

Minutes
Rigging Working Group
Monday, 16 January 2023
via WebEx only

Chairpersons:

Bill Sapsis; Sapsis Rigging, Inc; P; U (presiding)
Chris Kaiser; Syracuse Scenery & Stage Lighting Co., Inc.; P; DR

Recording secretaries:

Karl Ruling and Richard Nix (ESTA)

Attendees:

Allen Winzler; Entertainment and Rigging Engineering; P; DE
Bartholomew J. Mueller; Recreation Engineering Inc.; P; DE
Bennett Brian; Reed Rigging Inc.; P; DR
Brent Armstrong; Alpine Rigging & Structural Design; P; CP
Bruce Darden; InterAmerica Stage; Inc.; P; CP
Cole Muth; Electronic Theatre Controls; Inc.; A; MP
Dan Culhane; Wenger Corp.; A; CP
David Boevers; Carnegie Mellon University; P; DE
Demian Purdy; Encore Global; A; U
Don Earl; Earl Girls; Inc.; P; DR
Ed Leahy; Chicago Flyhouse; Inc; P; CP
Edwin S. Kramer; I.A.T.S.E. Local 1; P; U
Eric Rouse; Entertainment Project Services; LLC; P; CP
Ethan W Gilson; Entertainment Rigging Services; LLC; P; U
Gert Jan Brouwer; Frontline Rigging & Motion B.V.; P; CP
Ian Bevan; Walt Disney Company; P; DE
Jason S. Waller; GIS Corporation US; wtg; MP
Jay Cid; R&M Materials Handling / Stagemaker; P; MP
Jeffrey M. Reder; Clark-Reder Engineering; Inc.; P; G
Jerald Kraft; Electronic Theatre Controls; Inc; O; MP
John Ringelman; Freeman Companies; P; DR
Jonathan Deull; JSD Projects LLC; P; U
Joseph Jeremy; Show Distribution Group; Inc.; P; CP
Kyle Kusmer; Steven Schaefer Associates; Inc; P; DE
Lee Chuong; Walt Disney Company; A; DE
Luke Ricca; Luke Ricca; O; G
Matt Jordan; Production Resource Group; A; DR
Max A. Wilson; Applied Electronics; P; MP
Michael Lichter; Electronic Theatre Controls; Inc.; A; MP
Mike Garl; Mike Garl Consulting LLC; P; DE
Mike Webb; Motion Laboratories; Inc.; A; MP
Mike Skinner; Contract Services Administration Trust Fund; P; U
Nathan Villines; Tyler Truss Systems; P; MP
Orestes Mihaly; Production Resource Group; P; DR
Patrick Stewart; Patrick Stewart; O; U
Paul "Luke" Lewkowicz; Paul E Lewkowicz PC; O; DE
Paul Brunner; Thern; Inc.; P; MP
Peter Batt; Mainstage Theatrical Supply, Inc; P; DR
Peter A. Scheu; Amer. Society of Theatre Consultants; A; DE
Quinten James; Flying By Troy; O; U
Rick Montgomery; Motion Laboratories; Inc.; P; MP
Robert Dean; ZFX; Inc.; P; CP
Robert Haycock; Robert Haycock; I; U
Robert Peterson; Shur-Rig LLC; A; G
Rod Haney; I.A.T.S.E. Local 891; P; U
Ryan Kunkel; Tait Towers Manufacturing LLC; A; CP
Ryan McAlpine; Foy Invenenterprises; Inc.; O; DR
Shane Kelly; Shane Kelly; I; U
Stephan Jon Wood; Tait Towers Manufacturing LLC; P; CP

Steve Walker; Steve A. Walker & Associates; P; G
Steven Serafin; The Hartford Group; O; G
Thomas Cowdery; Thomas Cowdery; I; U
Tim Hansen; Oasis Stage Werks; P; DR
Tim Franklin; Theta Consulting LLC; O; G
Tracy Nunnally; Vertigo; P; CP
Will Todd; Area Four Industries; P; MP

1 Opening Remarks

Bill Sapsis called the meeting to order at 16:03, by welcoming all, then expressing hopes that the holidays were good and that the year is off to a good start.

2 Patent and anti-trust statements

2.1 Reading of the anti-trust statement

Bill Sapsis read the following statement aloud to the assembly:

ESTA and its members take seriously their obligation to comply with all applicable antitrust laws. Therefore, during this meeting and during all ESTA events, all discussions will be limited to those subjects that are permitted by the antitrust laws. All members should refrain from any discussion or mention of competitively sensitive subjects such as the current or future prices charged for any member product or services, current or future marketing plans or strategies, and current or future costs, including employee salaries. There also must be no agreement on the suppliers or customers that members will or will not do business with or the markets in which members will conduct business.

Violations of the antitrust laws can have serious consequences. If you have any questions or concerns about anything that is discussed at an ESTA meeting, please bring your concern to ESTA management. An easy to read pamphlet describing the antitrust laws is available from the ESTA staff.

Karl Ruling displayed the pamphlet in front of his camera for all to see.

2.2 Reading of the call for patents

Bill Sapsis read the following statement aloud to the assembly:

ESTA intends not to publish any standard that contains protected intellectual property, unless that information can be licensed by anyone for a reasonable fee. ESTA uses a process of open patent and copyright disclosures to implement its intent. ESTA does not conduct patent or copyright searches and does not warrant that its standards contain no protected intellectual property.

In keeping with the open disclosures policy, I ask if anyone present wishes to notify this working group of the existence of a patent, patent application, copyright, or other protected intellectual property that might protect material in a standard being developed by this working group. You need not be the holder of the patent or copyright to notify this working group of its existence.

Nothing was revealed.

3 Attendance and Membership

3.1 Requirements for membership

Bill Sapsis read the following statement aloud to the assembly:

Membership is open to all parties who are affected by the work of the group; membership in ESTA is not a requirement, but there is a \$100/person/year participation fee to help fund the costs of running the Technical Standards Program. Voting members are required to attend meetings and vote on letter ballots. Any principal member and alternate that both miss three consecutive meetings or that miss three consecutive letter ballots will have their membership status changed to observer. This action will be taken at the beginning of the first meeting after such inaction and will be recorded in the minutes of that meeting.

3.2 Introduction of attendees

3.3 Determination of a quorum

(There are 66 voting entities after all changes. A quorum is 23, a supermajority is 34.)

3.4 Processing of new membership and status change requests

The following applications or status change requests have been received:

Jason Waller; GIS; O; MP [approved as Observer]
Michael Viau; Pinnacle Live; P; DE [approved as Observer]
Marco Robles; I.A.T.S.E. Local 80; P; U [approved as Observer]
Tim Franklin; Theta Consulting; [Approved as P]

Ethan Gilson moved to accept the applications and change requests, with those not present being accepted as Observer. The motion was seconded and carried without objection or abstention.

3.5 Changes to observer status due to lack of attendance or missed letter ballots

3.5.1 Attendance notices

The following voters have missed two consecutive meetings, and their status will be changed to that of Observer if this meeting is missed:

Will Todd; Area Four
Keith Bohn; Area Four
Ted Jones; Grand Stage

Those voters' status were changed to Observer.

3.5.2 Letter ballot notices

The following voters have missed two consecutive letter ballots, and will be moved to Observer status if the next ballot is missed.

There are none.

3.5.3 Automatic status changes occurring before this meeting

The following automatic status changes have occurred since the last meeting.

There are none.

3.6 Consensus body

The consensus body, before today's working group meeting's actions, is as follows:

Name	Representing	Status	Int Cat
Brent Armstrong	Alpine Rigging & Structural Design	P	CP
R. Duane Wilson	Amer. Society of Theatre Consultants	P	DE
Peter A. Scheu	Amer. Society of Theatre Consultants	A	DE
Max A. Wilson	Applied Electronics	P	MP
Jon Lenard	Applied Electronics	A	MP
Neil Montour	Atlanta Rigging Systems	P	DR
David Boevers	Carnegie Mellon University	P	DE
Ed Leahy	Chicago Flyhouse, Inc	P	CP
Jeffrey M. Reder	Clark-Reder Engineering, Inc.	P	G
Shawn Nolan	Clark-Reder Engineering, Inc.	A	G
Ken Tilson	Columbus McKinnon Corp.	P	MP
Nick Fleming	Columbus McKinnon Corp.	A	MP
Mike Skinner	Contract Services Administration Trust Fund	P	U
Chris Moulton	Contract Services Administration Trust Fund	A	U
Daniel Louis, P.E.	Daniel Louis, P.E.	I	DE
Tyler DeLong	DeLong Rigging Solutions	P	U
Don Earl	Earl Girls, Inc.	P	DR
Steven Ricks	Electronic Theatre Controls, Inc.	P	MP

Michael Lichter	Electronic Theatre Controls, Inc.	A	MP
Cole Muth	Electronic Theatre Controls, Inc.	A	MP
Mike Weston	Encore Global	P	U
Drew Wending	Encore Global	A	U
Demian Purdy	Encore Global	A	U
Tim Salamon	Encore Global	A	U
Greg Williams	Encore Global	A	U
Simon Grant	Encore Global	A	U
Allen Winzler	Entertainment and Rigging Engineering	P	DE
Eric Rouse	Entertainment Project Services, LLC	P	CP
Joseph Champelli	Entertainment Project Services, LLC	A	CP
Joshua "Fritz" Friedensohn	Entertainment Project Services, LLC	A	CP
Ethan W Gilson	Entertainment Rigging Services, LLC	P	U
John Ringelman	Freeman Companies	P	DR
Chris Schmidt	Freeman Companies	A	DR
Gert Jan Brouwer	Frontline Rigging & Motion B.V.	P	CP
Joe Golden	Gallagher Staging & Productions	P	DR
Miriam Paschetto	Geiger Engineers	P	DE
Zhou Jianzhao	Guangzhou Haoyang Electronic Co., Ltd.	P	CP
Pat Grenfell	Hoist Sales & Service	P	DR
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U
Rod Haney	I.A.T.S.E. Local 891	P	U
Ross Long	I.A.T.S.E. Local 891	A	U
Bruce Darden	InterAmerica Stage, Inc.	P	CP
Drew Becker	InterAmerica Stage, Inc.	A	CP
Jeremy Hodgson	Jeremy Hodgson	I	G
Jonathan Deull	JSD Projects LLC	P	U
William B. Gorlin	M.G. McLaren, P.C.	P	G
Peter W. Batt	Mainstage Theatrical Supply, Inc	P	DR
Mike Garl	Mike Garl Consulting LLC	P	DE
Rick Montgomery	Motion Laboratories, Inc.	P	MP
Mike Webb	Motion Laboratories, Inc.	A	MP
Michael Shaw	Motion Laboratories, Inc.	A	MP
Stefan Pries	NEP Live Events	P	DR
Tim Hansen	Oasis Stage Werks	P	DR
Orestes Mihaly	Production Resource Group	P	DR
Troy Atkinson	Production Resource Group	A	DR
Matt Jordan	Production Resource Group	A	DR
John Caudill	Productions Unlimited	P	DE
Jay Cid	R&M Materials Handling / Stagemaker	P	MP
Bartholomew J. Mueller	Recreation Engineering Inc.	P	DE
Bennett Brian	Reed Rigging Inc.	P	DR
Andrew Volk	Reed Rigging, Inc.	A	DR
Elmer Veith	Reliable Design Services	P	CP
Matt Panther	Reliable Design Services	A	CP
Richard J. Nix	Richard J. Nix	I	G
Ryan Riordan	Riordan Rigging LLC	P	U
Robert Haycock	Robert Haycock	I	U

Jesse Adams	Rose Brand Wipers, Inc	P	DR
Stewart Stephens	S2 Technologies	P	G
Bill Sapsis	Sapsis Rigging, Inc.	P	U
Shane Kelly	Shane Kelly	I	U
Joseph Jeremy	Show Distribution Group, Inc.	P	CP
Bill McIntyre	Show Distribution Group, Inc.	A	CP
Sanford P. Gilzow	Shur-Rig LLC	P	G
Robert Peterson	Shur-Rig LLC	A	G
Dana Bartholomew	Silver State Wire Rope and Rigging	P	DR
Siobhan Gee	Siobhan Gee	I	G
Steve Walker	Steve A. Walker & Associates	P	G
Kyle Kusmer	Steven Schaefer Associates, Inc	P	DE
Christine L. Kaiser	Syracuse Scenery & Stage Lighting Co., Inc.	P	DR
Harold Ike Shippers	Syracuse Scenery & Stage Lighting Co., Inc.	A	DR
Stephan Jon Wood	Tait Towers Manufacturing LLC	P	CP
Ryan Kunkel	Tait Towers Manufacturing LLC	A	CP
Reid Neslage	Texas Scenic Company	P	DR
Russell Solomon	Texas Scenic Company	A	DR
Tony Diemont	Texas Scenic Company	A	DR
Jim Niesel	Theatre Projects Consultants, Inc.	P	DE
Jerry Gorrell	Theatre Safety Programs	P	G
Paul Brunner	Thern, Inc.	P	MP
Jeff Wilkowski	Thern, Inc.	A	MP
Tim Franklin	Theta Consulting	P	G
Thomas Cowdery	Thomas Cowdery	I	U
Nathan Villines	Tyler Truss Systems	P	MP
Bill Edwards	Tyler Truss Systems	A	MP
Josh Conner	Tyler Truss Systems	A	MP
Todd Spencer	Ventana Capital Investments LLC	P	G
Tracy Nunnally	Vertigo	P	CP
John P. Moore	Vertigo	A	CP
Ian Bevan	Walt Disney Company	P	DE
Lee Chuong	Walt Disney Company	A	DE
Peter V. Svitavsky	Wenger Corp.	P	CP
Dan Culhane	Wenger Corp.	A	CP
Paul Zagajeski	Wenger Corp.	A	CP
Robert Dean	ZFX, Inc.	P	CP
Troy Trinkle	ZFX, Inc.	A	CP
		Total consensus votes:	66
Votes by interest category	Custom market producers (CP):	12	
	Mass market producers (MP):	7	
	Designers (DE):	12	
	Dealer or rental company (DR):	13	
	User (U):	12	
	General Interest (G):	10	

4 Approval of the minutes from the last meeting

[See RWGmin09-2022_DRAFT.pdf]

Dan Culhane moved to approve the draft minutes. The motion was seconded and carried without objection or abstention.

5 Approval of agenda

Dan Culhane moved to approve the agenda. The motion was seconded, and carried without objection or abstention.

6 Old Business

6.1 ANSI E1.1 – 2018, Wire Rope Ladders (Reaffirm, revise, or withdraw by 27 September 2023)

The working group has eight months - two meeting cycles - to decide what to do.

Bill Sapsis asked if anyone wanted to do anything with it now. No response.

6.2 ANSI E1.2 - 2021, Entertainment Technology - Design, Manufacture and Use of Aluminum Trusses and Towers (Reaffirm, revise, or withdraw by 06 May 2026).

6.3 ANSI E1.4-1 - 2022, Entertainment Technology--Manual Counterweight Rigging Systems (Reaffirm, revise, or withdraw by 27 October 2027)

It's published!

6.4 ANSI E1.4-2 - 2021, Entertainment Technology—Statically Suspended Rigging Systems (Reaffirm, revise, or withdraw by 06 May 2026.)

[See Modification request for ANSI E1.4-2 -2021 _ Fastmail.pdf]

In November 2022, Steve Ellison brought to our attention that The Light Source has developed a load-rated aluminum-body turnbuckle, which is presently not permitted by ANSI E1.4-2, section 4.3.6.1, because it is not a forged-body turnbuckle. He suggests that ANSI E1.4-2 must be revised in order to accommodate this new technology. He said they have done load testing, and the WLL uses a design factor of either 8, or 10, vs ultimate failure (he will confirm at this meeting). This might also impact ANSI E1.4-1, which has similar restrictions on turnbuckles.

The RWG needs to decide how to address this concern.

Bill Sapsis read the statement. Steve Ellison was not present. Bill Sapsis asked Karl Ruling what ANSI thought our options would be. Karl Ruling explained them.

The working group agreed that this was sufficiently addressed in section 1.4 Alternative Designs, which states, "This standard is not intended to prevent alternative designs, materials or technology. Alternative designs, materials or technology shall comply with the intent of this standard, as deemed applicable by a qualified person." Ellison can cite that section as allowing the use of his aluminum turnbuckles by following the sections requirements. We will archive the comment for the next revision. Richard will respond to Steve's question on behalf of the working group.

6.5 ANSI E1.4-3 - 2020, Entertainment Technology - Manually Operated Hoist Rigging Systems (Reaffirm, revise, or withdraw before 02 June 2025)

6.6 ANSI E1.6-1 - 2021, Entertainment Technology--Powered Hoist Systems (Reaffirm, revise, or withdraw before 10 May 2024)

6.7 ANSI E1.6-2 - 2020, Entertainment Technology--Design, Inspection, and Maintenance of Electric Chain Hoists for the Entertainment Industry (Reaffirm, revise, or withdraw before 14 August 2025)

6.8 ANSI E1.6-3 - 2019, Selection and Use of Serially Manufactured Chain Hoists in the Entertainment Industry (Reaffirm, revise, or withdraw 07 October 2024)

6.9 ANSI E1.6-4 - 2022, Design, Manufacture, and Inspection of Portable Controls for Electric Chain Hoists in the Entertainment Industry [Revise, reaffirm or withdraw before 30 October 2027]

It's published!

6.10 ANSI E1.6-5 - 2022, Selection and Use of Portable Controls for Electric Chain Hoists in the Entertainment Industry [Revise, reaffirm or withdraw before 30 October 2027]

It's published!

6.11 ANSI E1.8 – 2018, Entertainment Technology—Loudspeaker Enclosures Intended for Overhead Suspension—Classification, Manufacture and Structural Testing (Reaffirm, revise, or withdraw by 29 November 2023)

The working group has ten months - three meeting cycles – to decide what to do.

Peter Batt asked if this was covered under statically suspended rigging. Dan Culhane pointed out the difference between rigging from a batten versus being attached to structure. Ethan Gilson noted that E1.4-2 does cover this. Bill Sapsis asked if the working group wanted to do something with it at this time. Richard Nix suggested everyone read the standard, then come to the next meeting prepared to consider a motion to reaffirm.

6.12 ANSI E1.15 - 2006 (R2021), Entertainment Technology--Recommended Practices and Guidelines for the Assembly and Use of Theatrical Boom & Base Assemblies (Reaffirm, revise, or withdraw before 08 March 2026)

6.13 BSR E1.21 - 202x, Entertainment Technology — Temporary Structures Used for Technical Production of Outdoor Entertainment Events (open for revision) *Task group members:* Richard Nix (task group leader), Bill Gorlin, Dan Louis, Sandy Gilzow, Kyle Kusmer, Elmer Veith, Ryan Riordan, Joe Golden, Shawn Nolan, Allen Winzler, and Donald Scott.

Any news or updates?

Richard Nix reported. The IBC changes have been approved. He's asked that the code changes be provided to us in a format that we can copy and paste into this document. We will change E1.21 to be consistent with the IBC and IFC.

6.14 ANSI E1.22 - 2022, Entertainment Technology - Fire Safety Curtain Systems (Reaffirm, revise, or withdraw by 25 April 2027).

6.15 ANSI E1.39 - 202x, Entertainment Technology –Selection and Use of Personal Fall Arrest Systems on Portable Structures Used in the Entertainment Industry (Reaffirm, revise, or withdraw by 06 May 2026).

6.16 BSR E1.43 - 202x, Live performer flying effect standard (Open for revision) *Task group members:* Eric Rouse (task group leader), Jonathan Duell, Ryan Kunkel, Robert Dean, Tracy Nunnally, Bill Gorlin, Fred Caron, and Stewart Stephens.

The task group provided a progress update draft at September's meeting, with a request for working group feedback by 01 November 2022.

Any news or updates?

Eric Rouse reported that they have an updated revision to send out to the working group within the next few days. Bill Sapsis asked if they had received feedback from the last request, Eric responded, yes, they had received a few responses. Bill Gorlin added that the feedback was very useful.

6.17 ANSI E1.47 – 2020, Recommended Guidelines for Entertainment Rigging System Inspections (Reaffirm, revise or withdraw before 18 June 2025)

Any news or updates?

6.18 BSR E1.50-1 – 202x, Requirements for the Structural Support of Temporary LED, Video & Display Systems (Open for revision). *Task Group Members:* Charlie Weiner, Stefan Pries, Siobhan Ghee, Joe Golden, Sandy Gilzow (Task group leader), Robert Peterson, Steve Walker, and Richard Nix

Any news or updates?

Robert Peterson reported there has been no progress due to scheduling difficulties and that the group is working to improve progress. Robert was then appointed to the task group, by Bill Sapsis.

6.19 ANSI E1.56 - 2018, Rigging Support Points Design, Fabrication, Installation, and Testing (Reaffirm, revise or withdraw by 06 November 2023)

The working group has 10 months - three more meeting cycles - to decide what to do.

6.20 ANSI E1.67 – 2021, Design, Inspection, Maintenance, Selection, and Use of Hand-operated Chain- and Lever Hoists for the Entertainment Industry (Reaffirm, revise, or withdraw by 06 May 2026).

6.21 BSR E1.70 – 202x, Selection and Use of Ground Supported Winch Stands and Towers in the Entertainment Industry *Task group members:* Jacob Abbott, Ethan Gilson (task group leader), Eric Rouse, Will Todd, Elmer Veith, Ryan Riordan, and Max Wilson, Mike Weston.

Any news or action?

Ethan Gilson reported that Karl was able to obtain a copy of DIN 56950 in December - it's the same subject matter, and is in a surprisingly concise format – so they are now moving forward, and hope to have something by next meeting.

7 New business

8 Other business and announcements

8.1 Above & Beyond Awards

Information on the Above & Beyond Awards may be found at http://tsp.esta.org/tsp/news/award_recipients.html. The nomination site is open year round, and the award is designed for members to highlight the work of their peers. The deadline for nominations is 01 November.

9 Schedule for future meetings

The meeting schedule is posted at <http://www.esta.org/ESTA/meetings.php>.

The Spring 2023 meeting will be in Anaheim, CA., held in conjunction with the 2023 NAMM Show, week of 10 April 2023. The ETCP Council is the only committee who will meet at USITT. Summer meetings will return to the Marriott DFW Westlake, the week of 24 July 2023.

The RWG meets on Thursday 13 April at 7:00 PM Pacific Time.

10 Adjournment

Having reached the end of the agenda business, there being no further business brought forth, Bill Sapsis adjourned the meeting at 16:48.

Rigging Working Group members as of 16 Jan 2023

Name	Representing	Status	Int Cat
Jesse Adams	Rose Brand Wipers, Inc	P	DR
Matthew Antonucci	Contract Services Administration Trust Fund	O	U
Brent Armstrong	Alpine Rigging & Structural Design	P	CP
Troy Atkinson	Production Resource Group	A	DR
William Ian Auld	Auld Entertainment	O	U
Robert Barbagallo	Solotech Inc.	O	DR
Dana Bartholomew	Silver State Wire Rope and Rigging	P	DR
Patrick Bash	In-House Production	O	DR
Peter W. Batt	Mainstage Theatrical Supply, Inc	P	DR
William Beautyman	Limelight Productions, Inc.	O	DR
Drew Becker	InterAmerica Stage, Inc.	A	CP
Justin Bennett	University of the Incarnate Word	O	U
Jordi Van Berkum	Cybermotion North America	O	DR
Ian Bevan	Walt Disney Company	P	DE
Roy Bickel	Roy Bickel	O	G
Tyler Bland	Walt Disney Company	O	U
David Boevers	Carnegie Mellon University	P	DE
Bennett Brian	Reed Rigging Inc.	P	DR
Gert Jan Brouwer	Frontline Rigging & Motion B.V.	P	CP
Paul Brunner	Thern, Inc.	P	MP
David M. Campbell	Geiger Engineers	O	G
Frederic Caron	Frederic Caron	O	U
John Caudill	Productions Unlimited	P	DE
Joseph Champelli	Entertainment Project Services, LLC	A	CP
Lee Chuong	Walt Disney Company	A	DE
Jay Cid	R&M Materials Handling / Stagemaker	P	MP
Daniel J. Clark	Clark-Reder Engineering, Inc.	O	G
Darren Coats	Safety Factor Training and Consulting	O	U
Josh Conner	Tyler Truss Systems	A	MP
Thomas Cowdery	Thomas Cowdery	I	U
Brandon Cox	Heavyweight Solutions	O	CP
Dan Culhane	Wenger Corp.	A	CP
Bruce Darden	InterAmerica Stage, Inc.	P	CP
David Darland	Encore Global	O	U
Robert Dean	ZFX, Inc.	P	CP
Tyler DeLong	DeLong Rigging Solutions	P	U

Rigging Working Group members as of 16 Jan 2023

Jonathan Deull	JSD Projects LLC	P	U
Tony Diemont	Texas Scenic Company	A	DR
Jim Digby	Event Safety Alliance	O	U
Brad Dittmer	Stage Labor of the Ozarks	O	U
Russ Dusek	I Weiss	O	MP
Don Earl	Earl Girls, Inc.	P	DR
Bill Edwards	Tyler Truss Systems	A	MP
Jennifer Ferguson	Kito Group	O	MP
Nick Fleming	Columbus McKinnon Corp.	A	MP
Tim Franklin	Theta Consulting LLC	P	G
Joshua "Fritz" Friedensohn	Entertainment Project Services, LLC	A	CP
Mike Garl	Mike Garl Consulting LLC	P	DE
James M. Garner	Walt Disney Company	O	G
Siobhan Gee	Siobhan Gee	I	G
Ethan W Gilson	Entertainment Rigging Services, LLC	P	U
Sanford P. Gilzow	Shur-Rig LLC	P	G
Joe Golden	Gallagher Staging & Productions	P	DR
Tiny Good	Showtech Australia	O	U
William B. Gorlin	M.G. McLaren, P.C.	P	G
Jerry Gorrell	Theatre Safety Programs	P	G
Michael P. Gosenski	Rigging Systems LLC	O	U
Simon Grant	Encore Global	A	U
Pat Grenfell	Hoist Sales & Service	P	DR
Phillip R. Hampton	Charcoalblue	O	DE
Rod Haney	I.A.T.S.E. Local 891	P	U
Tim Hansen	Oasis Stage Werks	P	DR
Sean Harding	Port Lighting Systems	O	G
Robert Haycock	Robert Haycock	I	U
Chris Higgs	Total Solutions Group	O	G
Jeremy Hodgson	Jeremy Hodgson	I	G
Donald Hoffend_III	Avista Designs, LLC	O	G
Quinten James	Flying By Troy	O	U
Joseph Jeremy	Show Distribution Group, Inc.	P	CP
Zhou Jianzhao	Guangzhou Haoyang Electronic Co., Ltd.	P	CP
Ted Jones	Grand Stage	O	U
Matt Jordan	Production Resource Group	A	DR
Christine L. Kaiser	Syracuse Scenery & Stage Lighting Co., Inc.	P	DR

Rigging Working Group members as of 16 Jan 2023

Shane Kelly	Shane Kelly	I	U
Jerald Kraft	Electronic Theatre Controls, Inc	O	MP
Edwin S. Kramer	I.A.T.S.E. Local 1	P	U
Ryan Kunkel	Tait Towers Manufacturing LLC	A	CP
Kyle Kusmer	Steven Schaefer Associates, Inc	P	DE
Ed Leahy	Chicago Flyhouse, Inc	P	CP
Jon Lenard	Applied Electronics	A	MP
Phillip Lewis	Tait Towers Manufacturing LLC	O	CP
Paul "Luke" Lewkowicz	Paul E Lewkowicz PC	O	DE
Michael Lichter	Electronic Theatre Controls, Inc.	A	MP
Ross Long	I.A.T.S.E. Local 891	A	U
Jacob E. Loretto	Musson Theatrical Inc.	O	DR
Wendy Manson	Wendy Manson	O	G
Ryan McAlpine	Foy Inventerprises, Inc.	O	DR
Bill McIntyre	Show Distribution Group, Inc.	A	CP
Orestes Mihaly	Production Resource Group	P	DR
Rick Montgomery	Motion Laboratories, Inc.	P	MP
Neil Montour	Atlanta Rigging Systems	P	DR
John P. Moore	Vertigo	A	CP
Chris Moulton	Contract Services Administration Trust Fund	A	U
Bartholomew J. Mueller	Recreation Engineering Inc.	P	DE
Cole Muth	Electronic Theatre Controls, Inc.	A	MP
John Neal	Rhino Staging	O	G
Reid Neslage	Texas Scenic Company	P	DR
Jim Niesel	Theatre Projects Consultants, Inc.	P	DE
Richard J. Nix	Richard J. Nix	I	G
Shawn Nolan	Clark-Reder Engineering, Inc.	A	G
Tracy Nunnally	Vertigo	P	CP
Gregory Orth	WNP Services, Inc.	O	DR
Daniel Louis, P.E.	Daniel Louis, P.E.	I	DE
Matt Panther	Reliable Design Services	A	CP
Miriam Paschetto	Geiger Engineers	P	DE
Robert Peterson	Shur-Rig LLC	A	G
Kurt Pragman	Pragman Associates, LLC	O	G
Stefan Pries	NEP Live Events	P	DR
Demian Purdy	Encore Global	A	U
Jeffrey M. Reder	Clark-Reder Engineering, Inc.	P	G

Rigging Working Group members as of 16 Jan 2023

Luke Ricca	Luke Ricca	O	G
Steven Ricks	Electronic Theatre Controls, Inc.	P	MP
Mark Riddlesperger	LA ProPoint, Inc.	O	CP
John Ringelman	Freeman Companies	P	DR
Ryan Riordan	Riordan Rigging LLC	P	U
Marco Robles	I.A.T.S.E. Local 80	O	U
Ryan Roby	Ryan Roby	O	U
Eric Rouse	Entertainment Project Services, LLC	P	CP
Tim Salamon	Encore Global	A	U
Bill Sapsis	Sapsis Rigging, Inc.	P	U
Peter A. Scheu	Amer. Society of Theatre Consultants	A	DE
Chris Schmidt	Freeman Companies	A	DR
Donald Scott	Structural Engineering Institute of ASCE	O	DE
Ford Sellers	Chauvet Lighting	O	MP
Steven Serafin	The Hartford Group	O	G
Michael Shaw	Motion Laboratories, Inc.	A	MP
Harold Ike Shippers	Syracuse Scenery & Stage Lighting Co., Inc.	A	DR
Mike Skinner	Contract Services Administration Trust Fund	P	U
Monica Skjonberg	Skjonberg Controls, Inc.	O	CP
Knut Skjonberg	Skjonberg Controls, Inc.	O	CP
John C. Snook	Thermotex Industries Inc.	O	CP
Lynn M. Snook	Thermotex Industries Inc.	O	CP
Russell Solomon	Texas Scenic Company	A	DR
Todd Spencer	Ventana Capital Investments LLC	P	G
Stewart Stephens	S2 Technologies	P	G
Patrick Stewart	Patrick Stewart	O	U
Peter V. Svitavsky	Wenger Corp.	P	CP
Ross Taylor	Taylor & Taylor Associates	O	G
Jason Tello	T6 Truss Designs. LLC	O	CP
Ken Tilson	Columbus McKinnon Corp.	P	MP
Will Todd	Area Four Industries	O	MP
Troy Trinkle	ZFX, Inc.	A	CP
Stephen Vanciel	IATSE Local 631	O	U
Elmer Veith	Reliable Design Services	P	CP
Michael Viau	Pinnacle Live	O	DE
Nathan Villines	Tyler Truss Systems	P	MP
Andrew Volk	Reed Rigging, Inc.	A	DR

Rigging Working Group members as of 16 Jan 2023

Steve Walker	Steve A. Walker & Associates	P	G
Jason S. Waller	GIS Corporation US	O	MP
Mike Webb	Motion Laboratories, Inc.	A	MP
Charlie Weiner	Eurotruss	O	MP
Michael Wells	Xtreme Structures and Fabrication	O	MP
Drew Wending	Encore Global	A	U
Marty Wesstrom	Mountain Productions Inc.	O	DR
Mike Weston	Encore Global	P	U
Jeff Wilkowski	Thern, Inc.	A	MP
Greg Williams	Encore Global	A	U
R. Duane Wilson	Amer. Society of Theatre Consultants	P	DE
Max A. Wilson	Applied Electronics	P	MP
Allen Winzler	Entertainment and Rigging Engineering	P	DE
Stephan Jon Wood	Tait Towers Manufacturing LLC	P	CP
Jeong Sik Yoo	Ghost LX	O	DE
Andrew Young	Andrew Young	O	U
Paul Zagajeski	Wenger Corp.	A	CP