

Minutes
Electrical Power Working Group
Friday, 20 January 2006
Dallas/Ft. Worth Airport Marriott South
Ft. Worth, TX

Presiding chairmen: Ken Vannice; Colortran (Leviton Manufacturing Co., Inc.); P; MP
Bob Luther; Lex Products Corp.; P; CP

Recording secretary: Karl G. Ruling; ESTA

Members attending:

Paul Menetrey; Menetrey Partners (Bender GmbH & Co. KG); A; MP
Steve Terry; Electronic Theatre Controls, Inc.; P; MP
Ian Foulds; IATSE Local 873, representing the Entertainment Electrical Safety Committee of Ontario;
P; G
Edwin S. Kramer; I.A.T.S.E. Local 1; P; U
Roger Lattin; IATSE Local 728; P; U
Keith S. Woods; Lakhri Impressions Ltd., representing IATSE Local 891; P; U
John (Javid) D. Butler; Integrated Theatre, Inc.; P; CP
Stephen J. Kay; K-Tec Corporation; P; MP
Kenneth M. Makowski; Lex Products Corp.; A; CP
Louis Bradfield; I; U
Jeff deRecat; Marinco/ADI (Marinco); P; MP
W. G. Krokaugger P.E.; Mole-Richardson Co.; P; CP
Michael Scudday; SSRC, Inc.; P; CP
Michael Lay; Strand Lighting (Strand Lighting Ltd.); P; MP
Jerry Gorrell; Theatre Safety Programs; P; U
Richard Wolpert; Union Connector Company; P; CP
Mitch Hefter; Entertainment Technology (Genlyte Group), representing USITT; P; U
William L. Maiman; William L. Maiman; P; U

Visitors: None.

1 Opening remarks

The meeting was called to order by Ken Vannice at 08:03. He welcomed everyone to Fort Worth.

2 Attendance and membership

2.1 Introduction of those present and taking attendance

A dull green attendance sign-in sheet was circulated while those present introduced themselves.

Nic Bowker had sent his regrets. Family responsibilities kept him from leaving the UK at this time.

2.2 Determination of quorum

Ken Vannice asked voters to raise their hands. He counted the raised hands and then announced that more than half the total voting body was present. This was more than enough to constitute a quorum.

2.3 Recognition of alternate voting members

Alternate voting members were recognized and reminded that they and their principal may not both vote on a motion. Only one vote per voting entity is allowed.

2.4 Requirements for membership

Vannice reminded those present that membership is open to all who are affected by the work of the group. Companies that would be in the dealer/rental company interest category in particular are

encouraged to become members. Voting members are required to attend meetings and to vote on letter ballots. Voting members and their alternates may not miss three consecutive meetings without a loss of voting status.

2.5 Processing of new membership requests

The following people had applied for membership:

David Murray of IPC Resistors as an observer in the custom-producer category
 Julie Rogers of the City of Phoenix Civic Plaza as an observer in the general interest category
 Ford Sellers of Cornell University as an observer in the user interest category

Eddie Kramer moved that the applications be accepted. The motion was seconded and then approved by a unanimous show of hands.

The full consensus body during this meeting, including those not present, was:

Name	Company	Representing	Voting status	Int. cat.
Michael Amorelli	AC Power Distribution Inc.	AC Power Distribution Inc.	P	CP
James Davey	AC Power Distribution Inc.	AC Power Distribution Inc.	A	CP
George Long	Aggreko Event Services	Aggreko	P	DR
Kenny Delahoussaye	Aggreko	Aggreko	A	DR
Wolfgang Hofheinz	Bender GmbH & Co. KG	Bender GmbH & Co. KG	P	MP
Joe Boardman	Bender Inc.	Bender GmbH & Co. KG	A	MP
Paul Menetrey	Menetrey Partners	Bender GmbH & Co. KG	A	MP
Steve Terry	Electronic Theatre Controls	Electronic Theatre Controls, Inc.	P	MP
Ian Foulds	IATSE Local 873	Entertainment Electrical Safety Committee of Ontario	P	G
Pat Miller	Hubbell Wiring Devices	Hubbell Inc.	P	MP
Edwin S. Kramer	I.A.T.S.E. Local 1	I.A.T.S.E. Local 1	P	U
Roger Lattin	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	P	U
R. Bruce Prochal	IATSE Local 728	I.A.T.S.E. Local 728	A	U
Patric J. Abaravich	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	A	U
Alan M. Rowe	I.A.T.S.E. Local 728	I.A.T.S.E. Local 728	A	U
Keith S. Woods	Lakhri Impressions Ltd.	IATSE Local 891	P	U
John (Javid) D. Butler	Integrated Theatre, Inc.	Integrated Theatre, Inc.	P	CP
Stephen J. Kay	K-Tec Corporation	K-Tec Corporation	P	MP
Ken Vannice	Colortran	Leviton Manufacturing Co., Inc.	P	MP
Bill Grande	Leviton Manufacturing Co., Inc.	Leviton Manufacturing Co., Inc.	A	MP
Bob Luther	Lex Products Corp.	Lex Products Corp.	P	CP
Kenneth M. Makowski	Lex Products Corp.	Lex Products Corp.	A	CP
Louis Bradfield	Louis Bradfield	Louis Bradfield	I	U
Jeff deRecat	Marinco/ADI	Marinco	P	MP
Bud Toly	Marinco/ADI	Marinco	A	MP
William Drake	Marinco	Marinco	A	MP
W. G. Krokaugger P.E.	Mole-Richardson Co.	Mole-Richardson Co.	P	CP
Al DeMayo	Mole-Richardson Co.	Mole-Richardson Co.	A	CP
Nic Bowker	PLASA	PLASA	P	G
Michael Scudday	SSRC, Inc.	SSRC, Inc.	P	CP
Stephen Vanciel	Stephen Vanciel	Stephen Vanciel	P	U
Michael Lay	Strand Lighting	Strand Lighting Ltd.	P	MP
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	P	U
Michele Yindrick	TMB	TMB	P	MP
Colin Waters	TMB	TMB	A	MP

Name	Company	Representing	Voting status	Int. cat.
Richard Wolpert	Union Connector Company	Union Connector Company	P	CP
Mitch Hefter	Entertainment Technology (Genlyte Group)	USITT	P	U
William L. Maiman	William L. Maiman	William L. Maiman	P	U
		Total votes possible	25	
		Votes by interest category	6	CP
			8	MP
			1	DR
			8	U
			2	G

3 Approval of the minutes from the previous meeting

Mitch Hefter moved that the draft minutes of the November meeting (EP/2005-7020) be accepted. . The motion was seconded and then approved by a show of hands, with all voting in favor, except for one abstention.

4 Reading of the call for patents

The following statement was read aloud to the assembly by Ken Vannice:

"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 or copyright or other 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."

No protected intellectual property issues were brought to the attention of the assembly.

5 Reading of the anti-trust statement

The following statement was read aloud to the assembly by Ken Vannice:

"The ESTA Board of Directors, the Technical Standards Committee, and the leadership of this working group will reject or nullify any actions that unlawfully restrain trade. Anyone who feels that such an action is being or has been taken is requested to bring that 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 violations of the anti-trust laws can have serious consequences. Individuals engaged in certain unlawful conduct can be found criminally liable. An individual convicted of a criminal violation of the Sherman Act may be fined as much as \$1,000,000 and imprisoned for up to ten years. An easy to read pamphlet describing restraint of trade issues is available from the Technical Standards Manager."

Karl Ruling, the Technical Standards Manager, held up some of the easy-to-read pamphlets to show their availability.

No restraint of trade issues were brought to the attention of the assembly.

6 Approval of agenda

Ken Vannice asked that a discussion of working group leadership be added under New Business.

Ian Foulds asked to give a report on the Ontario procedure for the certification of entertainment technician under New Business.

Steve Terry moved that the agenda so modified with these New Business additions be accepted. The motion was seconded and then approved by a unanimous show of hands.

7 Old business - task group reports

7.1 EMC task group [Vannice]

Ken Vannice reported the the US contingent to the IEC is working on assembly representatives and how they are to relate to each other.

There seem to be interest in making some kind of statement about national bodies being able to tighten or loosen international standards to adapt to local conditions.

7.2 BSR E1.24 pin connectors

Ruling reported that the motion to accept BSR E1.24, Entertainment Technology—Dimensional Requirements for Stage Pin Connectors (EP/2003-7005r2.1) as an American National Standard had been accepted with a supermajority of the working group (20:25) voting in favor. There were no negative votes or comments to resolve.

Ruling reported that there had been no recorded disagreement to the resolutions from the commenters; all had either written to say they agreed with the resolutions, voted to accept the standard, or not responded within the deadline, after which they would be considered to be satisfied with the resolutions.

7.3 BSR E1.18 portable feeder cable selection and use

Eddie Kramer reported on the project's progress. He described the task group's meetings at Hilton Head after the NEC meetings. He reported that Steve Terry has volunteered to reorganize the table of contents so that simple systems are described before complex ones are described. Systems will be renamed to better describe them.

Kramer said the task group would have a document ready well before the next meeting. He would like to have comments back to him so disagreements can be addressed before the public review vote.

Kramer asked for help with Appendix D, which deals with the relative advantages and disadvantages of systems. Steve Terry particularly asked for input from people who have used closed loop systems. Terry said that he would like there to be a section that helps the reader quickly decide what kind of system is appropriate for his situation.

Bob Luther thanked the members of the task group for all their work.

7.4 BSR E1.19 GFCI task group [Luther]

Bob Luther reported on the public review comment resolutions. There were 54 comments, and in a long meeting last night were able to resolve the comments.

Luther verbally reviewed the comments and the resolutions. Some of the comments were from people who wanted the document to provide solutions to problems, but in some cases, there is no simple solution. We can't solve their problem with this document.

Steve Terry asked about whether the document has been written with sensitivity to the working practices outside North America. Specifically, in some places 30 mA trip points are acceptable for personel protection. Should we address these differences to demonstrate some concern for users outside the US?

There was a discussion of this. It was noted that a paragraph explaining the US-centric view was buried in the document but will be moved to the scope. It acknowledges other practices, but says that

this document is for US-practice. This seems to adequately acknowledge other national practices. The words "in North America" will be added to the title.

7.5 Luminaire inspection guidance

Jerry Gorrell said that his document was a demonstration document, not something that rises to the level of a first draft. It is now up to the working group to decide if we want to move forward with such a project. There was discussion of the usefulness of the document.

Mitch Hefter moved that we establish a project to write an American National Standard recommended practice for stage and studio luminaire inspection. The motion was seconded. By show of hands all in favor but one against.

Jerry Gorrell was appointed to be the task group head.

It was agreed in discussion that the scope for the ANSI PINS shall read: This document shall provide guidance in the periodic inspection of stage and studio luminaires and accessories used in the entertainment industry. The information contained in the document is intended to supplement, not to replace the information contained in manufacturers' maintenance instructions.

7.6 CANENA report

Roger Lattin reported that he has had trouble participating in their web-based meetings because of the scheduled meeting time. Jeff De Recat said that the committee is working on dimensions for the various connectors.

Ken Vannice said he'd talk to Pierre de Saulet of Leviton in Canada about what is going on.

7.7 Generator earthing and grounding

Roger Lattin reported that his task group has done some research, and that it is a "whole kettle of worms." He does not have a complete report at this time on the need for the project and how widespread the problem of ignorance or resistance to grounding and bonding might be.

Vannice noted that the definitions of grounding and neutral are being changed in the National Electrical Code. These changes need to be looked at to see how they affect the requirements for generator earthing.

8 New business

8.1 Working group leadership

Ken Vannice said that Bob Luther would like to resign as working group leader so he can devote more time with his ESTA Board of Directors duties. Mitch Hefter (representing USITT in the user interest category) has volunteered to serve as a co-leader. A request will be made to the TSC for this change of leadership.

Bob Luther explained the limits on his time as the reason for his needing to step down. He said that the working group is in good condition and making progress on its projects.

Ken Vannice thanked Bob Luther for his service to the group.

Karl Ruling explained the procedure for selecting co-chairs. The TSC appoints them, and the choice is subject to confirmation by a simple majority vote of the working group.

Ian Foulds made motion to thank Bob Luther for his contribution. It was seconded by Eddie Kramer. There was a unanimous approval by a show of hands.

8.2 Ontario electrician certification

Ian Foulds announced that there is an entertainment industry power technician certification program in Ontario now. He will provide the announcement in electronic form for the secretary so it can be included as an appendix to the minutes. [See the appended announcement and examination plan.]

9 Other business

None.

10 Changes to observer status with third meeting missed

Members who have missed the previous two meetings and who will not have met the minimum attendance requirements if this meeting is missed:

Louis Bradfield

Louis Bradfield was present, so he was not moved to observer status.

11 Schedule for future meetings

Steve Terry suggested that the meeting starting time should be moved to the 9:00. There was almost universal support for this. Therefore, it was announced that the next meeting will be from 9:00 to noon on Wednesday, March 29th, at the Louisville Marriott Downtown in Louisville, Kentucky.

12 Adjournment

Eddie Kramer moved that the meeting adjourn. The motion was seconded. The motion was approved by a unanimous show of hands. Ken Vannice announced that the meeting was adjourned at 09:51.

Working Group Membership and Contact Information as of 08 March 2006

Name	Company	Representing (This is the primary sort field.)	Vote status	Int. cat.
Michael Amorelli	AC Power Distribution Inc.	AC Power Distribution Inc.	P	CP
James Davey	AC Power Distribution Inc.	AC Power Distribution Inc.	A	CP
Andre Broucke	ADB - TTV Technologies	ADB-TTV Group	O	MP
George Long	Aggreko Event Services	Aggreko	P	DR
Kenny Delahoussaye	Aggreko	Aggreko	A	DR
Mike Skinner	CBS Studio Center	AMPTP	O	U
Arnold Tang	Arnold Tang Productions	Arnold Tang Productions	O	G
Jiantong Wu	Beijing Special Engineering Design & Research Institute	Beijing Special Engineering Design & Research Institute	O	G
Wolfgang Hofheinz	Bender GmbH & Co. KG	Bender GmbH & Co. KG	P	MP
Joe Boardman	Bender Inc.	Bender GmbH & Co. KG	A	MP
Paul Menetrey	Menetrey Partners	Bender GmbH & Co. KG	A	MP
Lee J. Bloch	Bloch Design Group, Inc.	Bloch Design Group, Inc.	O	G
Marty Lazarus	Chicago Spotlight, Inc.	Chicago Spotlight, Inc.	O	DR
Eric Bouchard	Cirque du Soleil	Cirque du Soleil	O	CP
Julie Rogers	City of Phoenix Civic Plaza	City of Phoenix	O	G
Wayne Kowalski	Coleman Cable Inc.	Coleman Cable Inc.	O	MP
Ford Sellers	Cornell University	Cornell University	O	U
Ron Dahlquist	Dadco	Dadco	O	MP
Don Earl	Earl Girls, Inc.	Earl Girls, Inc.	O	DR
Steve Terry	Electronic Theatre Controls	Electronic Theatre Controls, Inc.	P	MP
Ian Foulds	IATSE Local 873	Entertainment Electrical Safety Committee of Ontario	P	G
Art Wanuch	Robertson Electric Wholesale	Entertainment Electrical Safety Committee of Ontario	O	G
Trevor Forrest	Helvar Lighting Control	Helvar Lighting Control	O	MP
Pat Miller	Hubbell Wiring Devices	Hubbell Inc.	P	MP
Edwin S. Kramer	I.A.T.S.E. Local 1	I.A.T.S.E. Local 1	P	U
Roger Lattin	IATSE Local 728	I.A.T.S.E. Local 728	P	U
R. Bruce Prochal	IATSE Local 728	I.A.T.S.E. Local 728	A	U
Patric J. Abaravich	IATSE Local 728	I.A.T.S.E. Local 728	A	U
Alan M. Rowe	IATSE Local 728	I.A.T.S.E. Local 728	A	U
Keith S. Woods	Lakhri Impressions Ltd.	IATSE Local 891	P	U
Gian Carlo C. Bartolotti	Ibeam SP / Banco de Eventos	Ibeam SP / Banco de Eventos	O	U
Bill Kanne	Illumination Dynamics	Illumination Dynamics	O	U
John (Javid) D. Butler	Integrated Theatre, Inc.	Integrated Theatre, Inc.	P	CP
David Murray	IPC Resistors Inc.	IPC Resistors Inc.	O	CP
Jose J. Flores	Kino Flo, Inc.	Kino Flo, Inc.	O	MP
Don Gray	Kohler Event Services	Kohler Co.	O	U
Stephen J. Kay	K-Tec Corporation	K-Tec Corporation	P	MP
Ken Vannice	Colortran	Leviton Manufacturing Co., Inc.	P	MP
Bill Grande	Leviton Manufacturing Co., Inc.	Leviton Manufacturing Co., Inc.	A	MP
Bob Luther	Lex Products Corp.	Lex Products Corp.	P	CP
Reinhold Luther	Lex Products Corp.	Lex Products Corp.	O	CP
Kenneth M. Makowski	Lex Products Corp.	Lex Products Corp.	A	CP
Louis Bradfield	Louis Bradfield	Louis Bradfield	I	U
Jim Holladay	Luxence	Luxence	O	G
Jeff deRecat	Marinco/ADI	Marinco	P	MP
Phil Fram	Marinco	Marinco	O	MP
Bud Toly	Marinco/ADI	Marinco	A	MP

Name	Company	Representing (This is the primary sort field.)	Vote status	Int. cat.
William Drake	Marinco	Marinco	A	MP
Hiroshi Kita	Marumo Electric Co., Ltd.	Marumo Electric Co., Ltd.	O	MP
Michael Klein	Metropolitan Engineering, Inc.	Metropolitan Engineering, Inc.	O	G
W. G. Krokaugger P.E.	Mole-Richardson Co.	Mole-Richardson Co.	P	CP
Al DeMayo	Mole-Richardson Co.	Mole-Richardson Co.	A	CP
Chris Guptill	Ohlone College	Ohlone College	O	U
Marsha DuBois	Pintech Stage Connectors, Inc.	Pintech Stage Connectors, Inc.	O	CP
Steve DuBois	Pintech Stage Connectors, Inc.	Pintech Stage Connectors, Inc.	O	CP
Nic Bowker	PLASA	PLASA	P	G
James Eade	PLASA	PLASA	O	G
Mac Perkins	PNTA Inc.	PNTA Inc.	O	G
Paul F. Mardon	Pulsar Ltd.	Pulsar Ltd.	O	MP
Douglas Franz	QVC Network	QVC Network	O	U
Eric Tishman	Rosco Laboratories	Rosco Laboratories	O	MP
Richard B. Glickman	Gliconen Corporation	Rosco Laboratories	O	MP
Richard A. Prey	SMS Inc. / PGS LLC	SMS Inc. / PGS LLC	O	CP
Robert Barbagallo	Solotech Inc.	Solotech Inc.	O	DR
Michael Scudday	SSRC, Inc.	SSRC, Inc.	P	CP
Stephen Vanciel	Stephen Vanciel	Stephen Vanciel	P	U
Michael Lay	Strand Lighting	Strand Lighting Ltd.	P	MP
Reuben Goldberg	Technic Services	Technic Services	O	U
Jerry Gorrell	Theatre Safety Programs	Theatre Safety Programs	P	U
Richard D. Thompson	Thompson Associates	Thompson Associates	O	G
Michele Yindrick	TMB	TMB	P	MP
Colin Waters	TMB	TMB	A	MP
Richard Wolpert	Union Connector Company	Union Connector Company	P	CP
Mitch Hefter	Entertainment Technology (Genlyte Group)	USITT	P	U
Eckart Steffens	SOUNDLIGHT	VPLT	O	G
William L. Maiman	William L. Maiman	William L. Maiman	P	U

Key to codes:

- P principal voting member
- A alternate voting member
- I individual voting member
- O observer, non-voting
- MP mass-market producer interest category
- CP custom-market producer interest category
- DR dealer or rental company interest category
- U user interest category
- G general-interest interest category

NEW TRADE

ENTERTAINMENT INDUSTRY POWER TECHNICIAN 269E

What is an Entertainment Industry Power Technician

An **Entertainment Industry Power Technician** evaluates job requirements, plans, builds, installs, maintains and disassembles power distribution (main and sub-distribution) implements temporary power supplies, installs, controls and disassembles lighting, manages portable power supplies and maintains batteries. These individuals must have a mechanical aptitude and hands on skills and be able to use many different types of hand and power and testing equipment. Work is performed on temporary installations up to, but not including, hardware connection to the power system of permanent buildings. These individuals work for film, television, live performance, trade shows, special event productions and carnivals.

An Entertainment Industry Power Technician is knowledgeable in:

- hand and power tools, metering and testing devices
- work practices and communication skills pertaining to the entertainment industry
- interpreting technical drawings and sketches to plan the job
- performing metric and imperial calculations
- calculating electrical load requirements
- measuring and checking devices
- evaluating site conditions and determining material, equipment and crew requirements
- planning rig layout
- rigging, hoisting and lifting equipment and procedures
- planning and hanging temporary power systems
- installing and removing set practicals and wiring
- establishing and proving for a generator set or temporary power supply
- establishing, verifying and disconnecting power to main and sub-distribution systems
- balancing electrical loads connected to house power
- installing, controlling and disassembling lighting
- installing and maintaining extra-low-voltage AC and low-voltage DC equipment and components
- installing and maintaining Class 1 and Class 2 wiring systems
- disassembling portable power supplies
- maintaining batteries
- reference documentation – Canadian Electrical Code, Ontario Electrical Safety Code, Ontario Building Code, Illumination Engineering Society Standards, Canadian Radio-television and Telecommunications Commission Standards, Electrical Safety Authority bulletins, Technical Standards and Safety Authority requirements, manufacturers' manuals, technical bulletins, parts bulletins, service or preventative maintenance manuals, fact sheets, and government requirements and regulations
- Occupational Health and Safety Act
- Workplace Hazardous Materials Information Systems (WHMIS)
- Safety Legislation

The trade is approved as code 269E. This is an unrestricted trade with a Certificate of Apprenticeship upon successful completion of the apprenticeship.

A Certificate of Qualification will be issued upon success on the Ontario Provincial examination.

Sponsors/Trainers of apprentices must meet the definition of a competent worker for the competencies they are assuming responsibility for.

Completion of the apprenticeship should take approximately 5000 hours.

The in-school component of training will be comprised of 480 hours or 16 weeks and will consist of four periods of four weeks each.

Performance objectives and learning outcomes were developed and approved by the Steering Committee for the Entertainment Industry sector.

For further information please contact your local apprenticeship office. Office locations can be viewed at website: www.edu.gov.on.ca ; click on **Training/Jobs**, then under the heading General Information click on **Apprenticeship Office Locations**.

ENTERTAINMENT INDUSTRY POWER TECHNICIAN 282E

Ontario Certificate of Qualification Examination

Examination Plan

Summary

1 Protect Self and Others	14%
2 Communicate in the Workplace	2%
3 Utilize Tools and Equipment	8%
4 Rig Hoist and Lift	10%
5 Evaluate Job Requirements	10%
6 Plan, Build, Maintain, and Disassemble Systems	23%
7 Implement a Temporary Power Supply	8%
8 Install, Control, and Disassemble Lighting	16%
9 Manage Portable Power Supplies and Maintain Batteries	9%

The Certificate of Qualification examination evaluates ability to perform skills within the trade. The examination is based on the skills as identified and agreed to by industry.

The examination is 3 1/2 hours and there are 115 multiple-choice questions. The pass mark is 70%. Both metric and imperial measurements may be used. You are not required to convert the measurements from one system to the other.

A calculator will be provided to you at the examination. This examination requires the use of the 2002, 19th edition of the Canadian Electrical Code Book and the Electrical Safety Authority's ESA-SPEC-001-R2 and ESA-SPEC-003-R3. The code and the bulletins will be provided to you at the examination.

Note: This document is subject to change. You may wish to contact the local Apprenticeship office to confirm that this exam plan is current. However, you will receive the current exam plan when you schedule to write the exam.

Entertainment Industry Power Technician Provincial Exam Plan			
Section	Title	Number of Questions	Percentage
1	<p><i>Protect Self and Others</i></p> <ul style="list-style-type: none"> - Comply with acts, regulations, codes standards, and directives; - Control hazards, hazardous conditions, equipment, and materials; - Follow company or worksite procedures; - Utilize personal protective equipment; - Perform lockout, tagging, and holding procedures. 	16	14%
2	<p><i>Communicate in the Workplace</i></p> <ul style="list-style-type: none"> - Communicate by various means, including orally, in writing, by graphics, computer, mechanical and electronic devices, hand signals; - Build and maintain interpersonal relationships, and coach and mentor others. 	2	2%
3	<p><i>Utilize Tools and Equipment</i></p> <ul style="list-style-type: none"> - Inspect, use and maintain hand and power tools and accessories; - Utilize testing devices; - Assemble, maintain, disassemble and store scaffolds. 	9	8%
4	<p><i>Rig, Hoist, and Lift</i></p> <ul style="list-style-type: none"> - Plan rig layout, including performing inspections, reviewing sketches and drawings, assessing equipment and load characteristics etc.; - Install and adjusting rigging equipment and components; - Select and use hoisting and lifting equipment and components 	11	10%
5	<p><i>Evaluate Job Requirements</i></p> <ul style="list-style-type: none"> - Read, interpret and correlate information from technical drawings and specifications; - Assess job site conditions, including verifying information against technical drawing, checking for obstructions, measuring etc.; - Verify scope of the work and design parameters. 	12	10%

Entertainment Industry Power Technician Provincial Exam Plan			
Section	Title	Number of Questions	Percentage
6	<p><i>Plan, Build, Maintain, and Disassemble Systems</i></p> <ul style="list-style-type: none"> - Plan power distribution systems; - Assemble main and sub-distribution equipment; - Hang/mount and connect/circuit system devices; - Install practicals and set wiring; - Diagnose, troubleshoot and maintain practicals, luminaires and distribution devices. 	27	23%
7	<p><i>Implement a Temporary Power Supply</i></p> <ul style="list-style-type: none"> - Establish and prove a ground for a generator set or temporary power supply system; - Establish and verify power to main and sub-distribution systems; - Balance electrical loads connected to house power; - Disconnect power to main and sub-distribution systems. 	9	8%
8	<p><i>Install, Control, and Disassemble Lighting</i></p> <ul style="list-style-type: none"> - Perform inspection of lighting systems; - Install and maintain arc lighting sources; - Install and focus manually focused luminaires and other lighting devices; - Install automated luminaires and other automated lighting devices; - Test control systems and data infrastructures. 	19	16%
9	<p><i>Manage Portable Power Supplies and Maintain Batteries</i></p> <ul style="list-style-type: none"> - Perform inspection of and install extra-low-voltage AC, and extra-low and low-voltage DC, equipment and components; - Install and maintain Class 1 and Class 2 wiring systems; - Maintain batteries. 	10	9%