (UK)	O	P
Eckart Steffens	SOUNDLIGHT	VPLT	O	G
Jon Lagerquist	South Coast Repertory	South Coast Repertory	O	U
Jerrold S. Tiers	St. Louis Music Inc.	St. Louis Music Inc.	O	P
Dean Hart	Stage Rigging, Inc.	Stage Rigging, Inc.	O	U
Rocky Paulson	Stage Rigging, Inc.	Stage Rigging, Inc.	O	U

Name	Company	Parent Co./Org Represented	Vot. Stat.	Int. Cat.
Richard C. Mecke	Texas Scenic Company	Texas Scenic Company	O	P
Alan Broadhurst	The Broadhurst Partnership	The Broadhurst Partnership	O	P
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	P	G
Ed Nicholas	Theatrical Lighting Systems, Inc.	Theatrical Lighting Systems, Inc.	O	U
F. Robert Bauer	Theatrix Inc.	Theatrix Inc.	O	U
John James	Tomcat USA, Inc.	Tomcat USA, Inc.	A	P
Keith Bohn	Tomcat USA, Inc.	Tomcat USA, Inc.	P	P
Mark Newlin	Tomcat USA, Inc.	Tomcat USA, Inc.	A	P
Mitch Clark	Tomcat USA, Inc.	Tomcat USA, Inc.	A	P
Peter Hind	Total Fabrications Ltd.	Total Structures, Inc.	A	P
Doug Recher	Total Structures, Inc.	Total Structures, Inc.	A	P
Ian Coles	Total Structures, Inc.	Total Structures, Inc.	A	P
Peter Johns	Total Structures, Inc.	Total Structures, Inc.	P	P
Peter Happe	Walt Disney Imagineering	Walt Disney	P	U
Warren A. Bacon	Warren A. Bacon	Warren A. Bacon	O	U

Voting Status

- P Principal voting representative for a company or organization
- A Alternate voting representative for a company or organization
- I Individual representing no organization other than himself or herself
- O Observer; non-voting

Interest Categories

- P Producer (manufacturer) of rigging equipment
- U User of rigging equipment
- G General interest in rigging equipment

Summary of Rigging Working Group Ballot (Rig/99-2034) to Accept Resolutions to 2nd Public Review Comments (Rig/99-2033) of BSR E1.4 (Rig/97-2002r3)

Statement: It was moved and seconded at the Rigging Working Group meeting on November 17, 1999 to approve the suggested resolutions to the second public review comments (Rig/99-2033). It was moved that there shall be a separate question for each suggested resolution.

Question: Do you accept the proposed resolutions found in Rig/99-2033 to the numbered comments? [Supermajority of 14 to pass.]

Ballot closed: 3:00 p.m. ET, 19 January 2000

Key: Y = Accept. 1 = Accept in principle. 2 = Accept in part. N= Reject. A = Abstain or question skipped.

Name	Representing	Vote stat.	Int. cat.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Steve Butner	Aerial Rigging & Leasing, Inc.	P	P															
Brad Dittmer	Associated Theatrical Contractors	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Andrew T. Martin	ATM Group, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mark M. Witteveen	Chicago Flyhouse Inc.	P	U															
Wally Blount	Columbus McKinnon	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ron Fogel	Creative Realities, Inc.	P	G															
Reid Neslage	H & H Specialties Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Perry Langenstein	International Theatre Consultants	P	G															
Rodney F. Kaiser	J.R. Clancy, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mike Garl	James Thomas Engineering, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Andrew Smith	Jeamar Winches Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
George Stingel	Kleege Industries	P	U															
Louis Bradfield	Louis Bradfield	I	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Tim Hansen	Oasis Stage Werks	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Frederick L. Smith	Olaf Soot Associates	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Tim Cox	PLASA	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Teddy Van Bommel	PRG	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Roo Dunn	Roo Dunn	I	U															
Richard Nix	Sacramento Theatrical Lighting	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Bill Sapsis	Sapsis Rigging, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Rocky Paulson	Stage Rigging, Inc.	P	U															
Jerry Gorrell	Theatre Safety Programs	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Keith Bohn	Tomcat USA, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Peter Hind	Total Structures, Inc.	A	P															
Peter Happe	Walt Disney	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Totals				19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y
Motion accepted?				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Comments to resolve?				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Name	Representing	Vote stat.	Int. cat.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Steve Butner	Aerial Rigging & Leasing, Inc.	P	P																
Brad Dittmer	Associated Theatrical Contractors	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew T. Martin	ATM Group, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Mark M. Witteveen	Chicago Flyhouse Inc.	P	U																
Wally Blount	Columbus McKinnon	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Ron Fogel	Creative Realities, Inc.	P	G																
Reid Neslage	H & H Specialties Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Perry Langenstein	International Theatre Consultants	P	G																
Rodney F. Kaiser	J.R. Clancy, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Mike Garl	James Thomas Engineering, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew Smith	Jeamar Winches Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
George Stingel	Kleege Industries	P	U																
Louis Bradfield	Louis Bradfield	I	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Tim Hansen	Oasis Stage Werks	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Frederick L. Smith	Olaf Soot Associates	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Tim Cox	PLASA	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Teddy Van Bommel	PRG	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Roo Dunn	Roo Dunn	I	U																
Richard Nix	Sacramento Theatrical Lighting	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Bill Sapsis	Sapsis Rigging, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Rocky Paulson	Stage Rigging, Inc.	P	U																
Jerry Gorrell	Theatre Safety Programs	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Keith Bohn	Tomcat USA, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Peter Hind	Total Structures, Inc.	A	P																
Peter Happe	Walt Disney	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Totals				19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	
Motion accepted?				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Comments to resolve?				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Name	Representing	Vote stat.	Int. cat.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Steve Butner	Aerial Rigging & Leasing, Inc.	P	P															
Brad Dittmer	Associated Theatrical Contractors	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Andrew T. Martin	ATM Group, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mark M. Witteveen	Chicago Flyhouse Inc.	P	U															
Wally Blount	Columbus McKinnon	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	A	A
Ron Fogel	Creative Realities, Inc.	P	G															
Reid Neslage	H & H Specialties Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Perry Langenstein	International Theatre Consultants	P	G															
Rodney F. Kaiser	J.R. Clancy, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mike Garl	James Thomas Engineering, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Andrew Smith	Jeamar Winches Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
George Stingel	Kleeger Industries	P	U															
Louis Bradfield	Louis Bradfield	I	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Tim Hansen	Oasis Stage Werks	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Frederick L. Smith	Olaf Soot Associates	P	P	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2
Tim Cox	PLASA	P	G	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Teddy Van Bommel	PRG	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Roo Dunn	Roo Dunn	I	U															
Richard Nix	Sacramento Theatrical Lighting	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Bill Sapsis	Sapsis Rigging, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Rocky Paulson	Stage Rigging, Inc.	P	U															
Jerry Gorrell	Theatre Safety Programs	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Keith Bohn	Tomcat USA, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Peter Hind	Total Structures, Inc.	A	P															
Peter Happe	Walt Disney	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Totals				19=Y	19=Y	18=Y 1=N	19=Y	18=Y 1=N	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	19=Y	18=Y 1=A	17=Y 1=A 1=2
Motion accepted?				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Comments to resolve?				N	N	Y	N	Y	N	N	N	N	N	N	N	N	Y	Y

Name	Representing	Vote stat.	Int. cat.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
Steve Butner	Aerial Rigging & Leasing, Inc.	P	P																
Brad Dittmer	Associated Theatrical Contractors	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew T. Martin	ATM Group, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Mark M. Witteveen	Chicago Flyhouse Inc.	P	U																
Wally Blount	Columbus McKinnon	P	P	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Ron Fogel	Creative Realities, Inc.	P	G																
Reid Neslage	H & H Specialties Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Perry Langenstein	International Theatre Consultants	P	G																
Rodney F. Kaiser	J.R. Clancy, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Mike Garl	James Thomas Engineering, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew Smith	Jeamar Winches Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
George Stingel	Kleege Industries	P	U																
Louis Bradfield	Louis Bradfield	I	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Tim Hansen	Oasis Stage Werks	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Frederick L. Smith	Olaf Soot Associates	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Tim Cox	PLASA	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Teddy Van Bommel	PRG	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Roo Dunn	Roo Dunn	I	U																
Richard Nix	Sacramento Theatrical Lighting	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Bill Sapsis	Sapsis Rigging, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Rocky Paulson	Stage Rigging, Inc.	P	U																
Jerry Gorrell	Theatre Safety Programs	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Keith Bohn	Tomcat USA, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Peter Hind	Total Structures, Inc.	A	P																
Peter Happe	Walt Disney	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Totals				18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	
Motion accepted?				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Comments to resolve?				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Name	Representing	Vote stat.	Int. cat.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	
Steve Butner	Aerial Rigging & Leasing, Inc.	P	P																
Brad Dittmer	Associated Theatrical Contractors	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew T. Martin	ATM Group, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Mark M. Witteveen	Chicago Flyhouse Inc.	P	U																
Wally Blount	Columbus McKinnon	P	P	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Ron Fogel	Creative Realities, Inc.	P	G																
Reid Neslage	H & H Specialties Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Perry Langenstein	International Theatre Consultants	P	G																
Rodney F. Kaiser	J.R. Clancy, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Mike Garl	James Thomas Engineering, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew Smith	Jeamar Winches Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
George Stingel	Kleege Industries	P	U																
Louis Bradfield	Louis Bradfield	I	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Tim Hansen	Oasis Stage Werks	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Frederick L. Smith	Olaf Soot Associates	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Tim Cox	PLASA	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Teddy Van Bommel	PRG	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Roo Dunn	Roo Dunn	I	U																
Richard Nix	Sacramento Theatrical Lighting	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Bill Sapsis	Sapsis Rigging, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Rocky Paulson	Stage Rigging, Inc.	P	U																
Jerry Gorrell	Theatre Safety Programs	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Keith Bohn	Tomcat USA, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Peter Hind	Total Structures, Inc.	A	P																
Peter Happe	Walt Disney	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Totals				18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	
Motion accepted?				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Comments to resolve?				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Name	Representing	Vote stat.	Int. cat.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	
Steve Butner	Aerial Rigging & Leasing, Inc.	P	P																
Brad Dittmer	Associated Theatrical Contractors	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew T. Martin	ATM Group, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Mark M. Witteveen	Chicago Flyhouse Inc.	P	U																
Wally Blount	Columbus McKinnon	P	P	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Ron Fogel	Creative Realities, Inc.	P	G																
Reid Neslage	H & H Specialties Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Perry Langenstein	International Theatre Consultants	P	G																
Rodney F. Kaiser	J.R. Clancy, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Mike Garl	James Thomas Engineering, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew Smith	Jeamar Winches Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
George Stingel	Kleege Industries	P	U																
Louis Bradfield	Louis Bradfield	I	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Tim Hansen	Oasis Stage Werks	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Frederick L. Smith	Olaf Soot Associates	P	P	Y	Y	Y	Y	N	Y	N	N	N	Y	Y	Y	Y	Y	Y	
Tim Cox	PLASA	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Teddy Van Bommel	PRG	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Roo Dunn	Roo Dunn	I	U																
Richard Nix	Sacramento Theatrical Lighting	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	1	Y	Y	Y	
Bill Sapsis	Sapsis Rigging, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Rocky Paulson	Stage Rigging, Inc.	P	U																
Jerry Gorrell	Theatre Safety Programs	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Keith Bohn	Tomcat USA, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Peter Hind	Total Structures, Inc.	A	P																
Peter Happe	Walt Disney	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Totals				18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	17=Y 1=A 1=N	18=Y 1=A	17=Y 1=A 1=N	17=Y 1=A 1=N	17=Y 1=A 1=N	18=Y 1=A	18=Y 1=A	17=Y 1=A 1=1	18=Y 1=A	18=Y 1=A	18=Y 1=A	
Motion accepted?				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Comments to resolve?				N	N	N	N	Y	N	Y	Y	Y	N	N	Y	N	N	N	

Name	Representing	Vote stat.	Int. cat.	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	
Steve Butner	Aerial Rigging & Leasing, Inc.	P	P																
Brad Dittmer	Associated Theatrical Contractors	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew T. Martin	ATM Group, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Mark M. Witteveen	Chicago Flyhouse Inc.	P	U																
Wally Blount	Columbus McKinnon	P	P	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Ron Fogel	Creative Realities, Inc.	P	G																
Reid Neslage	H & H Specialties Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Perry Langenstein	International Theatre Consultants	P	G																
Rodney F. Kaiser	J.R. Clancy, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Mike Garl	James Thomas Engineering, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew Smith	Jeamar Winches Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
George Stingel	Kleege Industries	P	U																
Louis Bradfield	Louis Bradfield	I	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Tim Hansen	Oasis Stage Werks	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Frederick L. Smith	Olaf Soot Associates	P	P	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Tim Cox	PLASA	P	G	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Teddy Van Bommel	PRG	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Roo Dunn	Roo Dunn	I	U																
Richard Nix	Sacramento Theatrical Lighting	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Bill Sapsis	Sapsis Rigging, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Rocky Paulson	Stage Rigging, Inc.	P	U																
Jerry Gorrell	Theatre Safety Programs	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Keith Bohn	Tomcat USA, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Peter Hind	Total Structures, Inc.	A	P																
Peter Happe	Walt Disney	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Totals				18=Y 1=A	18=Y 1=A	17=Y 1=A 1=N	17=Y 1=A 1=N	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	
Motion accepted?				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Comments to resolve?				N	N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N

Name	Representing	Vote stat.	Int. cat.	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	
Steve Butner	Aerial Rigging & Leasing, Inc.	P	P																
Brad Dittmer	Associated Theatrical Contractors	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew T. Martin	ATM Group, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Mark M. Witteveen	Chicago Flyhouse Inc.	P	U																
Wally Blount	Columbus McKinnon	P	P	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Ron Fogel	Creative Realities, Inc.	P	G																
Reid Neslage	H & H Specialties Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Perry Langenstein	International Theatre Consultants	P	G																
Rodney F. Kaiser	J.R. Clancy, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Mike Garl	James Thomas Engineering, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew Smith	Jeamar Winches Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
George Stingel	Kleege Industries	P	U																
Louis Bradfield	Louis Bradfield	I	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Tim Hansen	Oasis Stage Werks	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Frederick L. Smith	Olaf Soot Associates	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	
Tim Cox	PLASA	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y	Y	
Teddy Van Bommel	PRG	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Roo Dunn	Roo Dunn	I	U																
Richard Nix	Sacramento Theatrical Lighting	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Bill Sapsis	Sapsis Rigging, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Rocky Paulson	Stage Rigging, Inc.	P	U																
Jerry Gorrell	Theatre Safety Programs	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Keith Bohn	Tomcat USA, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Peter Hind	Total Structures, Inc.	A	P																
Peter Happe	Walt Disney	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Totals				18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	16=Y 2=N 1=A	17=Y 1=N 1=A	16=Y 2=N 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	
Motion accepted?				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Comments to resolve?				N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	N	N

Name	Representing	Vote stat.	Int. cat.	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	
Steve Butner	Aerial Rigging & Leasing, Inc.	P	P																
Brad Dittmer	Associated Theatrical Contractors	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew T. Martin	ATM Group, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Mark M. Witteveen	Chicago Flyhouse Inc.	P	U																
Wally Blount	Columbus McKinnon	P	P	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Ron Fogel	Creative Realities, Inc.	P	G																
Reid Neslage	H & H Specialties Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Perry Langenstein	International Theatre Consultants	P	G																
Rodney F. Kaiser	J.R. Clancy, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Mike Garl	James Thomas Engineering, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew Smith	Jeamar Winches Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
George Stingel	Kleege Industries	P	U																
Louis Bradfield	Louis Bradfield	I	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Tim Hansen	Oasis Stage Werks	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Frederick L. Smith	Olaf Soot Associates	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Tim Cox	PLASA	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Teddy Van Bommel	PRG	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Roo Dunn	Roo Dunn	I	U																
Richard Nix	Sacramento Theatrical Lighting	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Bill Sapsis	Sapsis Rigging, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Rocky Paulson	Stage Rigging, Inc.	P	U																
Jerry Gorrell	Theatre Safety Programs	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Keith Bohn	Tomcat USA, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Peter Hind	Total Structures, Inc.	A	P																
Peter Happe	Walt Disney	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Totals				18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	18=Y 1=A	
Motion accepted?				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Comments to resolve?				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Name	Representing	Vote stat.	Int. cat.	136
Steve Butner	Aerial Rigging & Leasing, Inc.	P	P	
Brad Dittmer	Associated Theatrical Contractors	P	U	Y
Andrew T. Martin	ATM Group, Inc.	P	P	Y
Mark M. Witteveen	Chicago Flyhouse Inc.	P	U	
Wally Blount	Columbus McKinnon	P	P	A
Ron Fogel	Creative Realities, Inc.	P	G	
Reid Neslage	H & H Specialties Inc.	P	P	Y
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U	Y
Perry Langenstein	International Theatre Consultants	P	G	
Rodney F. Kaiser	J.R. Clancy, Inc.	P	P	Y
Mike Garl	James Thomas Engineering, Inc.	P	P	Y
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	P	U	Y
Andrew Smith	Jeamar Winches Inc.	P	P	Y
George Stingel	Kleege Industries	P	U	
Louis Bradfield	Louis Bradfield	I	U	Y
Tim Hansen	Oasis Stage Werks	P	U	Y
Frederick L. Smith	Olaf Soot Associates	P	P	Y
Tim Cox	PLASA	P	G	Y
Teddy Van Bommel	PRG	P	U	Y
Roo Dunn	Roo Dunn	I	U	
Richard Nix	Sacramento Theatrical Lighting	P	G	Y
Bill Sapsis	Sapsis Rigging, Inc.	P	U	Y
Rocky Paulson	Stage Rigging, Inc.	P	U	
Jerry Gorrell	Theatre Safety Programs	P	G	Y
Keith Bohn	Tomcat USA, Inc.	P	P	Y
Peter Hind	Total Structures, Inc.	A	P	
Peter Happe	Walt Disney	P	U	Y
Totals				18=Y 1=A
Motion accepted?				Y
Comments to resolve?				N

Comments:

33. **Section 2 Definitions**, page 13, line 2: THIS DEFINITION IS MORE CONFUSING AND LESS INFORMATIVE THAN THE SCOPE DESCRIPTION.

SUGGESTION: USE THE SCOPE DESCRIPTION 1.3 TYPICAL DOUBLE PURCHASE.

Brad Dittmer
Associated Theatrical Contractors

ACTION:	Re-write the definition and scope			
REASON:	Comment rejected because the scope and definitions serve two differing objectives			
ACCEPT:	YES		NO	X
COMMENT:				

Frederick Smith
Olaf Sööt Associates

The definition for double purchase is confusing. The scope is clearer and more understandable.

Double Purchase: A system of rigging employing weights, blocks and lines whereby the counterweight moves half the distance the load travels, requiring double the amount of counterweight compared tot he load.

35. **Section 2 Definitions**, page 13, lines 17 & 18: "...above the stage area but below the ceiling or roof designed to support..." should read "...above the stage area, but below the ceiling or roof, designed to support..."

Reason: Commas need to be inserted in the sentence for proper punctuation.

Reid Neslage
H&H Specialties

ACTION:	Accept change			
REASON:	Editorial			
ACCEPT:	YES		NO	X
COMMENT:				

Tim Cox
PLASA

The action says "Accept change" but "Accept" is marked "No". PLASA accepts the change suggested by the commenter.

45. **Section 2 Definitions, Safety factor:** The term "safety factor" has been replaced by "design factor." I propose that this definition be omitted entirely.

Tracy Nunnally
Theatre Calgary

ACTION:	No action			
REASON:	This term is in common usage among design professionals			
ACCEPT:	YES		NO	<input checked="" type="checkbox"/>
COMMENT:				

Frederick Smith
Olaf Sööt Associates

The terms should be combined. I propose to call the common term Factor of Safety: The factor of safety denotes the ratio of the allowable design stress to the ultimate stress of a material or component. All design uncertainties must first be considered, uncertainty with respect to the magnitude and kind of operating load, the assumptions involved in the theories used, the uncertainty concerning causes of possible failure, and the endangering of human life in the case of failure.

80. **Section 3.18.6 Wire rope terminations:** The references in (b) and (c) to "ESTA/USITT standards" need to be deleted. There are no such standards at this time -- certainly not any ESTA/USITT termination standards that are American National Standards. I recommend that the manufacturer's instructions be cited as the appropriate way to make the terminations.

Karl G. Ruling
Karl G. Ruling

ACTION:	Delete reference to ESTA			
REASON:	The standard is USITT only and, in turn, references instructions of various manufacturers			
ACCEPT:	YES		NO	<input checked="" type="checkbox"/>
COMMENT:				

Frederick Smith
Olaf Sööt Associates

A USITT standard? 3.18.6(b) Swaging shall be performed in accordance with manufacturers' recommended standards. 3.18.6(c) Forged wire rope clips shall be installed in accordance with manufacturer's recommended standards. Malleable clips shall not be used.

82. **Section 3.18.6 (b) and (c)**, page 28, lines 30 and 33: ESTA/USITT reference standard numbers are missing. Provide the numbers where indicated.

Tim Hansen
Oasis Stage Werks

ACTION:	No action			
REASON:	The USITT Standard has no number			
ACCEPT:	YES		NO	X
COMMENT:				

Frederick Smith
Olaf Sööt Associates

A USITT standard? 3.18.6(b) Swaging shall be performed in accordance with manufacturers' recommended standards. 3.18.6(c) Forged wire rope clips shall be installed in accordance with manufacturer's recommended standards. Malleable clips shall not be used.

83. **Section 3.18.6 (b) Wire rope terminations**, page 28, line 30: "...shall be performed in accordance with ESTA/USITT standards..." should read "...shall be performed in accordance with manufacturer's printed instructions."

Reason: There is no current ESTA/USITT Standard for swaging wire rope terminations. This should be referred to the manufacturer's printed instructions.

Reid Neslage
H&H Specialties

ACTION:	No action			
REASON:	See Comment #80			
ACCEPT:	YES		NO	X
COMMENT:				

Frederick Smith
Olaf Sööt Associates

A USITT standard? 3.18.6(b) Swaging shall be performed in accordance with manufacturers recommended standards. 3.18.6(c) Forged wire rope clips shall be installed in accordance with manufacturer's recommended standards. Malleable clips shall not be used.

84. **Section 3.18.6 (c) Wire rope terminations**, page 28, line 33: "...shall be performed in accordance with ESTA/USITT standards..." should read "...shall be performed in accordance with manufacturer's printed instructions or *Wire Rope Users Manual*, latest edition."

Reason: There is no current ESTA/USITT Standard for installing wire rope clips. This should be referred to the manufacturer's printed instructions or other accepted manuals of practice.

Reid Neslage
H&H Specialties

ACTION:	No action			
REASON:	See Comment #80			
ACCEPT:	YES		NO	X
COMMENT:				

Frederick Smith
Olaf Sööt Associates

A USITT standard? 3.18.6(b) Swaging shall be performed in accordance with manufacturers' recommended standards. 3.18.6(c) Forged wire rope clips shall be installed in accordance with manufacturer's recommended standards. Malleable clips shall not be used.

87. **Section 3.18.6 (d)**: Change to "Trim chains shall be made of NACM Grade 80, or "Alloy" chain, 1/4" or larger etc."

All chain manufacturers say specifically that only grade 80 or "alloy" chain shall be used for overhead lifting. All chain manufacturers specifically say that the chain types now listed in the standard, grade 30 and proof coil, shall not be used for overhead lifting.

The probable reason for the desire to use proof coil chain is that for a given chain size the proof coil links are larger than the grade 80 links. It is difficult to get connecting hardware, like shackles, to fit a grade 80 chain link that is not at the end of the chain. I suggest we approach some of the chain manufacturers and request that they supply hardware that will connect to grade 80 chain links in 1/4", 5/16", and 3/8" sizes. One type of hardware should make it possible to hang a load from any link on a length of chain. The standard chain hooks they all make are not acceptable because they have no safety latches. Another type of hardware needed would be a means to join two links together, parallel to each other.

Harry Donovan
Donovan Rigging

ACTION:	No action			
REASON:	The trim chain, as described, is a system that provides an adequate service factor. On counterweight lift lines, the trim chain is used as an adjustment device, not a lifting device. There is no abrasion on the chain and shock load is mitigated by the elasticity in the wire rope lift line. Over 70 years of field testing in thousands of applications has proven that carbon steel chain with a sufficient design factor is safe for this application.			
ACCEPT:	YES		NO	X
COMMENT:				

Richard J. Nix
STL

I think it would be prudent to, and I suggest that we, solicit chain manufacturers for their official opinions regarding the use of Gr. 30 proof coil chain in this application. This may help in final resolution of the issues dealing with applications that may be construed/misconstrued as "overhead lifting."

93. **Section 3.18.6 Wire Rope Terminations:** "The strength of the assembly shall be eight times the design load or equal to the strength of the wire rope, whichever is greater."

This requirement is excessive. Chain is manufactured and sold with a WLL which has a 5:1 ratio with its breaking strength. Trim Chains are not subjected to the same conditions which require cables to have an 8:1 service factor. There is no movement of the chain, abrasion, movement over pulleys, or inefficiencies of wire rope clips which would predicate this high of a service factor. See also 6.2 Design Factors.

Bruce Darden
Rigging Innovators, LLC

ACTION:	No action			
REASON:	Trim chains are only one part of a system and must have the same service factor as the rest of the system.			
ACCEPT:	YES		NO	X
COMMENT:				

Tim Cox
PLASA

The resolution to comment #93 states "Trim chains are only one part of a system and must have the same service factor as the rest of the system", yet in table 1 we include various different design factors for parts of the same system. Is "system" the whole system? If so, this resolution is inappropriate. Surely different parts of a system will be subject to different design factors, depending on the nature of that sub-system.

94. **Section 3.18.6 Wire rope terminations:** Paragraph 3.18.6 (d) needlessly prohibits the use of alloy chain that is stronger than 1/4" NACM Grade 30 proof coil chain but that is smaller in cross section. I suggest that the first sentence of the paragraph be changed as follows:

"(d) Trim chains shall be made of NACM Grade 30 or better proof coil chain, 1/4 inch (6 mm) or larger, or of other alloy chain of equal or greater strength if recommended by the manufacturer for overhead lifting.

The rest of the paragraph states that "the shackle pin shall attach to any link along the return side of the chain for adjustment," which is normally the problem with higher grade chains. However, if a chain can accept a shackle, and it is at least as strong as Grade 30 1/4" chain, there is no reason to prohibit its use.

Karl G. Ruling
Karl G. Ruling

ACTION:	No action			
REASON:	See Comment #87			
ACCEPT:	YES		NO	X
COMMENT:				

Frederick Smith
Olaf Sööt Associates

I agree with Karl G. Ruling, this section is too restrictive.

115. **Section 3.9.1 Construction:** Most of this section describes how conventional arbors are built, and thus would unreasonably impede the development or use of other arbor designs that might be just as safe and useful, or even better. I have seen several alternate arbor designs used in theatres that appear to be safe and useful, but that do not use two arbor rods as specified in 3.9.1(c).

I suggest fixing this section by deleting section (c), the one that describes how to build an arbor, and improve section (a) so it better describes what a counterweight arbor is supposed to do. My suggested wording is as follows:

"(a) Arbors shall be designed to retain the counterweights within the carriage assembly, even in the case of unexpected, sudden rapid deceleration. The arbor shall be designed and built to retain the counterweights even when subjected to the deceleration forces to which a fully loaded arbor will be subjected if it is run into a stop batten at a velocity of 3 meters/second (10 feet/second) or at the highest design velocity of the rigging system, whichever is greater. Materials that are prone to fracture without first significantly yielding (e.g., ASTM A48 cast gray iron) shall not be permitted in arbor frames or fittings."

Karl G. Ruling
Karl G. Ruling

ACTION:	No action			
REASON:	See Section 3.9.1.g			
ACCEPT:	YES		NO	X
COMMENT:				

[3.9.1 (g) of the draft standard says: " Other arbor configurations shall be permitted for special applications where increased capacity or space restrictions dictate and where the need to interchange standard weight is not a requirement."]

Frederick Smith
Olaf Sööt Associates

I agree with Karl G. Ruling, 3.9.1(g) does not handle all cases where other arbors may be used.

Tim Cox
PLASA

Karl Ruling makes a good point with these two comments. The text he refers to restricts the user to a particular choice of system, when other systems may perform as well. However, if we wish to impose such requirements then we should expand the scope of this standard to include the compatibility components of counterweight rigging systems. (If such an expansion is considered unnecessary then maybe we should reconsider these comments.)

116. **Section 3.9.2 Counterweights**, page 24, lines 24 through 35: I would like to recommend that counterweights be designed with an ergonomic feature that allows the loader to easily lift one weight from the top of another. These suggestions could include a tapered edge around the perimeter, diagonally opposite corners chamfered at 45 degrees, or small tabs on each weight. This feature increases the safety on a loading rail by preventing the loader's fingers from being pinched during loading and during unloading.

Tracy Nunnally
Theatre Calgary

ACTION:	No action			
REASON:	See Comment #117			
ACCEPT:	YES		NO	X
COMMENT:				

Frederick Smith
Olaf Sööt Associates

The counterweight section 3.9.2 is too restrictive, this needs to be discussed further.

117. **Section 3.9.2 Counterweights**: I don't understand why paragraph (a) gives exact dimensions for counterweights and describes counterweights that will only work on double-rod arbors, when ESTA's stated policy is to not publish standards that are construction based. The existing text describes one way to make counterweights, counterweights that will not work with arbors that use a single rod, four rods, or a steel box to hold the counterweights.

I suggest changing the text to read as follows:

"(a) Counterweights shall be cut from steel plate or other heavy material that is not prone to fracture. The weights shall be free of sharp edges. Counterweights shall have slots or other means to engage the arbor and to prevent the weights from leaving the arbor accidentally. Counterweights shall be of dimensions that are reasonably easy for a worker to handle, and shall not longer than 14 inches (35.5 cm) in any dimension. Counterweights shall not weigh more than 40 pounds (18 kg), and counterweights of a given size shall not vary from each other by more than 1/8 inch (3 mm) in thickness."

Paragraphs (b) and (c) can be deleted, as the points they make are covered in the revised paragraph (a).

Karl G. Ruling
Karl G. Ruling

ACTION:	Add paragraph (d): "(d) Counterweights should be manufactured in a shape to facilitate ease of handling, such as notching diagonally opposed corners."			
REASON:	The described shape is in very common usage nationally and its use promotes the interchange of components and of touring equipment.			
ACCEPT:	YES		NO	X
COMMENT:				

Frederick Smith
Olaf Sööt Associates

The counterweight section 3.9.2 is too restrictive, this needs to be discussed further.

Tim Cox
PLASA

Karl Ruling makes a good point with these two comments. The text he refers to restricts the user to a particular choice of system, when other systems may perform as well. However, if we wish to impose such requirements then we should expand the scope of this standard to include the compatibility components of counterweight rigging systems. (If such an expansion is considered unnecessary then maybe we should reconsider these comments.)

131. **Section 6.2 Design Factors:** "Trim Chains 8:1" This should be 5:1. Chain of all grades and alloys is sold with a WLL of 1/5 the breaking strength. It is actually difficult to find information except the Working Load Limit. See also requirement 3.18.6 Wire Rope Terminations, (d) Trim Chains

Bruce Darden
Rigging Innovators, LLC

ACTION:	No action			
REASON:	See Comment #93			
ACCEPT:	YES		NO	X
COMMENT:				

Tim Cox
PLASA

The resolution to comment #93 states "Trim chains are only one part of a system and must have the same service factor as the rest of the system", yet in table 1 we include various different design factors for parts of the same system. Is "system" the whole system? If so, this resolution is inappropriate. Surely different parts of a system will be subject to different design factors, depending on the nature of that sub-system.

Summary of Rigging Working Group Ballot (Rig/99-2036) to Accept Resolutions to 2nd Public Review Comments (Rig/99-2035) on BSR E1.8

Statement: It was moved and seconded at the Rigging Working Group meeting on November 17, 1999 to approve the suggested replies to the second public review comments (Rig/99-2035).

Question: Do you accept the proposed resolutions found in Rig/99-2035 to the numbered comments? [Supermajority needed for pass: 14.]

Ballot closed: 3:00 p.m. ET, 19 January 2000

Key: Y = Accept. 1 = Accept in principle. 2 = Accept in part. N= Reject. A = Abstain or question skipped.

Name	Representing	Vote stat.	Int. cat.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Steve Butner	Aerial Rigging & Leasing, Inc.	P	P																		
Brad Dittmer	Associated Theatrical Contractors	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew T. Martin	ATM Group, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Mark M. Witteveen	Chicago Flyhouse Inc.	P	U																		
Wally Blount	Columbus McKinnon	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Ron Fogel	Creative Realities, Inc.	P	G																		
Reid Neslage	H & H Specialties Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Perry Langenstein	International Theatre Consultants	P	G																		
Rodney F. Kaiser	J.R. Clancy, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Mike Garl	James Thomas Engineering, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew Smith	Jeamar Winches Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
George Stingel	Kleege Industries	P	U																		
Louis Bradfield	Louis Bradfield	I	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Tim Hansen	Oasis Stage Werks	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Frederick L. Smith	Olaf Soot Associates	P	P	Y	N	N	Y	Y	Y	N	Y	Y	Y	N	N	Y	Y	N	N	N	
Tim Cox	PLASA	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	1	Y	A	Y	Y	A	Y	Y	
Teddy Van Bommel	PRG	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Roo Dunn	Roo Dunn	I	U																		
Richard Nix	Sacramento Theatrical Lighting	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	1	Y	2	Y	Y	2	2	Y	
Bill Sapsis	Sapsis Rigging, Inc.	P	U																		
Rocky Paulson	Stage Rigging, Inc.	P	U																		
Jerry Gorrell	Theatre Safety Programs	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Keith Bohn	Tomcat USA, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Peter Hind	Total Structures, Inc.	A	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Peter Happe	Walt Disney	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Totals				19=Y	18=Y 1=N	18=Y 1=N	19=Y	19=Y	19=Y	18=Y 1=N	19=Y	19=Y	17=Y 2=1	18=Y 1=N	16=Y 1=N 1=2 1=A	19=Y	19=Y	16=Y 1=N 1=A 1=2	17=Y 1=N 1=2	18=Y 1=N	
Motion passed?				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Comments to resolve?				N	Y	Y	N	N	N	Y	N	N	Y	Y	Y	N	N	Y	Y	Y	Y

Comments:

- 2 Section 2: Definition of “ultimate failure”: I have been in the rigging profession for a long time and never heard this term before. I realize that the act of defining something gives meaning to words that may not have meaning to everyone, but this combination of words seems very forced. Ultimate usually would indicate maximum not minimum, yet the definition seems to give the word a new meaning of minimum. Perhaps “failure point” might be a better term to match the definition given. I have been in the rigging profession for a long time and never heard this term before. I realize that the act of defining something gives meaning to words that may not have meaning to everyone, but this combination of words seems very forced. Ultimate usually would indicate maximum not minimum, yet the definition seems to give the word a new meaning of minimum. Perhaps “failure point” might be a better term to match the definition given.

Rocky Paulson
Stage Rigging

Reply: The term “ultimate failure” was sourced from a structural engineer, however the comment is valid since this proposed standard is intended to bring understanding to all that read it. After researching the term “ultimate failure” it was determined that a better term should be used. The term “catastrophic failure” has replaced the use of the term “ultimate failure” within the document.

Frederick Smith
Olaf Sööt Associates

"Ultimate failure" of a component or material occurs after the maximum stress value has been reached.

Possible Definition

Material or Component Failure: Stress in excess of the maximum stress value of a material or component causing fracture or failure.

The term Catastrophic Failure should not be used unless discussing a progressive failure that leads to loss of life or limb.

- 3 Section 4.3.1: 4.3.1. seems to require that the enclosure fail before the attachment point/hardware. This implies that the enclosure be the weakest component in the load chain. Section 4.3.4. requires that the hardware to have a design factor of 5:1. Section 6.2.1. requires the enclosure to have a design factor of 10:1. Based on sections 4.3.4 and 6.2.1, the hardware [sic]

Rocky Paulson
Stage Rigging

Reply: This section of the standard is referring only to the installation of enclosure suspension hardware and is not addressing the strength of the enclosure. It is possible to have the enclosure suspension hardware be the weak link in the structural chain, which is why the proposed standard refers to “enclosure suspension hardware” and “enclosure working load limit” as different topics with different design factors. However it is recognized that this topic can be confusing, therefore a new definition has been added to the document entitled “enclosure suspension hardware” defined as: all parts of the permanently affixed structural components intended for use as a suspension point for the enclosure.

Frederick Smith
Olaf Sööt Associates

The reply does not address the question adequately. I believe there are redundant design factors for the same components. The new definition does not clear up the confusion.

7 Section 4.3.1. 5th Sentence: Original- "The hardware shall be affixed on the interior of the enclosure with the aid of a reinforcement device so as to prevent all reasonable and foreseeable ways in which the attachment point can without the ultimate failure of the enclosure material."

Change- "The hardware and the attachment point shall be stronger than the material to which it is attached."

Reason-The original is not performance oriented and needlessly restricts the attachment method.

Why does the hardware have to mount to the speaker enclosure anyway? It seems that a metal frame that encapsulated a speaker without any penetration of the enclosure material could be used to attach the suspension hardware. Even if this frame were considered the attachment hardware, why does it have to attach to the interior of anything? It seems to me that the important characteristics are that the hardware and the attachment points have the appropriate design factors and that forces transmitted to the enclosure (if any) not weaken the enclosure to a point that the enclosure could fail.

Rocky Paulson
Stage Rigging

Reply: This section of the standard is referring only to the installation of enclosure suspension hardware and is not addressing the strength of the enclosure. However it is recognized that this topic can be confusing, therefore a new definition has been added to the document entitled "enclosure suspension hardware" defined as: all parts of the permanently affixed structural components intended for use as a suspension point for the enclosure.

Frederick Smith
Olaf Sööt Associates

The new definition does not clear up the confusion.

10 Section 4.3.2, 2nd Sentence: Original- "(An example may thread lock adhesive, crimped nuts or nylon insert nuts, or nylon patch fasteners)"

Change- "(Examples are; thread lock adhesive, crimped nuts, nylon insert nuts, or nylon patch fasteners)"

Reason-Clarity and grammar. I am not sure about the punctuation of my change.

Rocky Paulson
Stage Rigging

Reply: The phrasing used is the result of a prior comment that found the term ‘examples are’ as too restrictive. After contemplation, it is determined that the current phrasing is less restrictive to the reader, therefore no change in phrasing is made.

Richard J. Nix
STL

Grammar does not need to be corrected in existing phrase.

Tim Cox
PLASA

For better English, try “An example may be thread lock adhesive, crimped nuts or nylon insert nuts, or nylon patch fasteners.”

11 Section 4.3.4, Line 2: Change the design factor to 10:1. There was no mention of a 5:1 design factor in the 19 July 1997 revision of BSR E1.8, only a 10:1 design factor was used in that draft. Is this a typographic error, or a major change in approach? 10:1 is listed in other another location in this document already. Either the standard is 10:1 or 5:1. There shouldn’ t be ambiguity.

Michael Akrep
Polar Focus

Reply: This section of the proposed standard refers to suspension hardware only; the enclosure working load limit is addressed in section 6.2. There are two design factors imposed within this standard: a 5:1 design factor applies to hardware components, and a 10:1 design factor applies to enclosure components. Therefore, no change is made to the proposed standard.

Frederick Smith
Olaf Sööt Associates

The reply does not address the question adequately. I believe there are redundant design factors for the same components. The new definition does not clear up the confusion.

Tim Cox
PLASA

The Rigging Working Group should try to be consistent with the application of design factors across the standards being developed. For example, we should not write in one standard that only one design factor is appropriate for all the components of a system while using different design factors for different parts of a system covered by another standard. See also the proposed comment resolutions to E1.4.

- 12 Section 6.1, Enclosure Testing: There are two important aspects involved in enclosure testing and determining a WLL that have not been addressed.

Self Weight: Thomas Truss loading charts clearly state, " in addition to self weight of truss." Example: A 30 kg trapezoidal loudspeaker has 3 rigging points on the top, and 3 rigging points on the bottom, and the manufacturer has communicated that the WLL is 30 kg. Which of the following two cases would be true? How would you know? Case 1: It is ok to suspend the box from 3 points, and suspend up to 30 kg below it. Case 2: It is only safe to suspend its own 30 kg self weight.

Tensile-centric View Point: Many suspendable boxes are designed to never be subjected to tensile loading when used according to the manufacturer' s instructions. Enclosures using ATM' s MEGS.2 system, and Turbosound' s keyhole system are two examples. Some enclosures just have three rigging points on the top, and that' s it. W.T. Webb of Martin Audio (in comment 33, and comment 96 of the First Public Review Comment of BSR E1.8) started to address this. If an enclosure is not designed to withstand tensile loads, why require it to be tested on that criteria?

Michael Akrep
Polar Focus

Reply (a): The first part of this comment refers to the marking of the working load limit on the enclosure. While this is a concern, the concern is addressed in comment 16. See comment 16.

Reply (b): The second part of this comment refers to the testing of enclosures that are equipped with pivotal style hardware: hardware that is mounted to the side of an enclosure that is used when multiple enclosures will not be suspended from one-another. This practice is commonplace in the industry with both pivotal style hardware systems and conventional systems. The testing method remains valid regardless of the style hardware used in the construction or suspension of the enclosure. The wording does not disallow a pivotal style system from being tested. The sentence, "The enclosure should be tested with a method of gradually increasing load tension until catastrophic failure, or until required strength is demonstrated if failure cannot be produced" will accommodate all types of enclosure hardware including pivotal style hardware and others that have not been introduced into the industry. However it is worth noting that pivotal style enclosure hardware systems can introduce substantial forces internal of the enclosure when pull straps or hinge mechanisms are used to join the enclosures together at the rear. The current wording also allows for these types of applications where the enclosures would be tested in accordance with the manufacturer's intended use. Therefore, no change is made to the proposed standard.

Richard J. Nix
STL

Commentor raises valid concerns that, in my opinion, are not adequately addressed in the existing wording. With regard to the comments, the resolution would be acceptable if the referred to section(s) used the word "shall" to require mandatory compliance. However, the existing wording using a voluntary compliance term of "should" requires the proposed changes (or similar), to broaden the scope of the section(s), to adequately resolve the comment.

Frederick Smith
Olaf Sööt Associates

"Ultimate failure" of a component or material occurs after the maximum stress value has been reached.

Possible Definition

Material or Component Failure: Stress in excess of the maximum stress value of a material or component causing fracture or failure.

The term Catastrophic Failure should not be used unless discussing a progressive failure that leads to loss of life or limb.

Tim Cox
PLASA

I do not feel able to confirm or reject these resolutions.

15 Section 6.1.2: Add the following text to the end of section 6.1.2:

"For enclosures designed to support their self weight only, the test should demonstrate the ability of the enclosure to withstand 10 times the force of gravity. A simple test would use a cargo net over an enclosure to simulate forces exerted during shock loads."

Michael Akrep
Polar Focus

Reply: See comment 12.

Frederick Smith
Olaf Sööt Associates

"Ultimate failure" of a component or material occurs after the maximum stress value has been reached.

Possible Definition

Material or Component Failure: Stress in excess of the maximum stress value of a material or component causing fracture or failure.

The term Catastrophic Failure should not be used unless discussing a progressive failure that leads to loss of life or limb.

Tim Cox
PLASA

I do not feel able to confirm or reject these resolutions.

16 Section 6.2.1: Rewrite section 6.2.1 as follows:

"Any enclosure intended for overhead suspension shall have a working load limit issued by the enclosure manufacturer. An enclosure intended to carry tensile loads shall be designed to withstand the forces imposed by its self weight and rated tensile load, with a minimum design factor of 10, based on the ultimate load of the enclosure as tested in accordance with this standard. An enclosure intended to support its self weight only shall be designed to withstand the forces imposed by gravity, with a minimum design factor of 10, based on the ultimate load of the enclosure as tested in accordance with this standard. The enclosure working load limit (WLL) shall be publicly published by the manufacturer

and shall be clearly indicated on the enclosure adjacent to the information required by section 5.1.1 of this standard. The WLL shall be indicated in pounds and kilograms with the suffix, 'in addition to self weight.', where the

"WLL <= (ultimate tensile load / 10) – (weight of the enclosure)

"For enclosures intended to only carry their own self weight, 'Self Weight Only' is acceptable as a WLL."

Michael Akrep
Polar Focus

Reply: See comment 12. Additionally, the manufacturer of the product should be allowed to determine the proper method for determining the marking of the enclosure so the intended use of the enclosure can be taken into consideration. A manufacturer may determine that an enclosure should not be used to suspend more than two enclosures in succession: in this case a WLL may be posted as "WLL = no more than two enclosures in succession." Additionally, there is no difference between marking the WLL of a 50kg enclosure that catastrophically fails at 5000kg as follows:

"WLL = 500kg" or "WLL <= 450kg in addition to self-weight".

For purposes of clarity, the simpler marking indication will be more productive in preventing the misuse of the enclosure. Therefore, no change is made to the proposed standard.

Frederick Smith
Olaf Sööt Associates

"Ultimate failure" of a component or material occurs after the maximum stress value has been reached.

Possible Definition

Material or Component Failure: Stress in excess of the maximum stress value of a material or component causing fracture or failure.

The term Catastrophic Failure should not be used unless discussing a progressive failure that leads to loss of life or limb.

17 Section 7.2.1 Print Availability: In comment 100 to the last draft of this standard, I suggested that the print library contents be somehow accessible to the technicians in the field who need access it. The response to comment 100 was that this would be addressed in the rewrite. The rewrite again only requires that a print library be maintained, but not that it be publicly accessible. The info required for rigging (without proprietary details, of course) must be readily available in a publicly accessible forum. For example: included on product data sheets, mailed upon request, posted on the company web site, etc. There is nothing in this standard as written that would preclude a manufacturer from deciding to publish prints (and WLL data from section 6.2.1) for internal corporate use only.

Michael Akrep
Polar Focus

Reply: It is agreed that the proper and service-minded action of a manufacturer would be to allow the review of structural prints by a qualified individual. However, this section of the proposed standard cannot mandate any such actions due to property ownership rights. Since the manufacturer owns the design of the enclosure, they do not have to make any of their property available to anyone unless they wish to do so. While the standard cannot address this issue, it is possible for the customer or end user to demand the information from the

manufacturer or not use the product. This standard does require the adequate testing and marking of the product; as a result, the prints are not necessarily a critical safety disclosure. Therefore, no change is made to the proposed standard.

Frederick Smith

Olaf Sööt Associates

The Print Availability Policy says nothing when the manufacturer can make "this information available" (or not) "in accordance with the manufacturer's print availability policy.

There is no print availability policy!

The comment from Michael Akrep was not adequately addressed, or you eliminate 7.2 entirely.

Summary of Rigging Working Group Ballot (Rig/99-2038) to Accept Resolutions to 2nd Public Review Comments (Rig/99-2037) on BSR E1.10

Statement: It was moved and seconded at the Rigging Working Group meeting on November 17, 1999 to approve the suggested resolutions to the second public review comments (Rig/99-2037).

Question: Do you accept the proposed resolutions found in Rig/99-2037 to the numbered comments? [Supermajority of 14 to pass.]

Ballot closed: 3:00 p.m. ET, 19 January 2000

Key: Y = Accept. 1 = Accept in principle. 2 = Accept in part. N= Reject. A = Abstain or question skipped.

Name	Representing	Vote stat.	Int. cat.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Steve Butner	Aerial Rigging & Leasing, Inc.	P	P																
Brad Dittmer	Associated Theatrical Contractors	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew T. Martin	ATM Group, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Mark M. Witteveen	Chicago Flyhouse Inc.	P	U																
Wally Blount	Columbus McKinnon	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Ron Fogel	Creative Realities, Inc.	P	G																
Reid Neslage	H & H Specialties Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Perry Langenstein	International Theatre Consultants	P	G																
Rodney F. Kaiser	J.R. Clancy, Inc.	P	P																
Mike Garl	James Thomas Engineering, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Andrew Smith	Jeamar Winches Inc.	P	P																
George Stingel	Kleege Industries	P	U																
Louis Bradfield	Louis Bradfield	I	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Tim Hansen	Oasis Stage Werks	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Frederick L. Smith	Olaf Soot Associates	P	P																
Tim Cox	PLASA	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Teddy Van Bommel	PRG	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Roo Dunn	Roo Dunn	I	U																
Richard Nix	Sacramento Theatrical Lighting	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Bill Sapsis	Sapsis Rigging, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Rocky Paulson	Stage Rigging, Inc.	P	U																
Jerry Gorrell	Theatre Safety Programs	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
Keith Bohn	Tomcat USA, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Peter Hind	Total Structures, Inc.	A	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Peter Happe	Walt Disney	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Totals				17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	
Motion accepted?				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Comments to resolve?				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Name	Representing	Vote stat.	Int. cat.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Steve Butner	Aerial Rigging & Leasing, Inc.	P	P															
Brad Dittmer	Associated Theatrical Contractors	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Andrew T. Martin	ATM Group, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mark M. Witteveen	Chicago Flyhouse Inc.	P	U															
Wally Blount	Columbus McKinnon	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ron Fogel	Creative Realities, Inc.	P	G															
Reid Neslage	H & H Specialties Inc.	P	P	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Perry Langenstein	International Theatre Consultants	P	G															
Rodney F. Kaiser	J.R. Clancy, Inc.	P	P															
Mike Garl	James Thomas Engineering, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Andrew Smith	Jeamar Winches Inc.	P	P															
George Stingel	Kleege Industries	P	U															
Louis Bradfield	Louis Bradfield	I	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Tim Hansen	Oasis Stage Werks	P	U	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	1	Y
Frederick L. Smith	Olaf Soot Associates	P	P															
Tim Cox	PLASA	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Teddy Van Bommel	PRG	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Roo Dunn	Roo Dunn	I	U															
Richard Nix	Sacramento Theatrical Lighting	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Bill Sapsis	Sapsis Rigging, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Rocky Paulson	Stage Rigging, Inc.	P	U															
Jerry Gorrell	Theatre Safety Programs	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Keith Bohn	Tomcat USA, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Peter Hind	Total Structures, Inc.	A	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Peter Happe	Walt Disney	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2	Y	Y	Y
Totals				15=Y 2=N	17=Y1	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	16=Y 1=2	17=Y	15=Y 1=1 1=N	17=Y
Motion accepted?				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Comments to resolve?				Y	N	N	N	N	N	N	N	N	N	N	Y	N	Y	N

Name	Representing	Vote stat.	Int. cat.	31	32 (none)	33	34	35	36	37	38	39	40	41	42	43	44	45
Steve Butner	Aerial Rigging & Leasing, Inc.	P	P															
Brad Dittmer	Associated Theatrical Contractors	P	U	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Andrew T. Martin	ATM Group, Inc.	P	P	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mark M. Witteveen	Chicago Flyhouse Inc.	P	U															
Wally Blount	Columbus McKinnon	P	P	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ron Fogel	Creative Realities, Inc.	P	G															
Reid Neslage	H & H Specialties Inc.	P	P	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Perry Langenstein	International Theatre Consultants	P	G															
Rodney F. Kaiser	J.R. Clancy, Inc.	P	P															
Mike Garl	James Thomas Engineering, Inc.	P	P	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	P	U	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Andrew Smith	Jeamar Winches Inc.	P	P															
George Stingel	Kleege Industries	P	U															
Louis Bradfield	Louis Bradfield	I	U	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Tim Hansen	Oasis Stage Werks	P	U	Y		1	1	Y	Y	Y	Y	Y	2	2	Y	Y	Y	Y
Frederick L. Smith	Olaf Soot Associates	P	P															
Tim Cox	PLASA	P	G	Y		Y	Y	1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Teddy Van Bommel	PRG	P	U	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Roo Dunn	Roo Dunn	I	U															
Richard Nix	Sacramento Theatrical Lighting	P	G	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Bill Sapsis	Sapsis Rigging, Inc.	P	U	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Rocky Paulson	Stage Rigging, Inc.	P	U															
Jerry Gorrell	Theatre Safety Programs	P	G	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Keith Bohn	Tomcat USA, Inc.	P	P	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Peter Hind	Total Structures, Inc.	A	P	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Peter Happe	Walt Disney	P	U	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Totals				17=Y		16=Y 1=1	16=Y 1=1	16=Y 1=1	17=Y	17=Y	17=Y	17=Y	16=Y 1=2	16=Y 1=2	17=Y	17=Y	17=Y	17=Y
Motion accepted?				Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Comments to resolve?				N		Y	Y	Y	N	N	N	N	Y	Y	N	N	N	N

Name	Representing	Vote stat.	Int. cat.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Steve Butner	Aerial Rigging & Leasing, Inc.	P	P															
Brad Dittmer	Associated Theatrical Contractors	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Andrew T. Martin	ATM Group, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mark M. Witteveen	Chicago Flyhouse Inc.	P	U															
Wally Blount	Columbus McKinnon	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ron Fogel	Creative Realities, Inc.	P	G															
Reid Neslage	H & H Specialties Inc.	P	P	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Perry Langenstein	International Theatre Consultants	P	G															
Rodney F. Kaiser	J.R. Clancy, Inc.	P	P															
Mike Garl	James Thomas Engineering, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Andrew Smith	Jeamar Winches Inc.	P	P															
George Stingel	Kleege Industries	P	U															
Louis Bradfield	Louis Bradfield	I	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Tim Hansen	Oasis Stage Werks	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Frederick L. Smith	Olaf Soot Associates	P	P															
Tim Cox	PLASA	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Teddy Van Bommel	PRG	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Roo Dunn	Roo Dunn	I	U															
Richard Nix	Sacramento Theatrical Lighting	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Bill Sapsis	Sapsis Rigging, Inc.	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Rocky Paulson	Stage Rigging, Inc.	P	U															
Jerry Gorrell	Theatre Safety Programs	P	G	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Keith Bohn	Tomcat USA, Inc.	P	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Peter Hind	Total Structures, Inc.	A	P	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Peter Happe	Walt Disney	P	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Totals				17=Y	17=Y	16=Y 1=N	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y	17=Y
Motion accepted?				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Comments to resolve?				N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N

Name	Representing	Vote stat.	Int. cat.	61	62	63	64
Steve Butner	Aerial Rigging & Leasing, Inc.	P	P				
Brad Dittmer	Associated Theatrical Contractors	P	U	Y	Y	Y	Y
Andrew T. Martin	ATM Group, Inc.	P	P	Y	Y	Y	Y
Mark M. Witteveen	Chicago Flyhouse Inc.	P	U				
Wally Blount	Columbus McKinnon	P	P	Y	Y	Y	Y
Ron Fogel	Creative Realities, Inc.	P	G				
Reid Neslage	H & H Specialties Inc.	P	P	Y	Y	Y	Y
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U	Y	Y	Y	Y
Perry Langenstein	International Theatre Consultants	P	G				
Rodney F. Kaiser	J.R. Clancy, Inc.	P	P				
Mike Garl	James Thomas Engineering, Inc.	P	P	Y	Y	Y	Y
Jay O. Glerum	Jay O. Glerum & Associates, Inc.	P	U	Y	Y	Y	Y
Andrew Smith	Jeamar Winches Inc.	P	P				
George Stingel	Kleege Industries	P	U				
Louis Bradfield	Louis Bradfield	I	U	Y	Y	Y	Y
Tim Hansen	Oasis Stage Werks	P	U	Y	Y	Y	Y
Frederick L. Smith	Olaf Soot Associates	P	P				
Tim Cox	PLASA	P	G	Y	Y	Y	Y
Teddy Van Bommel	PRG	P	U	Y	Y	Y	Y
Roo Dunn	Roo Dunn	I	U				
Richard Nix	Sacramento Theatrical Lighting	P	G	Y	Y	Y	Y
Bill Sapsis	Sapsis Rigging, Inc.	P	U	Y	Y	Y	Y
Rocky Paulson	Stage Rigging, Inc.	P	U				
Jerry Gorrell	Theatre Safety Programs	P	G	Y	Y	Y	Y
Keith Bohn	Tomcat USA, Inc.	P	P	Y	Y	Y	Y
Peter Hind	Total Structures, Inc.	A	P	Y	Y	Y	Y
Peter Happe	Walt Disney	P	U	Y	Y	Y	Y
Totals				17=Y	17=Y	17=Y	17=Y
Motion accepted?				Y	Y	Y	Y
Comments to resolve?				N	N	N	N

Comments:

General:

Tim Cox
PLASA

In writing standards, we are aiming for consensus. Many of the comments received in the recent public review advised against publication of this standard because no venue has requirements that will be exactly met by this standard. Bearing in mind those comments, at the last Rigging Working Group meeting the consensus of the group was to continue working on the document and PLASA has also voted that way. However, in writing an ANSI standard, surely we must consider a wider consensus, including those who have commented against the document. Indeed, ANSI will be looking for evidence of that consensus when it publishes the document.

Perhaps we should change the emphasis of the standard. At the moment we have a set of requirements for a venue but all venues are different and this draft standard cannot be applied completely to them all. We should consider moving towards a guidance document, listing the topics that should be considered when designing a venue, offering advice on suitable venues and including worked examples as necessary. Such a document would be more useful to a designer than a set of fixed values.

-
- 16** Section 1 Scope: The last sentence in the second paragraph of Part 1 should be revised to read "The designer should determine the maximum potential loads and combinations and design for the most unfavorable effects." This change is to clarify that the loads from the rigging systems are highly variable depending on show designs and production schedules.
Steve A. Walker
Steve A. Walker & Associates

RESOLUTION: Makes no specific request. No action.

Tim Hansen
Oasis Stage Werks

The proposed resolution appears mis-placed since the comment does request specific revision. Taking no action is not correct, and therefore the proposed resolution should be rejected, and a new resolution drafted.

Reid Neslage
H & H Specialties Inc.

Comment by Mr. Walker does make a recommendation and specific request. Resolution that comment "...makes no specific request. No action." is not valid. Task group should review this comment once more.

27 Section 3.1.2 150 PSF is extremely high. The 60 PSF loading prescribed in ANSI/ASCE 7 "Minimum Design Loads for Buildings and Other Structures" and most building codes has a long record of satisfactory performance. The standard should also clarify if this loading is to be combined with the loft well loading.

Steve A. Walker

Steve A. Walker & Associates

RESOLUTION:

Due to increasing loads and the increasing use of chain hoists and similar high load devices on grids which result in higher grid loads than previously experienced, past history can be miss leading. No change.

Pete Happe

Walt Disney Imagineering

The question of whether this loading is in addition to the loft well loading needs to be addressed.

29 Section 3.1.5 and Note 1 The head block beams must be designed for the maximum capacity of the rigging system. This value is determined by factors such as the type of rigging system (single vs. double purchase), the number of rigging sets, the ratio of counterweight to arbor capacity and the support conditions of the head block beams. It is independent of the quantity and maximum load at the loft block wells. Loft well beams must be designed to support the maximum load in the lift line. This load includes the effects of concentrated loads and batten continuity. Under a uniform batten load, the maximum line load is often 125% of the total batten load divided by the number of liftlines. A concentrated load may result in loads two to three times this value. In addition, loft well typically have shorter spans the head block beams and must be designed considering that each loft block in that span is fully loaded. Head block beams usually span the entire depth of the stage and support all of the head blocks. Since the total counterweight does not equal the total arbor capacity (The ratio of counterweight to arbor capacity may be as low as 70 per cent.), the head block beams are often designed for the lower value. Table C3 of ANSI/ASCE 7 "Minimum Design Loads for Building and Other Structures," includes a minimum value of 1000 lb/ft that seems appropriate.

Steve A. Walker

Steve A. Walker & Associates

RESOLUTION:

This section and Mr. Walker's recommendation are the same for 4 loft block wells. The task group feels that for 5 lines and above 1000 lb/ft is too low a minimum. This becomes especially true when sets are placed on 6" and 8" centers.

Tim Hansen

Oasis Stage Werks

It is unclear what action is being proposed by the resolution. Is the comment being accepted or denied? This comment resolution needs to be revised.

Reid Neslage

H & H Specialties Inc.

Vertical loads on head beams should equal lateral loads on head beams in single purchase applications. See comment #48.

33 Section 3.1.8: Refer to 3.1.8 on Table 3.1 and revise the uniformly distributed live load for theatrical lighting mounting battens to 40 lb/ft.

RATIONALE: Pipe rails and lighting battens need to be able to accommodate the new larger/heavier intelligent lighting fixtures.

Ted Paget

Jones & Phillips Associates, Inc.

RESOLUTION: Accept

Tim Hansen

Oasis Stage Werks

This resolution is acceptable but this information must be coordinated with the other documents, notably BSR E1.4 - Counterweight Rigging Systems.

34 Section 3.1: In table 3.1 in line 3.1.2 the live load suggested for gridirons is 150 pounds per square foot. This is an error, or at least is an insufficient description of the problem. The grid live load required in the Building Code of the City of New York is 50 pounds per square foot in addition to rigging loads. This NYC wording is not clear, but I interpret it to mean 50 PSF in addition to the loft and head block beam loads. The standard grid floor -- 3 x 5 channels spaced on 6" centers and supported on 5' centers -- easily can take the 150 pounds per square foot proposed in the ESTA standard, that's not a problem. The problem occurs when the unit live load is figured over the whole grid area. Figured over the whole grid area the total live load becomes much too large. For example, in a 40' by 80' stage 150 PSF on the grid would total 480,000 pounds, all of which the structural engineer would have to hang from the roof, transfer to the walls and columns, and distribute to the foundations. This is nonsense! When have any of us ever seen 480,000 pounds of scenery hung at once? Never! I suggest the ESTA/ANSI standard should require a 50 pound per square foot live load on grid floors with allowance for a point loads as already proposed in table 3.2. There is a different potential problem here. The standard 3" channel floor is much stronger than needed to take 50 pounds OR 150 pounds per square foot, so the proposed standard may have the unintended effect of WEAKENING standard practice. To avoid weakening current practice, if desired, a note could be added to suggest the traditional 3" channel design, or to suggest allowing for a concentration of the 50 pound uniform live load in any 5' by 5' area of 150 pounds per square foot.

Proposed change:

"3.1.2 Gridirons 50 lb./ft.2 245kg/m2"

Robert Davis

Robert Davis Inc.

RESOLUTION: Accept.

Tim Hansen
Oasis Stage Werks

It is unclear what the resolution is accepting. The comment makes reference to two revisions, while the suggested new wording only refers to one of these issues. Please clarify the intent of the resolution to accept.

- 35** Section 3.1: In table 3.1 Minimum live loads the recommended live load 3.1.1 for stages and platforms is given as 125 pounds per square foot, which is the same load given in the UBC, Standard, and BOCA building codes. The Building Code of the City of New York, however, requires a live load for stages of 150 pounds per square foot. I'm concerned that the proposed ESTA/ANSI standard of 125PSF will mislead people into thinking that 125 is adequate in jurisdictions where it is not sufficient. There is a "global" warning in 1.Scope about some building codes requiring greater loads. But I suggest that this exception should be noted in the body of the standard because we know of at least one jurisdiction where the proposed standard is inadequate.

Proposed change:

Add a note to table 3.1 as follows:

"Note 2 - Greater live loads are required by code in the City of New York, and possibly elsewhere."

Robert Davis
Robert Davis Inc.

RESOLUTION: Accept.

Tim Cox
PLASA

We should add to the proposed change thus "Note 2 - At the time of writing greater live loads are required by code in the City of New York, and possibly elsewhere."

We do not want to have to revise this document every time the codes we refer to are revised.

- 40** Section 3.2.7 This paragraph contradicts the two paragraphs directly above it. This paragraph seems unjustified and should be deleted.
Steve A. Walker
Steve A. Walker & Associates

RESOLUTION:
Accept.

Tim Hansen
Oasis Stage Werks

This resolution appears to be in conflict with resolution 41. The resolution to comment 40 accepts the recommendation to delete Section 3.2.7, while the resolution to comment 41 corrects Section 3.2.7. Please clarify the status of Section 3.2.7.

41 Section 3.2.7: Refer to 3.2.7 and correct the spelling as follows: "Head block wells,...with point every 12 feet (3.7m)."
Ted Paget
Jones & Phillips Associates, Inc.

RESOLUTION:
Accept.

Tim Hansen
Oasis Stage Werks

This resolution appears to be in conflict with resolution 40. The resolution to comment 40 accepts the recommendation to delete Section 3.2.7, while the resolution to comment 41 corrects Section 3.2.7. Please clarify the status of Section 3.2.7.

48 Section 3.3.1 A lateral load of 1000 Lbs (equal to the vertical load) is more appropriate for head block beams.
Steve A. Walker
Steve A. Walker & Associates

RESOLUTION:
Accept.

Reid Neslage
H & H Specialties Inc.

In a typical single purchase counterweight rigging system, the vertical loads on the head beams are equal to the lateral loads imposed on the head beams. While comment resolution #48 regarding lateral loads is accepted, the resolution to comment #29 is not and a higher load for sets above five lines is recommended. Both comments should be consistent.