Training Gaps
Analysis

Entertainment Riggers

CHRC Cultural Human Resources Council

CRHSC Conseil des ressources humaines du secteur culturel

Cultural Human Resources Council (CHRC)
Entertainment Riggers
Training Gaps Analysis
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Canada

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Introduction

In November 2006, the Cultural Human Resources Council (CHRC) issued a Request for Proposal to conduct a Training Gaps Analysis for Entertainment Riggers in the cultural sector across Canada. With experience conducting research for the CHRC (having just completed three other training gaps analyses with automation technicians, record label managers and stage technicians), kisquared was selected by the CHRC Theatre Technicians Steering Committee to undertake the current study.

The Training Gaps Analysis for riggers builds upon earlier work done by the Riggers Expert Working Group (EWG) in compiling a matrix of core competencies that define riggers skill sets. The primary data-gathering instruments used were an employer and employee surveys, based closely on the rigger core competencies matrix. Interviewing was conducted in French and English from kisquared's offices in Winnipeg, Manitoba. Additional interviews were conducted using a separate survey with formal training institutions (for example, colleges and universities) and informal training organizations (for example, workshops and conference organizers) that offer rigging training.

This study has proceeded with the generous assistance of the CHRC staff (Manon Turcotte, Project Manager, and Susan Annis, Executive Director), the Theatre Technicians Steering Committee (the Steering Committee), and the Rigger EWG who assisted in reviewing, refining and pre-testing the data collection instrument, and in developing the sample from which interviews were conducted.

Objectives

Four objectives were identified for this study as follows:

- To assess the training needs for competencies identified in the Riggers matrix of core competencies;
- To survey the current training offerings across Canada;
- To analyze the training gaps, based on the data regarding training needs and training offerings; and,
- To review international training and professional recognition programs.

Methodology

The research methods, which are discussed in more detail below, used in this project:

- Employer and employee survey.
- Secondary research and interviews with formal training institutions and informal training organizations that offer training for riggers.

Employer and employee survey

The employer and employee survey was developed by kisquared in close consultation with the CHRC, and was designed to gather information pertaining to both training needs and offerings. The 144 question-equivalent survey was reviewed January 15 to 18, 2007, with ten Steering Committee members, with the resulting feedback used to make several changes to the questionnaire. The questionnaire was then pre-tested with two members of the Rigger EWG and then translated into French and pre-tested again.

kisquared conducted **150 interviews** in English and French, comprising:

- 53 interviews with **employers**
- 97 interviews with **employees**

The survey incorporated a "snowball" recruitment technique to expand the initial sample database and ensure a broadly representative sample of riggers in all areas of Canada. In addition, a new feature was added part way through the interviewing of employers and employees. On January 29, 2007, kisquared learned from an interviewee that a fellow rigger past away from an accidental death. Interviews that were conducted after this date were flagged so that analysis could be conducted as to whether the news of this accidental death impacted how riggers and employers view their training needs. These results are presented in the report where applicable as crosstabulations.

Secondary research and interviews with educators

The secondary research phase consisted of analyzing training offerings for riggers. kisquared's professional staff contacted formal training institutions (post-secondary institutions, technical colleges, Cégeps, etc.) and informal training organizations (associations, unions, etc.) across Canada that were identified as providing rigging training. Data was collected on the curriculum content related to rigging. Whereas previous training gaps analysis focused more on formal training, this study focuses on both formal and informal training given the important role that the latter plays in the development of riggers.

After the employee and employer survey was completed, kisquared developed an additional questionnaire to measure training offerings. A total of 14 telephone interviews were then conducted with senior staff members or volunteers offering rigging training to validate findings about training offerings gained through secondary research, and to identify any training gaps.

Employer-employee questionnaire design

Rigger definition

Given the diversity in types of rigging and the variance in occupational titles for those performing the tasks of a rigger, the questionnaire did not rely upon job titles alone, but provided a definition of rigger that identified the target respondent consistently. The wording of the definition, which varied slightly depending on whether the target was an employer or employee, is given below:

Employer

- Are you someone who is involved with the training, hiring, or supervision of entertainment riggers, for your organization? An entertainment rigger is someone who may plan, assemble, prepare, install, operate, inspect, propose modifications and take down rigging equipment in a building in which a live show takes place.
- Êtes-vous une personne de votre organisation impliquée dans la formation, le processus de recrutement ou dans la supervision des gréeurs du domaine du spectacle et du divertissement? Un gréeur du domaine du spectacle et du divertissement est une personne qui doit être capable de: planifier, assembler, préparer, installer, exploiter, inspecter, proposer des modifications à un plan préétabli, et démonter l'équipement de gréage mis en place dans le lieu où un spectacle se déroule.

Employee

- Are you someone who may plan, assemble, prepare, install, operate, inspect, propose modifications and take down rigging equipment in a building in which a live show takes place?
- Êtes-vous une personne qui s'occupe de : planifier, assembler, préparer, installer, exploiter, inspecter, proposer des modifications à un plan préétabli, démonter l'équipement de gréage mis en place dans le lieu où un spectacle se déroule?

Matrix of core competencies converted to measurable skills

For the purposes of questionnaire design, the skill sets contained in the matrix of core competencies were converted to the language of skills. These skills contained in the employer-employee questionnaire were reviewed by Steering Committee members, pre-tested with members of the Rigger EWG and approved by the CHRC prior to fielding.

The survey measures the following 24 skills:

1. Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements;
2. Generate a rigging plot;
3. Perform layout;
4. Fabricate components;
5. Assemble rigging components;
6. Identify and communicate health and safety requirements;
7. Inspect, install and maintain health and safety equipment;
8. Check and install anchors (for example concrete anchors or ground anchors);
9. Install and operate motorized systems;
10. Install and operate counter-weight systems;
11. Install scaffolds, catwalks, permanent and temporary grids;
12. Assemble, adjust and stabilize production elements including flying scenic and others;
13. Set and mark trims;
14. Install, test and operate performer apparatus;
15. Raise, attach, secure and test rigging equipment;
16. Determine and schedule maintenance requirements of rigging equipment and systems;
17. Perform sensory (for example, visual, tactile) and operational inspections;
18. Set up rigging equipment and systems;
19. Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools;
20. Comply with all pertinent regulations, standards and best practices;
21. Demonstrate teamwork skills and sensitivity to other people's needs;
22. Communicate verbally in a clear and concise manner;
23. Use and inspect aerial lift platforms such as Genie or scissor lifts; and,
24. Tie knots.

Reporting

This report is organized under the following headings: *Introduction*, *Executive summary*, *Training needs*, *Chart of competencies – validation*, *Professional recognition, Training offerings*, *Secondary research and interviews with educators*, *International training and professional recognition offerings*, *Training gaps analysis*, and *Respondent profile*.

Special appendices are also included. *Appendix A* contains survey "marginals" (response percentages for each question asked in the survey). *Appendix B* contains summary descriptions of available formal training programs specific to rigging skills across Canada. *Appendix C* provides descriptions of informal training available in the area of rigging in Canada. *Appendix D* contains verbatim responses to the questions below:

- Thinking specifically about health and safety, which two specific skills or aspects of health and safety do you think are top training priorities for riggers?
- Thinking about all the things that riggers do in their job, are there any specific rigging skills or related skills that we have missed speaking to you about?
- And what skill or skill set did you learn [at a conference or workshop]? Who offered the training?
- When thinking about rigger training, what would you say are the greatest training needs right now or in the foreseeable future?
- What is the value for you personally in achieving professional recognition or certification as a rigger?

Executive summary

The objectives of this study are to assess the training needs for Canadian entertainment riggers, explore training and certification offerings, determine training gaps and formulate recommendations based on our findings. For the purposes of this study, an entertainment rigger is defined as someone who may plan, assemble, prepare, install, operate, inspect, propose modifications and take down rigging equipment in a building in which a live show takes place.

Training requirements

The employer and employee survey tested a list of 24 skills, modeled after the CHRC Riggers Chart of Competencies. Almost all riggers use these skills to perform their job:

- Communicate verbally in a clear and concise manner (99%)
- Comply with all pertinent regulations, standards and best practices (97%)
- Demonstrate teamwork skills and sensitivity to other people's needs (97%)
- Tie knots (97%)

The following skills are used less often:

- Fabricate components (47%)
- Install, test and operate performer apparatus (49%)
- Check and install anchors, for example, concrete anchors or ground anchors (56%)
- Install scaffolds, catwalks, permanent and temporary grids (58%)

Chart of core competencies – validation

For most riggers, the CHRC Riggers Chart of Competencies reflects the range of skills required for them to do their job. Respondents were asked if any additional skills are required that were not mentioned during their interview. A majority of respondents (62%) agree that the tested list is comprehensive, while others identified these skills:

- Understanding weight loads / engineering / applied physics (7%)
- Fall protection (7%)
- Electrical safety / electrical rigging (6%)
- Working at heights (3%)

However, when compared to the original Riggers Chart of Competencies, the only skill identified as "missing" that is not covered is electrical rigging.

Professional recognition

Forty-one out of 95 riggers surveyed have some form of professional recognition or certification. Presently, only one form of professional certification for riggers exists in North America – the Entertainment Technician Certification Program (ETCP), which at present, has 15 certified members Canada. Only 1% of riggers surveyed say they have ETCP certification, which means that most riggers surveyed are referring to another type of professional recognition or certification.

Of those riggers who feel they have no professional recognition, 29% indicate they are currently working towards obtaining some form of professional recognition or certification.

Most riggers see some value in obtaining professional recognition, such as a heightened sense of pride and personal satisfaction (23%) and the possibility of better employment opportunities (22%), proof of competency (14%), promotes professionalism and confidence in the industry (11%), and that it promotes health and safety (6%). However, one quarter 26% do not personally see the value in obtaining professional recognition.

Most riggers are aware of the North American ETCP program (71%), while significantly fewer are aware of the United Kingdom's PLASA program and Germany's VPLT program (72% unaware).

The most popular program components tested are:

- A testing mechanism that includes a written exam, successful completion of tasks under the observation of a master rigger, and prior job experience (88%, very beneficial)
- Recognition that differentiates between human and non-human rigging (79%, very beneficial)
- Recognition that differentiates between skills levels such as trainee, junior, senior and master rigger (70%, very beneficial)

Secondary research and interviews with educators

kisquared's professional staff interviewed 14 training organizations and institutions that offer some form of training. Although most skills tested are taught by a majority of the 14 organizations interviewed, the amount of time devoted to these skills varies significantly between programs.

When asked to identify the greatest rigger training need overall, an equal proportion (5 of 14 organizations) identifies continuous education (including a need for certification) and safety (in general).

The greatest *health and safety* training gaps (identified by 8 of 14 organizations) is working at heights, which includes fall protection and rescue. Safety, in general, and awareness of the working environment, is also identified as a training gap (by 5 of 14 organizations).

Lack of funding and lack of time are the top two *barriers* to offering more rigging training (identified by 8 of 14 organizations interviewed).

International training and professional recognition offerings

Professional recognition has been explored and implemented to varying degrees in different international jurisdictions.

- *North America* – The Entertainment Technician Certification Program (ETCP) relies on a written exam and ongoing professional development as the core components of its certification program, however very few Canadian riggers have this certification, and it is not mandatory.
- *Australia* – The National Standard for Licensing Persons Performing High Risk Work is a nationally uniform mandatory certification system in which riggers (and other workers in high risk professions) must receive training and assessment by a registered training organization.
- *United Kingdom* – The Professional Lighting and Sound Association (PLASA) has established a new certification program with both a written exam and ongoing development, but also requires candidates to perform practical scenarios under supervision of an assessor.
- *Germany* – The Verband für professionelle Licht und Tontechnik (VPLT), which translates as the Professional Sound and Lighting Association, outlines a Code of Practice to guide rigger training, but is not a certification system *per se*.

Training offerings

Some rigger skills are more likely to be learned on the job than others. For example, 85% of respondents learn to set up rigging equipment and systems on the job compared to only 49% who learned how to use and inspect aerial lift platforms such as Genie or scissor lifts while on the job.

Self-teaching, through reading magazines or on-line tutorials, and formal training are uncommon methods of skills acquisition for riggers.

Informal training through conferences, workshops and seminars, plays an important role in educating riggers for some skills (e.g., health and safety skills), but not others (e.g., soft skills such as teamwork and communication skills).

Thirty-four percent of respondents have attended conferences or workshops related to professional development within the past year. The skills most often learned at these conferences and workshops are:

- safety – inspection and regulations
- fall protection and rescue
- making calculations (e.g., math skills) and problem solving
- basic rigging (e.g., chains, cables)

Skills gap analysis

Although the proportion of riggers who already trained in the 24 skills tested outweighs those who still "need" that skill, some skill gaps persist. The largest gaps are:

- Determine and schedule maintenance requirements of rigging equipment and systems (20%)
- Inspect, install and maintain health and safety equipment (16%)
- Check and install anchors, for example, concrete anchors or ground anchors (16%)
- Analyze plans, technical drawings and blueprints to determine loads, forces and rigging equipment (15%)
- Install scaffolds, catwalks, permanent and temporary grids (13%)

The smallest skills gaps are:

- Set and mark trims (3%)
- Use and inspect aerial lift platforms such as Genie or scissor lifts (5%)
- Assemble rigging components (5%)
- Tie knots (6%)

Survey respondent profiles

- About half (55%) of survey respondents are in Ontario, while nearly one-fifth (17%) are in Quebec and 15% are in Alberta.
- Two-thirds of respondents (66%) are involved in theatre rigging while one-half (47%) are occupied in movie rigging.
- A roughly equal proportion of employers say they hire riggers directly (56%) or through a union (56%). Similarly, riggers report they are often hired through a union (66%) or employed directly (53%).
- Riggers report working 33 hours per week on average.
- Most riggers in this study (80%) belong to IATSE while 4% belong to CUPE and another 4% have an AQTIS membership.
- Three-quarters of respondents (77%) have been riggers for more than 10 years.

Recommendations

- There is a training gap in pre-employment rigger training. Study findings indicate riggers acquire their skills primarily through on the job training and through informal training (conferences, workshops, etc.), with little recourse to formal training programs (university and college) or self-teaching. Although most riggers are acquiring the skills they need to perform jobs through existing channels, this review reveals a lack of pre-employment training. Most programs that do exist at the college and university level are geared toward general theatre programs, or theatre production programs – neither of which sufficiently addresses the specialized skill sets required.
    - It is important to note, however, that this study did not measure the need for pre-employment training, so it is not possible to conclude the degree to which pre-employment training is required.
- Should pre-employment rigger training programs be deemed necessary, they must carefully consider multiple delivery mechanisms to serve the industry. Although a few rigger specific-training programs are currently under development (e.g., *Cégep de Saint Hyacinthe* and *College Lionel-Groulx*), these programs are generally aimed at the college-age demographic and students who are able to undertake a full-time 3-4 year training program. Although college level technical training programs can be a welcome addition, it will be important to consider other delivery mechanisms that can address entrant to the occupation from other industries or sectors. This may entail program delivery on evenings, weekends, and short-term course formats to meet the needs of those potential riggers.
    - Although some rigger training programs are under development in Quebec, these programs, which will be taught at the Cégep level, will be offered in French only. A gap will still remain in English-language pre-employment training.
- Health and safety training must remain a priority. Skills related to workplace health are top of mind important training needs. Most often mentioned are working at heights / fall protection and understanding weight loads and engineering. Training for these skills should be incorporated into all pre-employment training programs and remain a feature of ongoing training and professional development for those already in the industry.
- Although a majority of riggers surveyed do see some benefit to obtaining professional recognition (such as personal satisfaction or pride, better employability or financial gains, and proof of competency), a full one quarter see no benefit. Should professional recognition or certification be pursued, the language used to identify the certification must be understood so no confusion arises as evidenced in the survey findings, and the benefit of certification must be clearly communicated.
    - If the industry decides to proceed with implementing a professional recognition or certification program, this study did test a number of possible features. These findings can be used to inform program design (see the report section entitled *Professional recognition program components*).

Training needs

All respondents were led orally through a 24-item skills series. Employers were asked, first, to indicate whether each skill is required for the riggers employed by their organization. Employers were then asked to indicate whether their riggers *currently have* the skill, or whether they *need to acquire* that skill. Employees were similarly asked to rate, for themselves, whether each skill was *required*, then whether they *currently have* it or *need to acquire* it.

Skills required for position

Figure 1, below, shows the range of skills deemed to be required of riggers. These do not refer to the range of skills needed by a given individual, but rather to skill sets required by the position of riggers within the organizations interviewed, i.e., the skills that each organization requires of their riggers.

- Six out of the 24 listed are required for over 90% of respondents, with the most-required skills being communicating verbally in a clear and concise manner (99%), complying with all pertinent regulations, standards and best practices (97%), demonstrating teamwork skills and sensitivity to other people's needs (97%), and tying knots (97%).
- The least required skills, by far, are fabricating components (47%), and installing, testing and operating performer apparatus (49%).
- It is interesting to note that the 24 skills series contains a total of two 'soft skills' and two 'health and safety skills'. The remaining 20 relate to specific rigger skills for on the job activities. These 'soft' and 'health and safety' skills are considered required by a vast majority of respondents: communicating verbally in a clear and concise manner (99%); demonstrating teamwork skills and sensitivity to other people's needs (97%); complying with all pertinent regulations, standards and best practices (97%); and, identify and communicate health and safety requirements (93%).

Figure 1 SKILLS REQUIRED FOR POSITION

Skill	% of respondents overall
'Soft skill': Communicate verbally in a clear and concise manner	99%
'Health and safety skill': Comply with all pertinent regulations, standards and best practices	97%
'Soft skill': Demonstrate teamwork skills and sensitivity to other people's needs	97%
Tie knots	97%
Assemble rigging components	93%
'Health and safety skill': Identify and communicate health and safety requirements	93%
Set up rigging equipment and systems	89%
Perform sensory (for example, visual, tactile) and operational inspections	88%
Use and inspect aerial lift platforms such as Genie or scissor lifts	84%
Raise, attach, secure and test rigging equipment	83%
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools	83%
Assemble, adjust and stabilize production elements including flying scenic and others	79%
Perform layout	78%
Inspect, install and maintain health and safety equipment	77%
Install and operate motorized systems	75%
Set and mark trims	75%
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements	71%
Install and operate counter-weight systems	66%
Determine and schedule maintenance requirements of rigging equipment and systems	61%
Generate a rigging plot	58%
Install scaffolds, catwalks, permanent and temporary grids	58%
Check and install anchors (for example concrete anchors or ground anchors)	56%
Install, test and operate performer apparatus	49%
Fabricate components	47%

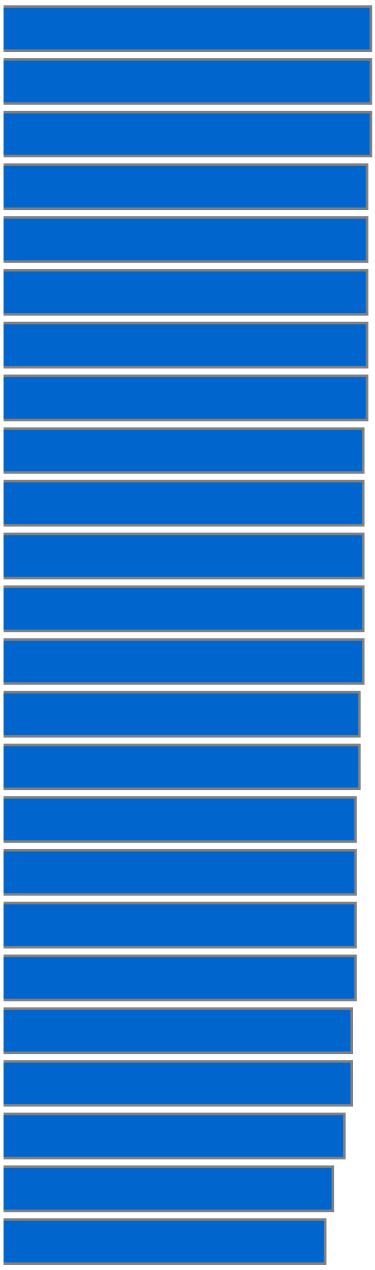
Current skills

Figure 2, below, represents the range of skills already present within the industry.

- All riggers in this study (100%) have the skills to set and mark trims, set up rigging equipment and systems, and demonstrate teamwork skills and sensitivity to other people's needs.
- The skills held by the fewest riggers, though still held by nine of ten, are as follows: determine and schedule maintenance requirements of rigging equipment and systems (88%), and to install, test and operate performer apparatus (90%).

Figure 2 CURRENT SKILLS

Skill	% of respondents overall
Set and mark trims	100%
Set up rigging equipment and systems	100%
Demonstrate teamwork skills and sensitivity to other people's needs	100%
Assemble rigging components	99%
Assemble, adjust and stabilize production elements including flying scenic and others	99%
Communicate verbally in a clear and concise manner	99%
Use and inspect aerial lift platforms such as Genie or scissor lifts	99%
Tie knots	99%
Generate a rigging plot	98%
Identify and communicate health and safety requirements	98%
Raise, attach, secure and test rigging equipment	98%
Perform sensory (for example, visual, tactile) and operational inspections	98%
Comply with all pertinent regulations, standards and best practices	98%
Install and operate counter-weight systems	97%
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools	97%
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements	96%
Perform layout	96%
Install and operate motorized systems	96%
Install scaffolds, catwalks, permanent and temporary grids	96%
Fabricate components	95%
Inspect, install and maintain health and safety equipment	95%
Check and install anchors (for example concrete anchors or ground anchors)	93%
Install, test and operate performer apparatus	90%
Determine and schedule maintenance requirements of rigging equipment and systems	88%



Note: Percentages of current skills combine responses of employees who say they have the skill, of employers who say their riggers have the skill, and of employers who say that some of their riggers have the skill while others still need to acquire it, which indicates that the skill is present within the organization.

Skill gaps

Out of all skills tested, employers and employees were asked to indicate what skills riggers do not have, and need to acquire. Figure 3 (on page 20) illustrates all current skill gaps.

- The largest gaps exist in the following areas: determining and scheduling maintenance requirements of rigging equipment and systems (20%), inspecting, installing and maintaining health and safety equipment (16%), checking and installing anchors (for example concrete anchors or ground anchors; 16%), and analyzing plans, technical drawings and blueprints to determine loads, forces and rigging requirements (20%).

- The smallest gaps exist in the following areas: tying knots (6%), assembling rigging components (5%), using and inspecting aerial lift platforms such as Genie or scissor lifts (5%), and the setting and marking of trims (3%).

Based on cross-tabulations, the following observations can be made about training needs:

- Respondents involved in movie rigging are more likely than average to say they need to fabricate components;

- Respondents involved in theatre rigging are more likely than average to say they need each of these skills:
  - inspect, install and maintain health and safety equipment;
  - install and operate counter-weight systems;
  - assemble, adjust and stabilize production elements;
  - set and mark trims; and
  - determine and schedule maintenance requirements of rigging equipment and systems.

- Respondents involved in aerial rigging are more likely than average to say they need each of the following skills:
  - perform layout;
  - inspect, install and maintain health and safety equipment;
  - check and install anchors;
  - install and operate counter-weight systems;
  - determine and schedule maintenance requirements of rigging equipment and systems;
  - install, test and operate performer apparatus.

- Arena riggers are more likely than average to say they need each of the following skills:
  - install and operate motorized systems;
  - install and operate counter-weight systems;
  - assemble, adjust and stabilize production elements;
  - set and mark trims;

- raise, attach, secure and test rigging equipment;
- install scaffolds, catwalks, permanent and temporary grids;
- determine and schedule maintenance requirements of rigging equipment and systems.

- Concert riggers are more likely than average to say they need each of the following skills:
  - install and operate motorized systems;
  - install scaffolds, catwalks, permanent and temporary grids;
  - set and mark trims.
- Respondents from Quebec, New Brunswick and Nova Scotia are more likely than average to say they need each of the following skills:
  - generating a rigging plot;
  - assemble, adjust and stabilize production elements;
  - set and mark trims;
  - determine and schedule maintenance requirements of rigging equipment and systems;
  - install, test and operate performer apparatus.
- Respondents from Western Canada are more likely than average to say they need to learn how to set and mark trims; and assemble, adjust and stabilize production elements.
- Respondents who were interviewed after the news of the accidental death of a rigger (January 29, 2007) are more likely than average to say they need to be able to install, test and operate performer apparatus.

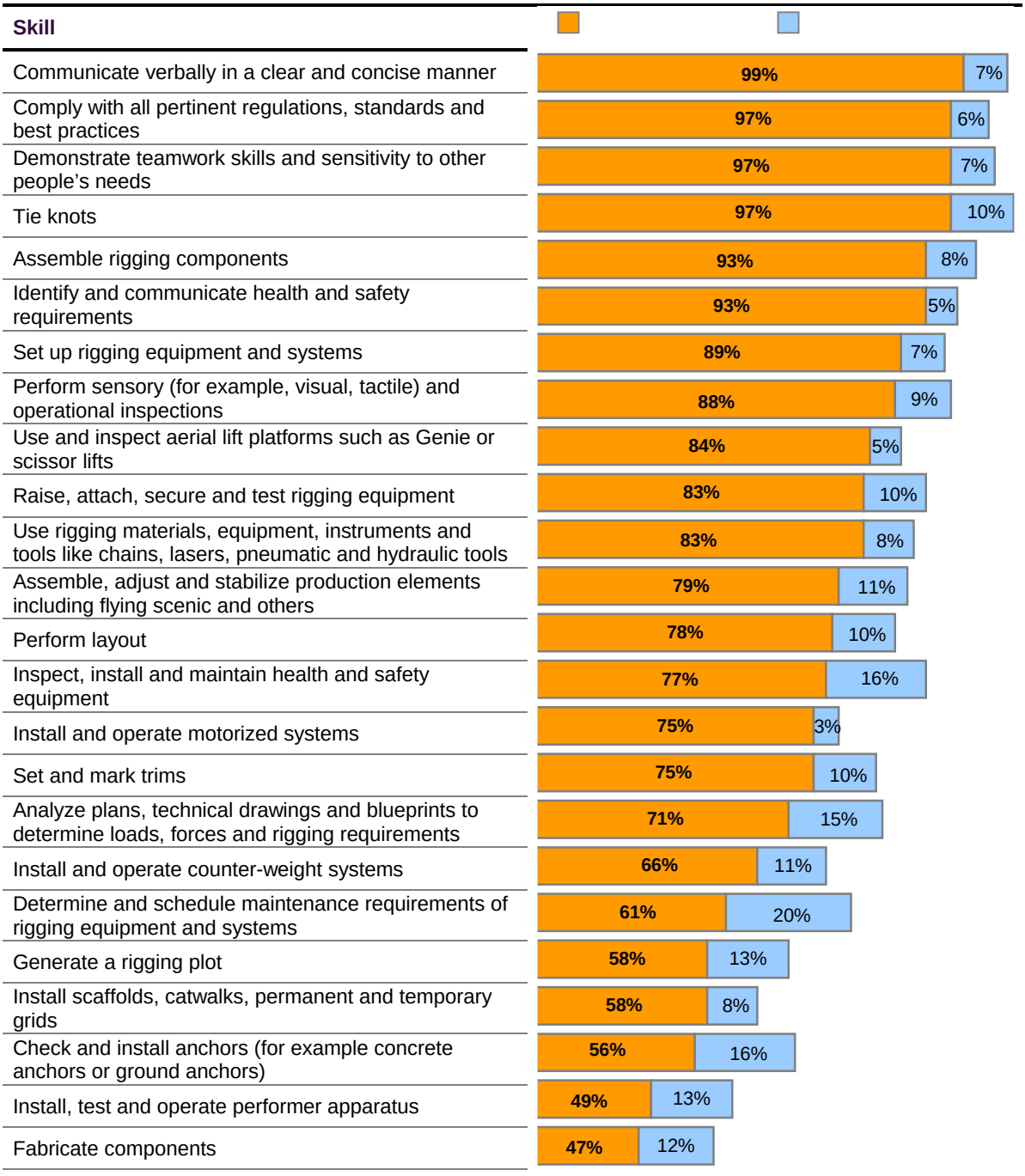
Figure 3 SKILL GAPS

Skill	% of respondents overall
Determine and schedule maintenance requirements of rigging equipment and systems	20%
Inspect, install and maintain health and safety equipment	16%
Check and install anchors (for example concrete anchors or ground anchors)	16%
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements	15%
Install scaffolds, catwalks, permanent and temporary grids	13%
Install, test and operate performer apparatus	13%
Fabricate components	12%
Install and operate counter-weight systems	11%
Assemble, adjust and stabilize production elements including flying scenic and others	11%
Perform layout	10%
Install and operate motorized systems	10%
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools	10%
Comply with all pertinent regulations, standards and best practices	10%
Perform sensory (for example, visual, tactile) and operational inspections	9%
Generate a rigging plot	8%
Identify and communicate health and safety requirements	8%
Raise, attach, secure and test rigging equipment	8%
Set up rigging equipment and systems	7%
Demonstrate teamwork skills and sensitivity to other people's needs	7%
Communicate verbally in a clear and concise manner	7%
Tie knots	6%
Assemble rigging components	5%
Use and inspect aerial lift platforms such as Genie or scissor lifts	5%
Set and mark trims	3%

Note: The percentages shown combine responses of employees who say they need to acquire the skill, employers who say their stage riggers to acquire the skill, and employers who say that some of their stage riggers to acquire the skill although others already have it, which indicates that the skill is lacking within the organization.

0, below, shows the skills required by riggers along with associated skills gaps. Comparison of the two reveals that, in general, the skills gaps are slightly larger amongst the least-required skills whereas the skills gaps are slightly smaller amongst those most-required.

Figure 4 SKILLS REQUIRED VS. SKILL GAPS



Note: Skill gaps calculated as per 0.

Perceived training gaps

Health and safety

Riggers and employers were asked to state the two top training priorities for riggers that relate specifically to *health and safety*. Responses have been coded into the categories presented below in Figure 5. The most common responses relate to practicing safety in general and maintaining awareness of one's surroundings (37%), followed closely by fall protection and working at heights (34%).

It is important to note, however, that many of the health and safety skill mentioned below are interrelated. For example, conducting inspections of rigging and fall arrest equipment is essential to safe fall protection practices – when inspecting the equipment, riggers must be able to identify whether a harness has previously suffered a fall because this affects the capacity of the equipment to safely convey the rigger.

Figure 5 TOP TRAINING PRIORITIES FOR RIGGERS' HEALTH AND SAFETY

Skill	%
General awareness of surroundings, practicing general safety	37%
Fall protection / working at heights	34%
Understanding health and safety regulations, codes and standards	20%
Understanding how to use health and safety equipment	18%
Communicating health and safety requirements	14%
Understanding weight loads and forces	9%
Formal education / need for certification	9%
Physical fitness / knowing your limits	6%
Conducting inspections (i.e. visual inspections of rigging and fall arrest equipment)	4%
Fall rescue	4%
Equipment maintenance	4%
Tying knots	3%
Math / physics	3%
First aid	3%
Electrical safety	2%
Nothing	2%
Other	11%

Note: Responses of "don't know" have been excluded. Percentages exceed 100% because multiple responses were accepted.

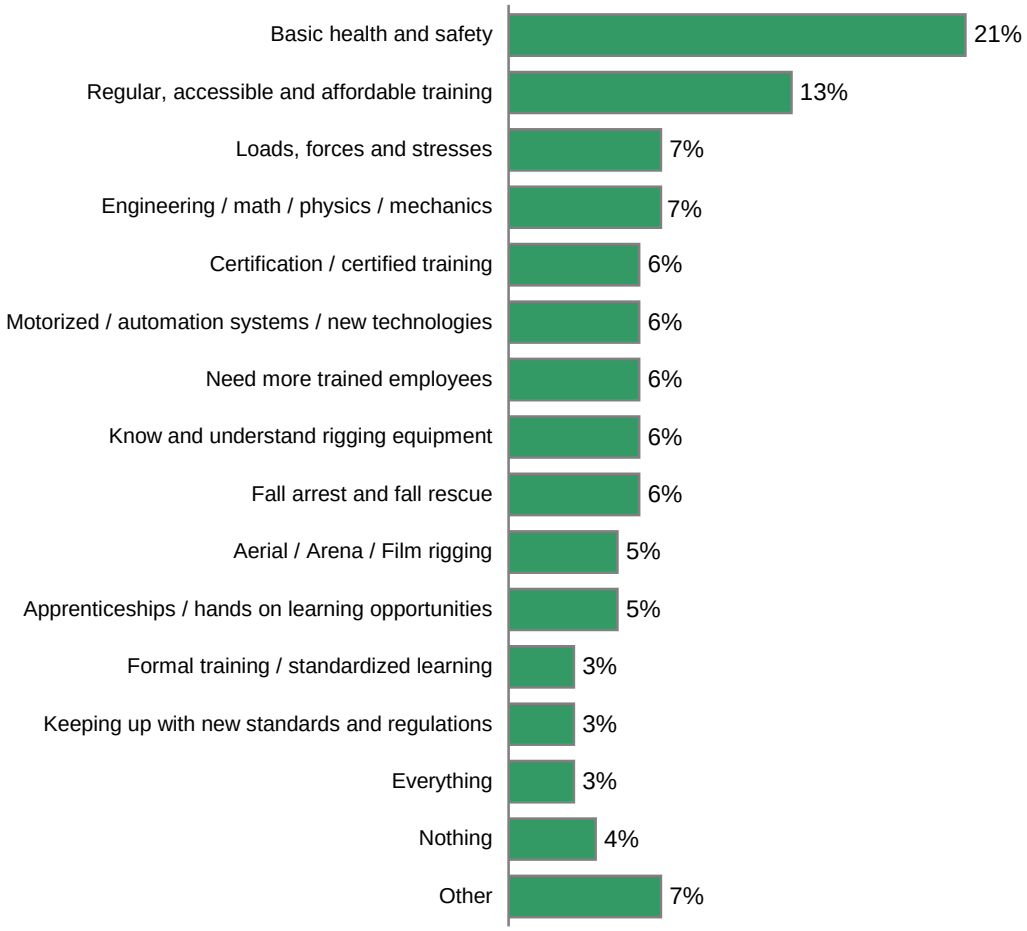
Overall training gaps

Having reviewed the riggers skills list, respondents were asked to state what they see as the most significant training gaps for riggers now or in the future. Figure 6 presents these findings. Complete verbatim responses to this question are provided in *Appendix D*.

- One in five respondents (21%) identify a basic health and safety training gap of some sort.
- Interestingly, more than one in ten respondents (13%) identify the lack of regular, accessible and affordable training itself as a training gap.

Figure 6 OVERALL TRAINING GAPS

When thinking about rigger training, what would you say are the greatest training needs right now or in the foreseeable future?



Note: Percentages may exceed 100% because multiple responses were accepted.

Chart of competencies – validation

The 24 skills assessed in the questionnaire were based closely on the CHRC Riggers Chart of Competencies. To objectively validate this chart of competencies, respondents were asked if there are any additional skills needed for the job of riggers that were not covered in the survey, or that might be required in future. Results are shown in Figure 7 below.

For most riggers, the CHRC Riggers Chart of Competencies reflects the range of skills required for them to do their job. Respondents were asked if any additional skills are required that were not mentioned during their interview. A majority of respondents (62%) agree that the tested list is comprehensive, while others identified these skills as "missing":

- Understanding weight loads / engineering / applied physics (7%)
- Fall protection (7%)
- Electrical safety / electrical rigging (6%)
- Working at heights (3%)

However, when compared to the original Riggers Chart of Competencies, the only skill identified as "missing" that is not covered is electrical rigging.

Figure 7 SKILLS NOT COVERED BY SURVEY

Skill	%
No, I cannot think of any other skills	62%
Understanding weight loads / engineering / applied physics	7%
Fall protection	7%
Electrical safety / electrical rigging	6%
Working at heights	3%
Mathematics and geometry	2%
Human rigging	2%
Other	12%

Figure 8 below presents detailed breakdown of the verbatim response for each of the skills not covered by the range of those tested in the survey. Complete verbatim responses are included in *Appendix D* to this report.

Figure 8 RIGGING SKILLS NOT COVERED – VERBATIM

Code	Verbatim responses
Weight loads / engineering / applied physics	Safe working load practices.
	Applied physics.
	Computerization of equipment – ability to use.
	Up-to-date information on equipment, technology and courses.
	Engineering loads in buildings.
	Weight loads.
	Always be aware of the amount of load you hang.
	Films are different from theatres, i.e. 140,000 lbs in film.
	Basic architecture knowledge.
	Strength of materials, angles of force, bridling.
	To know the weight and dimension of the objects for the security of people.
Fall protection	Fall arrest. (6 responses)
	Installation of temporary fall arrest system.
	Knowing how to use fall protection equipment.
	Aerial safety.
	Use of personal protective equipments, i.e. harnesses.
Electrical safety / electrical rigging	Electrical safety. (3 responses)
	Rigging – electrical safety.
	Electrical rigging. Lack of training in electrical cables.
	Electric rigging.
	Rigging wiring.
	Electrical skills and knowledge.
	Basic electrical principles. Using electrical chains.
Working at heights	High angle safety.
	Working on high places, in the middle of the air.
	Working on heights.
	Being comfortable with moving at heights.
	High wire.
Mathematics and geometry	Angle calculation.
	Algebra and trigonometry.
	Mathematics and geometry.
Human rigging	Flying people. (2 responses)
	Limitation of ability to fly individually.

Professional recognition

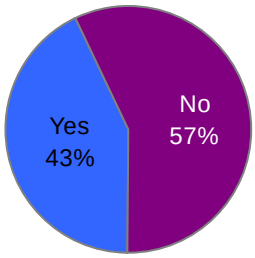
During the questionnaire development phase, discussions took place with Steering Committee members about the specific language to test for professional recognition and certification. The following wording was agreed upon:

- *As a rigger, do you have professional recognition, which some may interpret as certification?*

Based on responses to that question, 41 out of the 95 riggers who answered this question state they have some form of professional recognition or certification (see Figure 9).

Currently there exists only one from of professional certification for riggers in Canada – the Entertainment Technician Certification Program (ETCP), which at present has 15 certified members in Canada.[1] The questionnaire did not ask riggers to state the name of their professional recognition or certification, so it is not possible to reveal what other forms of professional recognition to which riggers ascribe.

Figure 9 RIGGERS WHO HAVE PROFESSIONAL RECOGNITION



Note: N=95

Crosstabulations reveal the following insights on professional recognition:

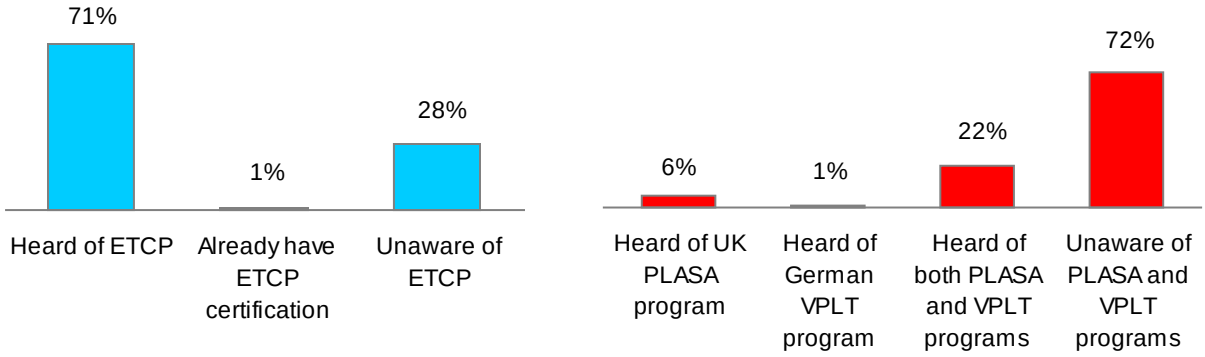
- Of the 41 riggers who say they have some form of professional recognition or certification:
  - 30 are from Ontario
  - 32 are members of IATSE
  - Arial and concert riggers are also more likely than other types of riggers to say they have some form of professional recognition or certification.

[1] Source: ETCP, as of April, 2007. http://etcp.esta.org/.

Figure 10 below provides further insight into rigger professional recognition and certification, showing awareness of certification programs offered by the ETCP in North America, the Professional Lighting and Sound Association (PLASA) in the United Kingdom, and the Verband für professionelle Licht und Tontechnik (VPLT) in Germany [translates as Professional Lighting and Sound Association]. Riggers were asked if they have heard of the ETCP, and as shown, only 1% of riggers sampled are ETCP certified. The implication is that, although 41 riggers state they have some form of professional recognition or certification, they are referring to something other than ETCP certification.

Seven of ten riggers and employers (71%) have heard of the ETCP certification program, while only 1% currently has ETCP certification. Fewer riggers and employers have heard of the PLASA and VPLT programs, with 72% unaware of these programs.

Figure 10 AWARENESS OF ETCP, PLASA AND VPLT

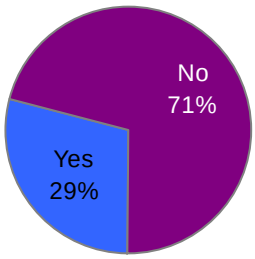


Crosstabulations reveal the following:

- Employers, those from Western Canada and those involved in theatre and concert rigging are more likely to have heard of the program offered by ETCP.
- Those involved in theatre rigging are more likely to have heard of the PLASA and VPLT programs.

Of those riggers who do not have professional recognition, three in ten riggers (29%) state that they are currently working towards some form of professional recognition or certification (Figure 11).

Figure 11 RIGGERS WORKING TOWARDS PROFESSIONAL RECOGNITION



Riggers were asked to indicate the value they place in achieving professional recognition. One in three riggers say there is no value in achieving professional recognition (see Figure 12 below). Another 23% feel there is a sense of pride and personal satisfaction that accompanies professional recognition, while 22% believe professional recognition will allow them to secure better employment.

Figure 12 VALUE OF ACHIEVING PROFESSIONAL RECOGNITION

Value	%
Nothing	26%
Personal satisfaction / pride	23%
Better employability or financial gains	22%
Proof of competency	14%
Promotes professionalism and confidence in the industry	11%
Promotes health and safety	6%
Other	2%

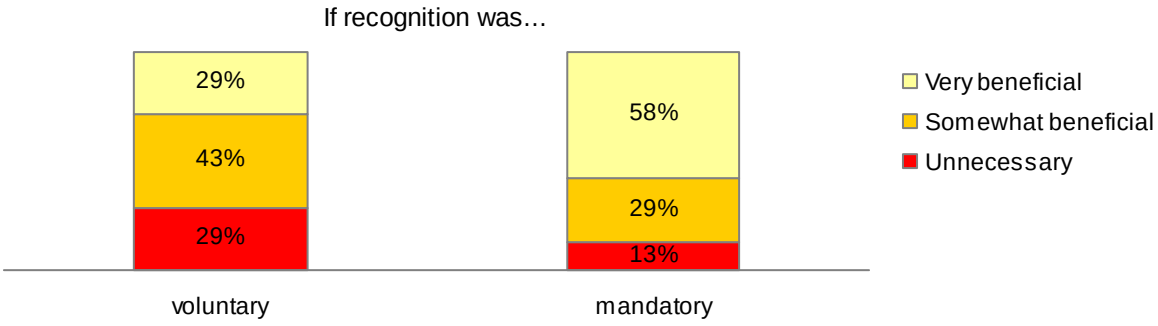
Note: Percentages exceed 100% because multiple percentages were accepted.

Professional recognition program components

Employers and riggers were read a series of possible program components that could be contained in a professional recognition program in Canada. They were asked whether they feel the program component would be very beneficial, somewhat beneficial or unnecessary to the creation of such a program.

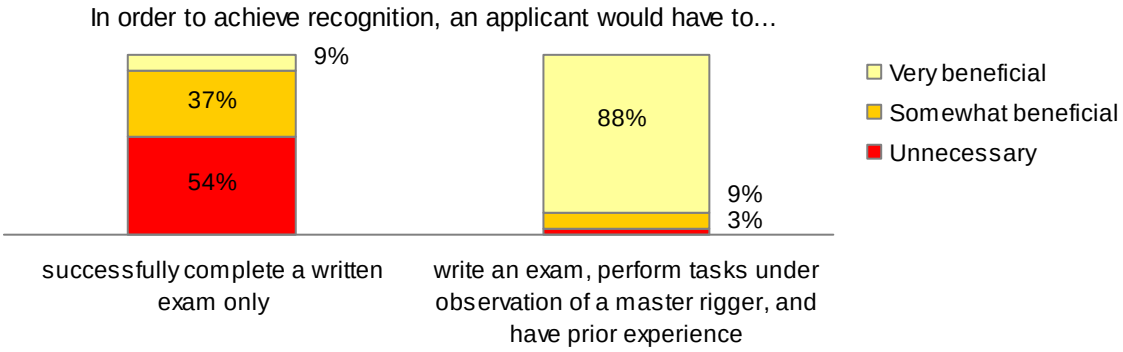
An important consideration in the creation of a professional recognition program is whether it should be voluntary or mandatory. Figure 13 reveals that riggers and employers believe that a mandatory program is more beneficial than a voluntary one. Only 13% of the respondents think mandatory professional recognition is unnecessary.

Figure 13 MANDATORY VERSUS VOLUNTARY



When asked about testing mechanisms for the proposed program, riggers and employers (88%) overwhelmingly think that the combination of writing an exam, performing tasks under the supervision of a master rigger and having prior hands-on experience is 'very beneficial' (see Figure 14). In comparison, only 9% of riggers and employers think that writing an exam alone is 'very beneficial' to the development of a professional recognition program in Canada.

Figure 14 TESTING MECHANISMS

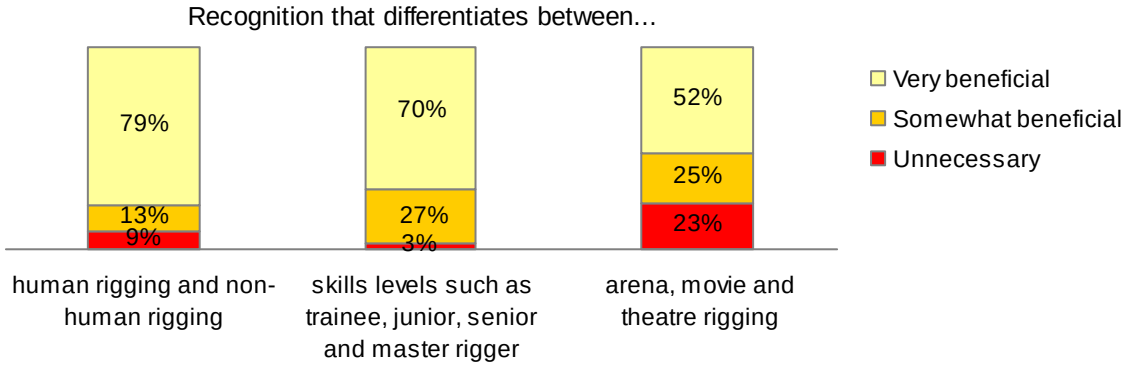


When asked whether a professional recognition program that differentiated between human rigging and non-human rigging would be beneficial, eight of ten (79%) believe this would be 'very beneficial' (see Figure 15). Similarly, seven of ten (70%) say that a recognition program that differentiates between skill levels (for example, trainee, junior, senior and master rigger) would also be 'very beneficial'.

Half of the survey respondents (52%) believe that a recognition program that differentiates between arena, movie and theatre rigging would be 'very beneficial' while one-quarter (25%) say it would only be 'somewhat beneficial'. The remaining one-quarter (23%) believe this component is unnecessary.

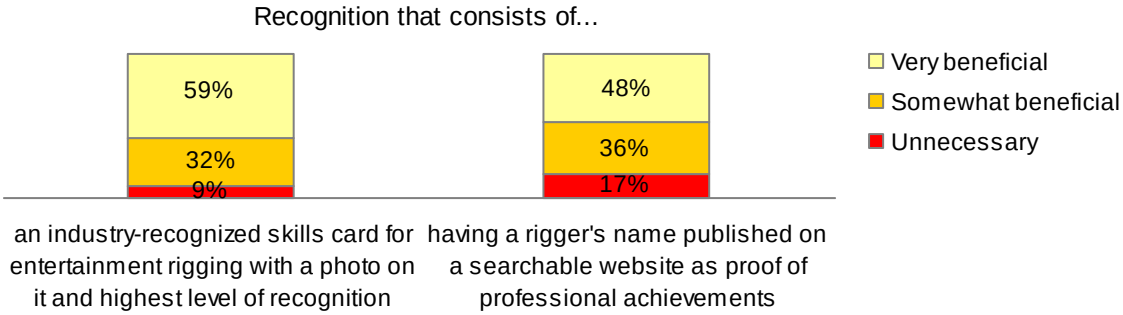
Given the large gap between the human and non-human rigging and the skills levels, on one hand (which at least 70%see as very beneficial), and arena, movie and theatre rigging, on the other, it is apparent that differentiation of the former type should be a priority in any professional recognition programs that are developed.

Figure 15 DIFFERENTIATED RIGGING



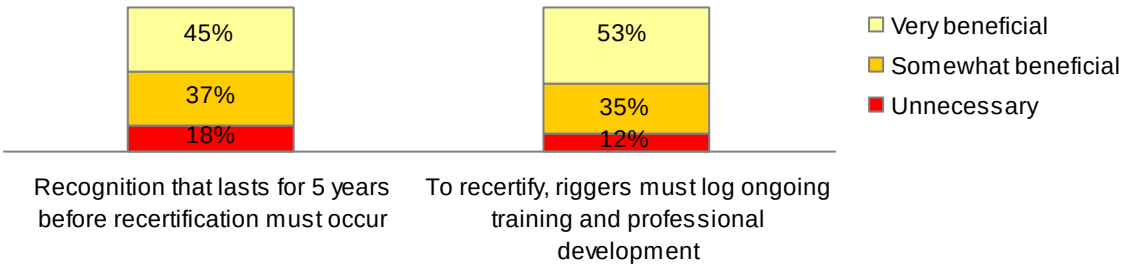
Regarding proof of professional recognition, nine in ten (91%) riggers and employers believe that a skills card containing a photo and the highest level of achievement imprinted on the card is either 'very beneficial' or 'somewhat beneficial' (see Figure 16). Comparatively, 8 in 10 (84%) think that having a rigger's name published on a searchable website is either 'very beneficial' or 'somewhat beneficial'.

Figure 16 PROOF OF RECOGNITION



When asked about recertification, eight in ten (82%) riggers and employers think that recertification every five years is either 'very beneficial' or 'somewhat beneficial' (see Figure 17). Similarly, 9 of 10 (88%) riggers and employers think that it is either 'very beneficial' or 'somewhat beneficial' to have riggers log ongoing training and professional development in order to recertify.

Figure 17 RECERTIFICATION



Training offerings

Respondents who identified themselves or their employees as possessing a given rigging skill or needing to acquire it were then asked where that skill was acquired or where they expect it to be acquired. Riggers were asked: "Where did you learn or do you expect to learn this skill?" For employers, the question was: "Where did your riggers learn or do you expect them to learn this skill?"

Responses were grouped into four categories: "learning on the job," "self-teaching," "formal training", and "informal training (for example, seminars and workshops)".

Learning on the job

On the job learning is a frequently cited training path for riggers to acquire essential job skills. Some skills are more likely to be learned on the job (for example, setting up rigging equipment and systems, which is learned on the job 85% of the time) than others (for example, using and inspecting aerial lift platforms, which is learned on the job 49% of the time) as indicated in Figure 18. The classification of a skill as being learned on the job dos not imply that self-teaching, formal training and informal training do not complement the acquisition of that skill.

Figure 18 SKILLS LEARNED ON THE JOB

Skills	Learn on the job
Set up rigging equipment and systems	85%
Assemble, adjust and stabilize production elements including flying scenic and others	83%
Install and operate counter-weight systems	82%
Assemble rigging components	81%
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools	79%
Install scaffolds, catwalks, permanent and temporary grids	79%
Set and mark trims	79%
Install, test and operate performer apparatus	78%
Fabricate components	78%
Raise, attach, secure and test rigging equipment	77%
Install and operate motorized systems	76%
Perform sensory (for example, visual, tactile) and operational inspections	76%
Perform layout	74%
Demonstrate teamwork skills and sensitivity to other people's needs	73%
Communicate verbally in a clear and concise manner	71%
Comply with all pertinent regulations, standards and best practices	70%
Determine and schedule maintenance requirements of rigging equipment and systems	68%
Tie knots	68%

Continued from page 32

Check and install anchors (for example concrete anchors or ground anchors)	68%
Generate a rigging plot	65%
Identify and communicate health and safety requirements	56%
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements	55%
Inspect, install and maintain health and safety equipment	51%
Use and inspect aerial lift platforms such as Genie or scissor lifts	49%

Based on cross-tabulations, the following observations can be made:

- Those involved in movie rigging are most likely to acquire the following skills on the job:
  - check and install anchors;
  - assemble, adjust and stabilize production elements; and,
  - fabricate components.
- Unionized riggers are most likely to acquire these skills on the job:
  - assemble, adjust and stabilize production elements;
  - determine and schedule maintenance requirements of rigging equipment and systems;
  - demonstrate teamwork skills and sensitivity to other people's needs;
  - tie knots; and,
  - communicate verbally in a clear and concise manner.
- Employers are most likely to say that on the job training can handle the skills gap associated with tying knots.
- Those from Ontario are most likely to indicate that learning how to communicate verbally in a clear and concise manner was acquired on the job.

Self-teaching

Self teaching is not generally a widespread method for acquiring rigging skills. Figure 19 below shows the distribution of skills acquired through via this method.

Figure 19 LEARNING SKILLS THROUGH SELF-TEACHING

Skills	Self-taught
Tie knots	37%
Demonstrate teamwork skills and sensitivity to other people's needs	34%
Communicate verbally in a clear and concise manner	33%
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements	28%
Generate a rigging plot	24%
Perform layout	24%
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools	23%
Fabricate components	22%
Determine and schedule maintenance requirements of rigging equipment and systems	22%
Assemble, adjust and stabilize production elements including flying scenic and others	22%
Install and operate counter-weight systems	21%
Set and mark trims	20%
Check and install anchors (for example concrete anchors or ground anchors)	20%
Set up rigging equipment and systems	19%
Assemble rigging components	19%
Raise, attach, secure and test rigging equipment	19%
Inspect, install and maintain health and safety equipment	19%
Install scaffolds, catwalks, permanent and temporary grids	19%
Comply with all pertinent regulations, standards and best practices	18%
Install, test and operate performer apparatus	17%
Perform sensory (for example, visual, tactile) and operational inspections	17%
Identify and communicate health and safety requirements	17%
Install and operate motorized systems	17%
Use and inspect aerial lift platforms such as Genie or scissor lifts	10%

Based on cross-tabulations, the following observations can be made about self-teaching:

- Those involved in movie rigging are more likely than other riggers to learn how to check and install anchors through self-teaching.
- Unionized riggers are more likely to learn how to determine and schedule maintenance requirements of rigging equipment and systems; and communicate verbally in a clear and concise manner through self-teaching.
- Those involved in arena, aerial and concert rigging are more likely to say that communicating verbally in a clear and concise manner can be acquired through self-teaching.
- Respondents from Quebec, New Brunswick and Nova Scotia are more likely than average to say that communicating verbally in a clear and concise manner can be acquired through self-teaching.
- Those involved in theatre rigging are more likely to say that the skills of tying knots and performing layout can be acquired through self-teaching.

Formal training

Like self-teaching, formal training at a college or university tends not to be the most popular method of acquiring rigging skills as indicated in Figure 20. Those skills most likely to be acquired through formal training as using and inspecting aerial list platforms (43%) and analyzing plans, technical drawings and blueprints to determine loads, forces and rigging requirements (43%).

Figure 20 SKILLS LEARNED THROUGH FORMAL TRAINING

Skills	Formal training
Use and inspect aerial lift platforms such as Genie or scissor lifts	43%
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements	43%
Inspect, install and maintain health and safety equipment	32%
Raise, attach, secure and test rigging equipment	31%
Generate a rigging plot	31%
Fabricate components	30%
Identify and communicate health and safety requirements	30%
Comply with all pertinent regulations, standards and best practices	29%
Determine and schedule maintenance requirements of rigging equipment and systems	26%
Perform layout	26%
Tie knots	25%
Check and install anchors (for example concrete anchors or ground anchors)	25%
Install and operate counter-weight systems	25%
Set up rigging equipment and systems	24%
Assemble, adjust and stabilize production elements including flying scenic and others	24%
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools	23%
Install, test and operate performer apparatus	23%
Install and operate motorized systems	22%
Assemble rigging components	21%
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools	23%
Install, test and operate performer apparatus	23%
Install and operate motorized systems	22%
Assemble rigging components	21%
Perform sensory (for example, visual, tactile) and operational inspections	21%
Set and mark trims	18%
Install scaffolds, catwalks, permanent and temporary grids	18%
Communicate verbally in a clear and concise manner	17%
Demonstrate teamwork skills and sensitivity to other people's needs	11%

Based on cross-tabulations, the following observations can be made about formal training:

- Concert riggers are most likely to acquire the following skills through formal training:
  - checking and installing anchors;
  - assemble, adjust and stabilize production elements;
  - determine and schedule maintenance requirements of rigging equipment and systems;
  - demonstrating teamwork skills and sensitivity to other people's needs;
  - identify and communicate health and safety requirements;
  - comply with all pertinent regulations, standards and practices;
  - set up rigging equipment and systems;
  - use rigging materials, equipment, instruments and tools; and,
  - use and inspect aerial lift platforms.
- Part-time riggers are most likely to acquire these skills through formal training:
  - checking and installing anchors;
  - identify and communicate health and safety requirements;
  - inspect, install and maintain health and safety equipment;
  - install scaffolds, catwalks, permanent and temporary grids;
  - set and mark trims; and,
  - raise, attach, secure and test rigging equipment.
- Aerial riggers are more likely than average to acquire these skills through formal training:
  - demonstrating teamwork skills and sensitivity to other people's needs;
  - analyze plans, technical drawing and blueprints to determine loads, forces and rigging requirements;
  - inspect, install and maintain health and safety equipment;
  - perform sensory and operational inspections; and,
  - use and inspect aerial lift platforms.
- Those with 10 years of rigging experience or less are more likely to learn how to comply with all pertinent regulations, standards and practices through formal education.
- Employers and those from Western Canada most often report learning how to install, test and operate performer apparatus through formal training:
- Those from Quebec, New Brunswick and Nova Scotia are more likely to learn how to set up rigging equipment and systems through formal training.

Informal training

Like on-the-job learning, informal training (through workshops, conferences, seminars, etc.) is another popular training path for riggers to gain certain skills (see Figure 21). Some skills are more likely to be learned through informal training such as those related to health and safety than others, such as 'softer' skills including teamwork and communication skills.

Figure 21 SKILLS LEARNED THROUGH INFORMAL TRAINING

Skills	Informal Training
Identify and communicate health and safety requirements	53%
Inspect, install and maintain health and safety equipment	51%
Use and inspect aerial lift platforms such as Genie or scissor lifts	47%
Comply with all pertinent regulations, standards and best practices	43%
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements	43%
Determine and schedule maintenance requirements of rigging equipment and systems	39%
Perform sensory (for example, visual, tactile) and operational inspections	34%
Install and operate motorized systems	34%
Check and install anchors (for example concrete anchors or ground anchors)	34%
Fabricate components	33%
Set up rigging equipment and systems	32%
Assemble rigging components	29%
Perform layout	28%
Install scaffolds, catwalks, permanent and temporary grids	28%
Generate a rigging plot	28%
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools	28%
Raise, attach, secure and test rigging equipment	26%
Assemble, adjust and stabilize production elements including flying scenic and others	23%
Install and operate counter-weight systems	22%
Install, test and operate performer apparatus	22%
Tie knots	20%
Set and mark trims	17%
Demonstrate teamwork skills and sensitivity to other people's needs	16%
Communicate verbally in a clear and concise manner	14%

Based on cross-tabulations, the following observations can be made about informal training:

- Arena riggers are most likely to say informal training can handle the skills gaps associated with the following skills:
  - determine and schedule maintenance requirements of rigging equipment and systems;
  - generate a rigging plot;
  - fabricate components;
  - assemble rigging components;
  - install and operate motorized systems;
  - perform sensory and operational inspections; and,
  - analyze plans, technical drawing and blueprints to determine loads, forces and rigging requirements.
- Employers are most likely to these skills are acquired through informal training:
  - determine and schedule maintenance requirements of rigging equipment and systems;
  - assemble rigging components;
  - perform sensory and operational inspections;
  - use rigging materials, equipment, instruments and tools; and,
  - analyze plans, technical drawing and blueprints to determine loads, forces and rigging requirements.
- Those involved in theatre rigging are most likely to report learning these skills through informal training:
  - raise, attach, secure and test rigging equipment;
  - generate a rigging plot;
  - fabricate components;
  - assemble rigging components;
  - install and operate motorized systems;
  - perform sensory and operational inspections;
  - use rigging materials, equipment, instruments and tools; and,
  - analyze plans, technical drawing and blueprints to determine loads, forces and rigging requirements.
- Those involved in concert rigging are most likely to say informal training can handle the skills gaps associated with the following skills:
  - raise, attach, secure and test rigging equipment;
  - demonstrate teamwork skills and sensitivity to other people's needs;

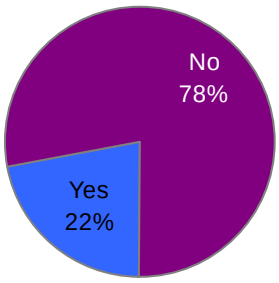
- fabricate components;
- perform sensory and operational inspections;
- use rigging materials, equipment, instruments and tools; and,
- perform layout.

- Those involved in aerial rigging are most likely to report learning how to demonstrate teamwork skills and sensitivity to other people's needs through informal training.
- Part-time riggers are more likely than other riggers to acquire knowledge of how to install and operate motorized systems; and perform sensory and operational inspections through informal training.

Skills acquisition through formal training

Respondents were asked if they ever participated in a formal training program for rigging, such as a university or college program. As Figure 22 illustrates below, only 22% of respondents have participated in a formal training program that included rigging training. Formal training is not a widely-used method to acquire rigging skills.

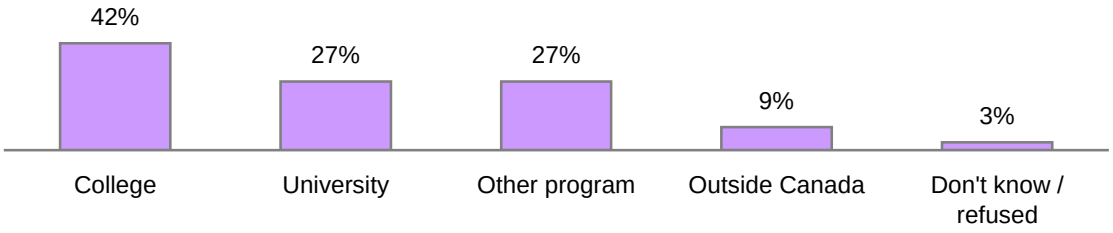
Figure 22 PARTICIPATION IN FORMAL TRAINING FOR RIGGERS



Of those employees and employers who participated in formal training, slightly less than half (42%) attended a university while one-quarter (27%) attended a college that offers a formal technical theatre training program in which rigging training may be offered as an independent course or offered as part of another course (see Figure 23 below). Slightly more than one-quarter (27%) attended some other type of program such as Production Jeun'Est or the Canadian Coast Guard, while one in ten (9%) say they received formal training outside of Canada.

Figure 23 WHERE FORMAL TRAINING AS RIGGER WAS RECEIVED

Where did you take this formal training program for riggers?



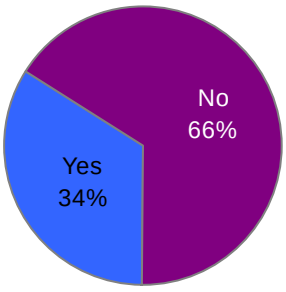
Note: Percentages exceed 100% because multiple responses were accepted.

Professional development: conferences / workshops

Respondents were asked if they attended any conferences or workshops within the past year related to professional development as a rigger. Figure 24 below shows that 34% of respondents overall have attended conferences or workshops within the past year.

- Cross-tabulations reveal that those involved in arena rigging and those who are not hired through a union are more likely to have attended a conference or workshop in the past year.

Figure 24 PROFESSIONAL DEVELOPMENT AS RIGGER – CONFERENCE OR WORKSHOP ATTENDANCE



Respondents who indicated they had attended such a conference or workshop were asked what skill or skill set it pertained to. Figure 25 provides their responses by category while the verbatim responses to this question are provided in *Appendix D*.

The topics most often learned at such conferences or workshops include safety inspection, regulations and general safety (22%), followed by learning how to do calculations and problem solving (18%), and general rigging (16%).

Figure 25 PROFESSIONAL DEVELOPMENT – SKILL SET

Skills	%
Safety inspection, regulations and general safety (including electrical safety)	22%
Calculations (i.e. math skills) / problem solving	18%
General rigging (i.e. chains, cables)	16%
Fall protection / rescue	8%
Lifts	8%
Motorized systems / counter weights	6%
Flying effects	6%
Aerial rigging	4%
Automated rigging	4%
Pyrotechnics	4%
I was teaching the course	4%
Loads	2%
Other	4%

Note: Percentages exceed 100% because multiple responses were accepted.

Conference and workshop attendees were also asked who offered this professional development training. Figure 26 shows their responses by category while verbatim responses are provided in *Appendix D*. Mentorship is clearly important, as evidenced by the number of respondents (18%) who remember the name of the individual as the source of their professional development training. The two most frequently cited *organizations* offering professional development training are the CITT (16%) and IATSE (12%).

Figure 26 PROFESSIONAL DEVELOPMENT – WHO OFFERED THE TRAINING?

Organization	%
Taught by individuals (Thomas Pruss, Jay Glerum, Harry Donovan, Mongo Andrews, Rocky Paulson.)	18%
CITT	16%
Taught in the USA or Mexico	14%
IATSE	12%
Federal government	4%
JR Clancy	4%
Capital Safety Group	4%
Fire Department	2%
SHAPE	2%
Cirque du Soleil	2%
Production Jeun'Est	2%
PRG Lighting Company	2%
Studio City Rentals	2%
Dwight Crane	2%
Other	10%

Note: The total percentage does not equal 100% due to rounding.

Secondary research and interviews with educators

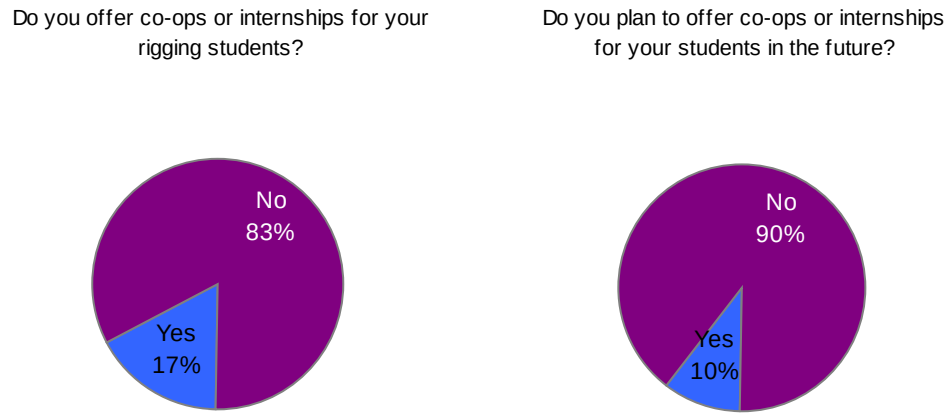
Fourteen interviews were conducted with *formal training institutions* (e.g. universities and colleges) and *informal training organizations* (e.g. associations, unions and rigging companies) to provide a general overview of training offerings in Canada.

Wherever possible, these interviews were conducted with senior members or volunteers who were highly familiar with the content of the programs offered at their institution or organization. It should be noted that evaluating the quality and type of education (e.g. practically-oriented vs. theoretically-based) is beyond the scope of this training gaps analysis.

Co-op placements and internships

Only 17% of the organizations and institutions offer co-ops or internships for riggers. Of those that do *not* currently offer such opportunities, only 10% say they are planning to offer co-op placements or internships in future (see Figure 27).

Figure 27 CO-OP PLACEMENTS AND INTERNSHIPS



Curriculum content

Senior staff members at training organizations and institutions were then asked whether their program offered training in each of the 24 skills examined in the employer and employee survey and, if so, approximately how many hours are dedicated to coverage of each. Figure 28 below lists each skill with the number of organizations and institutions that offer training in that skill, and the average number of hours dedicated to that skill's teaching.

The average number of hours provides an *estimate* of the time devoted to learning each skill across all organizations and institutions. Caution must be exercised when reviewing these averages, for two reasons.

- First, respondents say that the actual number of training hours for each skill can vary greatly from year to year.
- Second, respondents note the difficulty of quantifying the number of hours dedicated to a certain skill, especially if they are not the one teaching it.

Figure 28 reveals that some skills are taught by most of the 14 organizations and institutions, including communicating health and safety requirements (12), analyzing plans, technical drawings and blueprints (10), and complying with regulations, standards and best practices (10). There is much variation in the number of hours dedicated to teaching these skills. Other skills, however, are not taught by many of the organizations and institutions. For example, learning how to check and install anchors is only taught at 2 organizations and institutions with an average of 21 hours allocated to teaching.

Figure 28 CURRICULUM CONTENT

Skills	Count of institutions / organizations offering (of 14)	Average number of hours dedicated to covering skill
Identify and communicate health and safety requirements	12	11
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements	10	8
Comply with all pertinent regulations, standards and best practices	10	2
Assemble rigging components	9	2
Install and operate counter-weight systems	9	23
Raise, attach, secure and test rigging equipment	9	3
Perform sensory (for example, visual, tactile) and operational inspections	9	2
Set up rigging equipment and systems	9	4
Demonstrate teamwork skills and sensitivity to other people's needs	9	2
Use and inspect aerial lift platforms such as Genie or scissor lifts	9	9
Tie knots	9	6
Inspect, install and maintain health and safety equipment	8	21
Assemble, adjust and stabilize production elements including flying scenic and others	8	4
Set and mark trims	8	3
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools	8	1
Communicate verbally in a clear and concise manner	8	2
Install and operate motorized systems	7	6
Install scaffolds, catwalks, permanent and temporary grids	6	N/A*
Generate a rigging plot	5	201**
Perform layout	5	2
Determine and schedule maintenance requirements of rigging equipment and systems	5	1
Fabricate components	4	7
Install, test and operate performer apparatus	4	2
Check and install anchors (for example concrete and ground anchors)	2	21

Note: The average hours are approximations only and may vary from year to year. *None of the respondents were able to quantify the number of hours dedicated to teaching this skill. ** This is skewed upwards because one respondent states that the institution offers 400 hours of training on this skill.

Perceived training gaps

Health and safety

Fourteen senior members of training institutions and organizations were asked what they see as the top training priorities for riggers in relation to *health and safety.* Eight institutions say the top training priority concerns working at heights include fall protection and rescue, while five say riggers need to learn to be more aware of their surroundings and practice general safety (see Figure 29).

Figure 29 HEALTH AND SAFETY TRAINING NEEDS IDENTIFIED BY TRAINING INSTITUTIONS AND ORGANIZATIONS

Skills	Number of institutions
Fall protection, working at heights, and fall rescue	8
General awareness of surroundings, practicing general safety	5
Regulations	1
Ability to inspect equipment	1
Fasten items like knots, bolts and chains	1
Best practices in health and safety	1
Calculating weights of rigging / flying instruments	1
Certification and hands-on job experience	1
Other	1

Note: N=13.

Overall training gaps

When asked about the greatest training need *in general,* 5 feel there is a need for ongoing training and certification. The same number says there is a need for safety training (see Figure 30). Two state equally that more qualified instructors are needed to offer rigger training and that more funding and time is needed to offer such training.

Figure 30 OVERALL TRAINING NEEDS IDENTIFIED BY TRAINING INSTITUTIONS AND ORGANIZATIONS

Training needs	Number of institutions
Continuous education and certification	5
Safety	5
Need more qualified instructors	2
Need more time and funding to train riggers	2

Note: N=12.

Training barriers

Respondents were asked whether any barriers prevent their program from offering more rigger training (see Figure 31). Eight institutions feel that the biggest barrier to offering more training is a lack of funding, while an additional 5 say the lack of time prevents more rigging training from being offered.

Figure 31 BARRIERS TO OFFERING MORE TECHNICAL TRAINING

Skills	Number of institutions
Lack of funding	8
Lack of time	5
No space to teach rigging	3
Class sizes are too big	2
Lack of desire on part of institution to teach rigging	2
Lack of qualified instructors	1
Training is expensive for rigger to take	1

Note: N=13.

Summary of skills taught

Summary tables are provided below to indicate which of the 24 skills tested in the employer and employee survey are taught at each institution interviewed (see Figure 32 to Figure 34). Two institutions did not complete this portion of the survey: Ryerson University and Mount Royal College.

Figure 32 ONTARIO AND QUEBEC

Skills taught	Humber College (Ontario)	York University (Ontario)	IATSE Local 56 (Quebec)	National Theatre School of Canada (Quebec)
Determine and schedule maintenance requirements of rigging equipment and systems	Yes	Yes	Yes	
Inspect, install and maintain health and safety equipment	Yes	Yes	Yes	Yes
Check and install anchors (for example concrete anchors or ground anchors)				
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements	Yes	Yes	Yes	Yes
Install scaffolds, catwalks, permanent and temporary grids	Yes		Yes	Yes
Install, test and operate performer apparatus	Yes		Yes	Yes
Fabricate components	Yes			Yes
Install and operate counter-weight systems	Yes	Yes	Yes	Yes
Assemble, adjust and stabilize production elements including flying scenic and others	Yes	Yes	Yes	Yes
Perform layout	Yes			Yes
Install and operate motorized systems	Yes	Yes		Yes
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools	Yes	Yes	Yes	
Comply with all pertinent regulations, standards and best practices	Yes	Yes	Yes	Yes
Perform sensory (for example, visual, tactile) and operational inspections	Yes	Yes	Yes	Yes
Generate a rigging plot	Yes			Yes
Identify and communicate health and safety requirements	Yes	Yes	Yes	Yes
Raise, attach, secure and test rigging equipment	Yes	Yes	Yes	
Set up rigging equipment and systems	Yes	Yes	Yes	
Demonstrate teamwork skills and sensitivity to other people's needs	Yes	Yes	Yes	Yes
Communicate verbally in a clear and concise manner	Yes	Yes	Yes	Yes
Tie knots	Yes	Yes	Yes	Yes
Assemble rigging components	Yes	Yes	Yes	Yes
Use and inspect aerial lift platforms such as Genie or scissor lifts	Yes	Yes	Yes	Yes
Set and mark trims	Yes	Yes	Yes	Yes

Figure 33 ALBERTA AND SASKATCHEWAN

Skills taught	Red Deer College (Alberta)	IATSE Local 212 (Alberta)	University of Regina (Saskatchewan)
Determine and schedule maintenance requirements of rigging equipment and systems			Yes
Inspect, install and maintain health and safety equipment	Yes		Yes
Check and install anchors (for example concrete anchors or ground anchors)			Yes
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements	Yes	Yes	Yes
Install scaffolds, catwalks, permanent and temporary grids	Yes		
Install, test and operate performer apparatus			Yes
Fabricate components	Yes		Yes
Install and operate counter-weight systems	Yes	Yes	Yes
Assemble, adjust and stabilize production elements including flying scenic and others	Yes		Yes
Perform layout	Yes		Yes
Install and operate motorized systems	Yes		Yes
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools	Yes	Yes	Yes
Comply with all pertinent regulations, standards and best practices	Yes	Yes	Yes
Perform sensory (for example, visual, tactile) and operational inspections	Yes	Yes	Yes
Generate a rigging plot	Yes		Yes
Identify and communicate health and safety requirements	Yes	Yes	Yes
Raise, attach, secure and test rigging equipment	Yes	Yes	Yes
Set up rigging equipment and systems	Yes	Yes	Yes
Demonstrate teamwork skills and sensitivity to other people's needs	Yes	Yes	Yes
Communicate verbally in a clear and concise manner	Yes		Yes
Tie knots	Yes	Yes	Yes
Assemble rigging components	Yes	Yes	Yes
Use and inspect aerial lift platforms such as Genie or scissor lifts	Yes		Yes
Set and mark trims	Yes		Yes

Figure 34 BRITISH COLUMBIA

Skills taught	Douglas College	IATSE Local 118	IATSE Local 891	Safety and Health in Arts Production and Entertainment	Riggit Services
Determine and schedule maintenance requirements of rigging equipment and systems		Yes			Yes
Inspect, install and maintain health and safety equipment		Yes			Yes
Check and install anchors (for example concrete anchors or ground anchors)					Yes
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements	Yes	Yes			Yes
Install scaffolds, catwalks, permanent and temporary grids		Yes			Yes
Install, test and operate performer apparatus					
Fabricate components					
Install and operate counter-weight systems	Yes	Yes			
Assemble, adjust and stabilize production elements including flying scenic and others	Yes				Yes
Perform layout					Yes
Install and operate motorized systems	Yes				Yes
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools		Yes			Yes
Comply with all pertinent regulations, standards and best practices	Yes	Yes			Yes
Perform sensory (for example, visual, tactile) and operational inspections	Yes				Yes
Generate a rigging plot					Yes
Identify and communicate health and safety requirements	Yes	Yes	Yes	Yes	Yes
Raise, attach, secure and test rigging equipment	Yes	Yes			Yes
Set up rigging equipment and systems	Yes	Yes			Yes
Demonstrate teamwork skills and sensitivity to other people's needs	Yes				Yes
Communicate verbally in a clear and concise manner	Yes				Yes
Tie knots	Yes				Yes
Assemble rigging components	Yes				Yes
Use and inspect aerial lift platforms such as Genie or scissor lifts	Yes			Yes	Yes
Set and mark trims	Yes				Yes

International training and professional recognition offerings

North America

Entertainment Technician Certification Program (ETCP)

The ETCP is a voluntary certification process in which a non-governmental organization grants recognition to an applicant who has demonstrated certain abilities, skills and knowledge in electrical and rigging skills. To obtain certification in rigging, applicants must successfully pass a three-hour exam that consists of 150 multiple choice questions. ETCP uses a point system to determine eligibility for examinations. An applicant must have 30 points to apply to write either of the rigging exams. Points can be earned through work experience, training (for example, internships or apprenticeships) and education (for example, a degree).

There are two rigging credentials: (1) ETCP Certified Rigger: Arena, and (2) ETCP Certified Rigger: Theatre, each with its own exam. The cost for the exam ranges from $300 to$600 US and is offered at 190 exam centres across Canada and the United States. To maintain certification, a certified rigger must either accumulate 40 *renewal points* of ongoing professional development or retake the certification examination and accumulate 10 *renewal points* of ongoing professional development over the 5 year period following the examination.

The ETCP recognizes two training programs on its website: Tomcat USA Hoist and Rigging Workshop and Mountain Productions. Tomcat USA hosts an annual four-day Hoist and Rigging Workshop comprising hands-on workshops on the following skills: trusses, hoist motors, rigging practices and fall protection. In March 2007, Mountain Productions hosted its 22nd Annual CM Hoist School for a total cost of $795 per person. The Annual CM Hoist School is a four-day seminar with classes on hoist use, maintenance, rigging principles, truss management and lifting and suspension.

USITT and CITT conferences

The United States Institute of Theatre Technology (USITT), the Canadian Institute of Theatre Technology's American counterpart, plans and hosts conferences and workshops. Every year, USITT hosts a conference and stage expo held in a different North American city with an estimated 3,500 participants. The annual conference offers 175 sessions focused on design, technology, costume, sound, architecture, management, engineering, and production. In 1999 and 2005, its annual conference was hosted in Toronto.

Rigging Seminars

Rigging Seminars offers four-day combined stage and arena rigging classes in Boston, Chicago, and Seattle for $990 US. It also offers five-day intensive arena rigging and fall protection classes in Las Vegas for $1240 US. Seminars cover such topics as liability, safety, regulations, engineering principles of rigging, inspection procedures, rigging materials, operation procedures, rigging methods, permanent installations, arena rigging, stage rigging, fall protection and hands-on practice.

United Kingdom

Professional Lighting and Sound Association (PLASA)

PLASA was founded over 25 years ago as a trade association serving the entertainment, presentation, architectural and installation industries. With over 500 members, its mission is to make commercial life better and more productive for its members. To achieve this mission, PLASA represents the interests of its members, provides independent and impartial business advice and professional support, and offers a variety of services and events.

PLASA has developed a new National Rigging Certificate (NRC), which is a competency-based assessment program that will commence this year. The NRC has four levels:

- Level 1: Trainee Rigger
- Level 2: Rigger
- Level 3: Rigging Supervisor
- Level 4: Rigging Manager (Note: this title is still to be confirmed)

The program will start with two routes of entry for each level: *existing riggers* and *new riggers*. The acceptance of existing riggers is only temporary; eventually all riggers will be expected to have achieved the preceding certification level as a pre-requisite for entry into the higher levels. Riggers will be assessed as a level comparable to their experience. The direct entry assessment process for Level 2 and 3 is a two-day event, which consists of written questions, prior experience and practical scenario observation. For Level 3, applicants must additionally complete a one-day workplace-based assessment under the observation of an assessor.

NRC Assessors were initially selected through an election process held by the National Rigging Advisory Group and then completed the trainee NRC assessor process, which consisted of training and assessments. Assessment will be conducted at approved test centres around the United Kingdom. Successful applicants will be provided a PLASA rigging photo ID card that identifies the level of certification achieved. Applicants are expected to maintain their own rigging logbook to provide a detailed record of their rigging experience.

PLASA is currently creating a training and development strategy to meet the needs of its members. PLASA compiles information on *educational* and *training* courses throughout the United Kingdom. This information is contained on the PLASA website and users can search the list of educational and training courses. *Educational courses* are defined as full- or part-time courses that will lead to a recognized qualification; they tend to be industry-specific. Educational courses are delivered by schools, colleges and universities whereas *training courses* are shorter in duration and either industry-specific or business-related. These courses are delivered by manufacturers, suppliers and installation companies.

Germany

Verband für professionelle Licht und Tontechnik (VPLT)

The German organization Verband für professionelle Licht und Tontechnik (VPLT) translates as the Professional Sound and Lighting Association. The *Event Rigging Expert: Qualification* is not a certification program per se, but a Code of Practice to ensure a uniform qualification level for initial and advanced training in the rigging industry. The Code of Practice was created by representatives of industry-related associations, educational institutions, organizations and trainers. It includes criteria for appropriate training courses and seminars, their modules, content, documentation and examination as well as the qualifications of the trainers and board of examiners.

In order to be admitted to a rigging training course, the Code of Practice stipulates that applicants must be 21 years of age or older, have a basic knowledge of math, a valid first aid certificate (no more than two years old), a valid G-41 certification of occupational health, training as an Event Technology Specialist and at least three years of rigging related work.

In order to maintain their qualifications, riggers must maintain their first aid and G-41 occupational health certification, develop expert knowledge on the use of personal protective equipment, and work experience within two years of passing the examination. Event Rigging Experts are expected to pursue professional development training on a regular basis. Qualification as an Event Rigging Expert can be revoked if these conditions are not met.

The Code of Practice also outlines the theoretical and practical elements that would comprise a 12 month Event Rigging Expert training course:

- Legal basis and occupational safety:
  - general principles;
  - liability
  - occupational safety and accident prevention regulations; and
  - fire prevention.
- Fundamentals of electrical engineering:
  - electrical hazards; and
  - protection devices.
- Technical communication;
- Personal protective equipment
  - general information;
  - theory on fall protection;
  - equipment studies;
  - inspection, cleaning, maintenance and storage of equipment;

  - workplace positioning; and
  - rescue.
- Personal protective equipment – practical application;
- Statistics:
  - Fundamentals;
  - rigging-specific statistics;
  - practice project to apply the newly acquired knowledge; and
  - introduction to software solutions.
- Technical work equipment – theory:
  - lifting equipment;
  - attaching gear, rigging tools, trusses and accessories;
  - working platforms, passenger hoists, ladders and steps; and
  - special constructions.
- Technical work equipment – practical application; and
- Communication and cooperation.

There are testing mechanisms for both the theory and practical modules. A written exam is held after each theory module in which half of the questions must be answered correctly. In each module, candidates may retake the exam orally. In the event that a candidate fails both the written and oral exam, s/he has a maximum of two retakes. Candidates must also submit proof that they have successfully completed the practical exercise and pass the practical exam as well.

Australia

National Standard for Licensing Persons Performing High Risk Work

In 1991, Australia created a nationally uniform certification system regarding health and safety known as the National Standard for Licensing Persons Performing High Risk Work. High risk work includes the following elements:

- Scaffolding: basic, intermediate and advanced.
- Rigging: basic, intermediate and advanced.
- Crane and hoist operation: tower; self-erecting tower; derrick; portal boom; bridge and gantry; vehicle loading; non slewing mobile; slewing; materials hoist; personnel and materials hoist; boom-type elevating work platform; vehicle mounted concrete placing boom.
- Forklift operation: forklift trucks; order-picking forklift trucks.
- Pressure equipment operation: basic, intermediate and advanced boiler operation; turbine operation; reciprocating steam engine operation.

In order to work in these high risk occupations, individuals must be at least 18 years of age and have been trained and assessed at a Registered Training Organization (RTO). A RTO is an organization that offers nationally recognized training that has been registered by a state or territory. A single point of access though a searchable website has been developed to provide information on all RTO-approved vocational education and training information across Australia (see http://www.training.com.au/). Upon successful completion of the training and assessment, individuals can apply for a license, which is renewable every five years.

Training gaps analysis

Training gaps were analyzed, based on the training needs expressed by riggers and those who employ them. Figure 35, below, shows the skills gap, which is the percentage who says a specific skill is *needed* (required and still to be acquired). Expectations as to where that skill will be acquired are shown in the four right-most columns.

For every skill assessed, at least half of respondents (49%) cite on-the-job training as a means by which they expect skills to be acquired. On the job training is important for the development of all skills for riggers. Comparatively, self-training is, in almost all cases, the least likely skills acquisition path for riggers; formal training follows as the next least likely path.

Informal training also appears to be important to the acquisition of certain skills. It is most commonly expected for identifying and communicating health and safety requirements (53%) and least commonly expected for the development of softer skills, including communication (14%) and teamwork skills (16%).

Figure 35 SKILLS GAPS AND ACQUISITION PATH

Skills	Skills gap	Expectation of how skills gap will be filled			
		On the job	Self-taught	Formal training	Informal training
Determine and schedule maintenance requirements of rigging equipment and systems	20%	68%	22%	26%	39%
Inspect, install and maintain health and safety equipment	16%	51%	19%	32%	51%
Check and install anchors (for example concrete anchors or ground anchors)	16%	68%	20%	25%	34%
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements	15%	55%	28%	43%	43%
Install scaffolds, catwalks, permanent and temporary grids	13%	79%	19%	18%	28%
Install, test and operate performer apparatus	13%	78%	17%	23%	22%
Fabricate components	12%	78%	22%	30%	33%
Install and operate counter-weight systems	11%	82%	21%	25%	22%
Assemble, adjust and stabilize production elements including flying scenic and others	11%	83%	22%	24%	23%
Perform layout	10%	74%	24%	26%	28%
Install and operate motorized systems	10%	76%	17%	22%	34%
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools	10%	79%	23%	23%	28%
Comply with all pertinent regulations, standards and best practices	10%	70%	18%	29%	43%
Perform sensory (for example, visual, tactile) and operational inspections	9%	76%	17%	21%	34%
Generate a rigging plot	8%	65%	24%	31%	28%
Identify and communicate health and safety requirements	8%	56%	17%	30%	53%
Raise, attach, secure and test rigging equipment	8%	77%	19%	31%	26%
Set up rigging equipment and systems	7%	85%	19%	24%	32%
Demonstrate teamwork skills and sensitivity to other people's needs	7%	73%	34%	11%	16%
Communicate verbally in a clear and concise manner	7%	71%	33%	17%	14%
Tie knots	6%	68%	37%	25%	20%
Assemble rigging components	5%	81%	19%	21%	29%
Use and inspect aerial lift platforms such as Genie or scissor lifts	5%	49%	10%	43%	47%
Set and mark trims	3%	79%	20%	18%	17%

Note: Percentages shown under "Expectation of how skills gap will be filled" are derivations of the percentage shown under "Skills gap" (i.e., those identifying the skill as one that they need). The four right-hand column percentages, when summed across the row, may exceed 100% because multiple responses were accepted.

Figure 36 below shows, for each skill, the skills gap and the percentage of those expecting the gap to be addressed through formal and informal training (the same data shown in Figure 35 above); in addition to the number of institutions and organizations providing training (out of a total of 14). Comparing skills gap percentages and training expectations with the prevalence of formal and informal training for each skill allows us to assess whether institutions and organizations are offering the training needed to fill each gap.

Sixteen of the 24 skills measured in this study are taught by a majority of the 14 organizations and institutions interviewed, including identifying and communicating health and safety requirements (12), analyzing plans, technical drawings and blueprints (10) and complying with regulations, standards and best practices (10). The remaining eight other skills are taught by a minority of the organizations and institutions including checking and installing anchors (2), determining and scheduling maintenance requirements of rigging equipment and systems (5), performing layout (5) and generating a rigging plot (5).

There is somewhat of an inverse relationship between the size of the skills gap and the number of institutions offering training for a particular skill. For example, the top six skills gaps together have an average of 5.8 institutions or organizations offering courses in each skill. In contrast, the ten skills with the smallest skills gap have an average of 8.7 institutions or organizations offering courses in each skill.

This suggests that the skills gap may be in part due to a lack of training options. As to how the training gap should be addressed, the average for the top six training gaps is 28% formal training and 36% informal training – both of which are above the 26% and 31% overall averages, respectively.

Figure 36 ANALYSIS: SKILLS GAPS, TRAINING REQUIRED, TRAINING OFFERINGS

Skills	Skills gap	Address through formal training?	Address through informal training?	Count of institutions / organizations offering (of 14)
Determine and schedule maintenance requirements of rigging equipment and systems	20%	26%	39%	5
Inspect, install and maintain health and safety equipment	16%	32%	51%	8
Check and install anchors (for example concrete anchors or ground anchors)	16%	25%	34%	2
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements	15%	43%	43%	10
Install scaffolds, catwalks, permanent and temporary grids	13%	18%	28%	6
Install, test and operate performer apparatus	13%	23%	22%	4
Fabricate components	12%	30%	33%	4
Install and operate counter-weight systems	11%	25%	22%	9
Assemble, adjust and stabilize production elements including flying scenic and others	11%	24%	23%	8
Perform layout	10%	26%	28%	5
Install and operate motorized systems	10%	22%	34%	7
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools	10%	23%	28%	8
Comply with all pertinent regulations, standards and best practices	10%	29%	43%	10
Perform sensory (for example, visual, tactile) and operational inspections	9%	21%	34%	9
Generate a rigging plot	8%	31%	28%	5
Identify and communicate health and safety requirements	8%	30%	53%	12
Raise, attach, secure and test rigging equipment	8%	31%	26%	9
Set up rigging equipment and systems	7%	24%	32%	9
Demonstrate teamwork skills and sensitivity to other people's needs	7%	11%	16%	9
Communicate verbally in a clear and concise manner	7%	17%	14%	8
Tie knots	6%	25%	20%	9
Assemble rigging components	5%	21%	29%	9
Use and inspect aerial lift platforms such as Genie or scissor lifts	5%	43%	47%	9
Set and mark trims	3%	18%	17%	8
Mean (of skills)	10%	25.8%	31%	7.6

Note: Percentages shown under "Formal training" and "Informal training" are derivations of the percentage shown under "Skills learned through formal training and informal training". Responses of "don't know / refused" have been excluded.

Training gaps: skill by skill

Below, each of the 24 skills measured in this study are discussed covering the following points in sequence:

- The size of the skills gap;
- The percentage of employees and employers who say the skill is required to perform the job of a rigger;
- Respondents most likely to say they still need to acquire the skill based on cross-tabulations (if applicable);
- How riggers and their employers expect a given gap to be addressed (for example, on-the-job training, formal training, informal training or self-teaching), and any statistically significant crosstabulations (if applicable);
- The number of institutions and organizations that offer training for each skill. A total of 14 interviews were conducted;
- The percentage of employer-employee respondents who attended a conference or workshop in the past year offering professional development in a skill (if applicable); and
- The percentage of all respondents who considered the skill to be the "biggest training gap (if applicable)."

Determine and schedule maintenance requirements of rigging equipment and systems

- **Gap:** 20%, the largest for any skill measured in this survey.
- **Skill required:** 61% say required.
- **Respondents most likely to indicate needing this skill:** Theatre, aerial and arena riggers and those from Quebec, New Brunswick and Nova Scotia.
- **Skills acquisition:**
  - *On the job training:* 68%. Unionized riggers are more likely to acquire this skill on the job.
  - *Self-teaching:* 22%.
  - *Formal training*: 26%.
  - *Informal training*: 39%. Arena and concert riggers are most likely to feel this training need should be addressed through informal training.
- **Training offered:** Despite being the largest skill gap in this study, only five of the 14 organizations and institutions interviewed offer training related to this skill.

Inspect, install and maintain health and safety equipment

- **Gap:** 16%, the second largest gap of the 24 skills measured in this study.

- **Skill required:** 77% say required.
- **Respondents most likely to indicate needing this skill:** Aerial and theatre riggers.
- **Skills acquisition:**
  - *On the job training:* 51%.
  - *Self-teaching:* 19%.
  - *Formal training*: 32%. Those most likely to acquire this skill through formal training are part-time riggers and aerial riggers.
  - *Informal training*: 51%.
- **Training offered:** Eight of the 14 organizations and institutions interviewed provide training for this particular skill.
- **Skills acquired at a conference or workshop in the past year:** 22% say they received training regarding safety inspections while 8% say they learned about fall protection and rescue.
- **Biggest health and safety training gap identified by training institutions and organizations:** eight of the fourteen organizations and institutions say working at heights is a top training priority while only one cites the ability to conduct inspections.
- **Biggest health and safety training gap identified by riggers and employers:** 18% say understanding how to use health and safety equipment is a top training need followed by 4% who say that conducting inspections is a top training priority. An additional 34% say working at heights is the biggest training gap.
- **Biggest overall training gap identified by riggers and employers:** 21% say that basic health and safety training constitutes the biggest training gap, while 6% say it is fall protection and fall rescue training.

Check and install anchors

- **Gap:** 16%, which is the second largest skills gap in this study
- **Skill required:** 56% say required
- **Respondents most likely to indicate needing this skill:** Aerial riggers.
- **Skills acquisition:**
  - *On the job training:* 68%. Movie riggers are most likely to acquire this skill through on the job training.
  - *Self-teaching:* 19%. Movie riggers are most likely to acquire this skill through self-teaching.
  - *Formal training*: 24%. Part-time and concert riggers are most likely to think that this skills gap should be addressed through formal training.

- *Informal training*: 34%.

- **Training offered:** Few (2) of the 14 organizations and institutions interviewed in this study offer training for this particular skill making it the skill for which formal and informal training is least available.

- **Biggest health and safety training gap identified by training institutions and organizations:** one of the fourteen institutions and organizations interviewed says learning how to fasten items like knots, bolts, chains and anchors tops their list of training gaps.

Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements

- **Gap:** 15%, which represents the third largest skills gap in this study.

- **Skill required:** 71% say required.

- **Skills acquisition:**

  - *On the job training:* 55%.

  - *Self-teaching:* 28%.

  - *Formal training*: 43%. Aerial riggers are more likely to acquire this skill through formal education.

  - *Informal training*: 43%. Employers, part-time riggers, theatre riggers and arena riggers are more likely to acquire this skill through.

- **Training offered:** Ten of the fourteen organizations and institutions interviewed in this study provide training for this skill.

- **Skills acquired at a conference or workshop in the past year:** 2% received training related to understanding loads.

- **Biggest health and safety training gap identified by riggers and employers:** 9% say understanding loads and forces is a top training priority.

- **Biggest overall training gap identified by riggers and employers:** 7% say understanding loads, forces and stresses is a top training priority.

Install scaffolds, catwalks, permanent and temporary grids

- **Gap:** 13%, the fourth largest skills gap.

- **Skill required:** 58% say required.

- **Respondents most likely to indicate needing this skill:** Arena and concert riggers are most likely to say they need to acquire this skill.

- **Skills acquisition:**

  - *On the job training:* 79%.

- *Self-teaching:* 19%.
- *Formal training*: 18%. Part-time riggers are most likely to acquire this skill through formal training.
- *Informal training*: 28%.

- **Training offered:** Six of the fourteen organizations and institutions that offer rigging training provide training for this specific skill.

Install, test and operate performer apparatus

- **Gap:** 13%, the fourth largest skills gap.
- **Skill required:** 49% say required
- **Respondents most likely to indicate needing this skill:** Aerial riggers, those from Quebec, New Brunswick and Nova Scotia, and those who were interviewed after the news of an accidental death of a rigger (January 29, 2007).
- **Skills acquisition:**
  - *On the job training:* 78%.
  - *Self-teaching:* 17%.
  - *Formal training*: 23%. Employers and those from Western Canada are most likely to acquire this skill through formal training.
  - *Informal training*: 22%.
- **Training offered:** Of the 14 training organizations and institutions interviewed, only four provide training for this skill.

Fabricate components

- **Gap:** 12%.
- **Skill required:** 47% say required, which is the least essential skill required by riggers to perform their duties.
- **Respondents most likely to indicate needing this skill:** Movie riggers.
- **Skills acquisition:**
  - *On the job training:* 78%. Movie riggers are most likely to opt for on the job training to learn this skill.
  - *Self-teaching:* 22%.
  - *Formal training*: 30%.
  - *Informal training*: 33%. Arena, theatre and concert riggers are most likely to acquire by informal training.

- **Training offered:** Four of the fourteen training organizations and institutions provide training for this skill.

Install and operate counter-weight systems

- **Gap:** 11%, which is the sixth largest skills gap measured in this study.
- **Skill required:** 66% say required.
- **Respondents most likely to indicate needing this skill:** Theatre, aerial and arena riggers.
- **Skills acquisition:**
  - *On the job training:* 82%.
  - *Self-teaching:* 21%.
  - *Formal training*: 25%.
  - *Informal training*: 22%.
- **Training offered:** Most (9) of the training organizations and institutions provide training for this skill.
- **Skills acquired at a conference or workshop in the past year:** 6% received training on the operation of motorized systems and counter-weights.

Assemble, adjust, and stabilize production elements including flying scenic and others

- **Gap:** 11%, which is the sixth largest skills gap measured in this study.
- **Skill required:** 79% say required.
- **Respondents most likely to indicate needing this skill:** Theatre riggers, arena riggers, and those from Western Canada, Quebec, New Brunswick and Nova Scotia.
- **Skills acquisition:**
  - *On the job training:* 83%. Unionized riggers, movie rigger and riggers who are employed indirectly are most likely to acquire through the job training.
  - *Self-teaching:* 22%.
  - *Formal training*: 24%. Concert riggers are most likely to acquire through formal training.
  - *Informal training*: 23%.
- **Training offered:** Eight organizations and institutions interviewed in this study offer training in assembling, adjusting and stabilizing production elements.
- **Skills acquired at a conference or workshop in the past year:** 6% received training related to flying effects.

Perform layout

- **Gap:** 10%.
- **Skill required:** 78% say required.
- **Respondents most likely to indicate needing this skill:** Aerial riggers
- **Skills acquisition**
  - *On the job training:* 74%.
  - *Self-teaching:* 24%. Theatre riggers are most likely to acquire through self-teaching.
  - *Formal training*: 26%.
  - *Informal training*: 28%. Concert riggers are most likely to acquire through informal training.
- **Training offered:** Only five of the fourteen training organizations and institutions offer training for this skill.

Install and operate motorized systems

- **Gap:** 10%.
- **Skill required:** 75% say required.
- **Respondents most likely to indicate needing this skill:** Arena and concert riggers.
- **Skills acquisition:**
  - *On the job training:* 76%.
  - *Self-teaching:* 17%.
  - *Formal training*: 22%.
  - *Informal training*: 34%. Arena riggers, theatre riggers, part-time riggers, and riggers who are employed directly are most likely to acquire through informal training
- **Training offered:** Seven organizations and institutions provide training for this skill
- **Skills acquired at a conference or workshop in the past year:** 6% received training on motorized systems and counter-weights.
- **Biggest overall training gap identified by riggers and employers:** 6% of riggers and employers say using motorized and automated systems is a top training priority.

Using rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools

- **Gap:** 10%.
- **Skill required:** 83% say required.
- **Skills acquisition:**
  - *On the job training:* 79%.
  - *Self-teaching:* 23%.
  - *Formal training*: 23%. Concert riggers are most likely to acquire this skill through formal training.
  - *Informal training*: 28%. Concert riggers are most likely to acquire this skill through informal training.
- **Training offered:** Most of the organizations and institutions interviewed (8) provide training for this skill.
- **Skills acquired at a conference or workshop in the past year:** 16% received general rigging training on such tools as chains and cables.
- **Biggest overall training gap identified by riggers and employers:** 6% say knowing and understanding rigging equipment is at the top of their list.

Comply with all pertinent regulations, standards and best practices

- **Gap:** 10%.
- **Skill required:** 97% say required, which represents the second most essential skill measured in this study.
- **Skills acquisition:**
  - *On the job training:* 70%.
  - *Self-teaching:* 18%.
  - *Formal training*: 29%. Concert riggers and those with 10 years or less rigging experience are most likely to acquire through formal education.
  - *Informal training*: 43%.
- **Training offered:** A majority of the organizations and institutions interviewed (10) provide such training.
- **Biggest health and safety training gap identified by training institutions and organizations:** one of the fourteen institutions and organizations interviewed says understanding regulations while an additional one says knowing best practices are top training priorities.

- **Biggest health and safety training gap identified by riggers and employers:** 20% say that understanding health and safety regulations, codes and standards is a top training priority.
- **Biggest overall training gap identified by riggers and employers:** 3% say that keeping up with new standards and regulations is an important training priority.

Perform sensory and operational inspections

- **Gap:** 9%.
- **Skill required:** 88% say required.
- **Skills acquisition:**
  - *On the job training:* 76%.
  - *Self-teaching:* 17%.
  - *Formal training*: 21%. Aerial riggers are more likely to acquire through formal education.
  - *Informal training*: 34%. Employers, part-time riggers, arena riggers, theatre riggers and concert riggers are more likely to acquire through informal training.
- **Training offered:** Most (9) of the training organizations and institutions interviewed provide training for this skill.

Generate a rigging plot

- **Gap:** 8%.
- **Skill required:** 58% say required.
- **Respondents most likely to indicate needing this skill:** Riggers from Quebec, New Brunswick and Nova Scotia.
- **Skills acquisition:**
  - *On the job training:* 65%.
  - *Self-teaching:* 24%.
  - *Formal training*: 31%.
  - *Informal training*: 28%. Arena and theatre riggers are most likely to acquire through informal training.
- **Training offered:** Only five of the fourteen training organizations and institutions interviewed offer training for this skill.

Identify and communicate health and safety requirements

- **Gap:** 8%.
- **Skill required:** 93% say required.
- **Skills acquisition:**
  - *On the job training:* 56%.
  - *Self-teaching:* 17%.
  - *Formal training*: 30%. Part-time riggers and concert riggers are most likely to acquire through formal training.
  - *Informal training*: 53%.
- **Training offered:** Almost all (12) of the training organizations and institutions interviewed provide training for this skill, making it the skill for which formal and informal training is most available.
- **Biggest health and safety training gap identified by riggers and employers:** 14% say that communicating health and safety requirements and practices is important.

Raise, attach, secure and test rigging equipment

- **Gap:** 8%.
- **Skill required:** 83% say required.
- **Respondents most likely to indicate needing this skill:** Arena riggers
- **Skills acquisition:**
  - *On the job training:* 77%.
  - *Self-teaching:* 19%.
  - *Formal training*: 31%. Part-time riggers are most likely to acquire through formal training.
  - *Informal training*: 26%. Employers, theatre riggers and concert riggers are most likely to acquire through informal training
- **Training offered:** Most (9) of the training organizations and institutions provide training for this skill.

Setting up rigging equipment and systems

- **Gap:** 7%.
- **Skill required:** 89% say required.
- **Skills acquisition:**

- *On the job training:* 85%.
- *Self-teaching:* 19%.
- *Formal training*: 24%. Concert riggers and respondents from Quebec, New Brunswick and Nova Scotia are most likely to acquire through formal training.
- *Informal training*: 32%. Concert riggers are most likely to acquire through formal training.

- **Training offered:** Most (9) of the training organizations and institutions interviewed provide training for this skill.

Demonstrate teamwork skills and sensitivity to other people's needs

- **Gap:** 7%.
- **Skill required:** 97% say required.
- **Skills acquisition:**
  - *On the job training:* 73%. Unionized riggers and those who are employed directly are most likely to acquire through on the job training
  - *Self-teaching:* 34%.
  - *Formal training*: 11%. Aerial and concert riggers are more likely to acquire through formal training.
  - *Informal training*: 16%. Aerial and concert riggers are more likely to acquire through informal training.
- **Training offered:** Most (9) of the training organizations and institutions interviewed provide training for this skill.

Communicate verbally in a clear and concise manner

- **Gap:** 7%.
- **Skill required:** 97% say required, which is the most essential skill for riggers.
- **Skills acquisition:**
  - *On the job training:* 71% acquire through. Respondents from Ontario and unionized riggers are most likely to acquire through on the training
  - *Self-teaching:* 33%. Those from Quebec, New Brunswick and Nova Scotia, unionized riggers, and those involved in arena, aerial and concert rigging are most likely to acquire this skill through self-teaching.
  - *Formal training*: 17%.
  - *Informal training*: 14%.

- **Training offered:** Most of the organizations and institutions interviewed (8) provide training for this skill.

Tie knots

- **Gap:** 6%.
- **Skill required:** 97% say required.
- **Skills acquisition**
  - *On the job training:* 68% acquire through. Unionized riggers and employers are most likely to acquire through on the job training
  - *Self-teaching:* 37%. Theatre riggers are most likely to acquire through self-teaching
  - *Formal training*: 25%.
  - *Informal training*: 20%.
- **Training offered:** Most (9) of the training organizations and institutions interviewed provide training for this skill.
- **Biggest health and safety training gap identified by riggers and employers:** 3% say that tying knots is a top training priority.

Assemble rigging components

- **Gap:** 5%.
- **Skill required:** 93% say required.
- **Skills acquisition**
  - *On the job training:* 81%.
  - *Self-teaching:* 19%.
  - *Formal training*: 21%.
  - *Informal training*: 29%. Arena and theatre riggers are most likely to acquire this skill through informal training.
- **Training offered:** Most (9) of the training organizations and institutions interviewed provide training for this skill.

Use and inspect aerial lift platforms such as Genie or scissor lifts

- **Gap:** 5%.
- **Skill required:** 84% say required.

- **Skills acquisition:**
  - *On the job training:* 49%.
  - *Self-teaching:* 10%.
  - *Formal training*: 43%. Aerial and concert riggers are most likely to acquire through formal training.
  - *Informal training*: 47%. Those employed directly are most likely to acquire through informal training.
- **Training offered:** Nine of the training organizations and institutions interviewed provide training for this skill.
- **Skills acquired at a conference or workshop in the past year:** 8% received training regarding lifts while 4% received training related to aerial rigging.

Set and mark trims

- **Gap:** 3%, the smallest for any skill measured in this survey.
- **Skill required:** 75% say required.
- **Respondents most likely to indicate needing this skill:** Those from Western Canada, Quebec, New Brunswick and Nova Scotia, and those involved in theatre, arena and concert rigging.
- **Skills acquisition:**
  - *On the job training:* 79%.
  - *Self-teaching:* 20%.
  - *Formal training*: 18%. Part-time riggers and riggers who are employed directly are most likely to acquire through formal training
  - *Informal training*: 17%.
- **Training offered:** Eight of the training organizations and institutions interviewed provide training for this skill.

Respondent profile

Rather than relying upon occupational titles to define riggers, this training gaps analysis uses a functional definition. For employees, the definition used was worded as follows:

- Are you someone who may plan, assemble, prepare, install, operate, inspect, propose modifications and take down rigging equipment in a building in which a live show takes place?

For employers, the definition was worded as:

- Are you someone who is involved with the training, hiring, or supervision of entertainment riggers, for your organization? An entertainment rigger is someone who may plan, assemble, prepare, install, operate, inspect, propose modifications and take down rigging equipment in a building in which a live show takes place?

This section is a profile of the respondents who participated in this research study, and should not be considered a "count" of rigger populations or subsets.

Respondent profile: province of origin

Figure 37, below, shows the province-by-province distribution of respondents who participated in the survey.

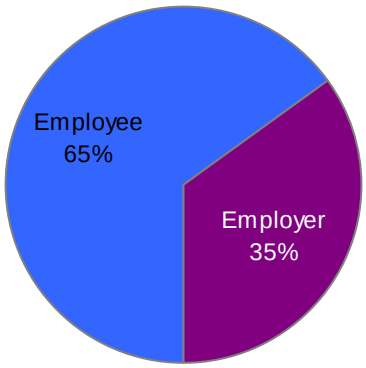
Figure 37 RESPONDENT PROFILE: DISTRIBUTION BY PROVINCE

Province	%
Ontario	55%
Quebec	17%
Alberta	11%
British Columbia	9%
Saskatchewan	2%
New Brunswick	2%
Manitoba	2%
Nova Scotia	2%

Respondent profile: employer / employee status

Respondents indicated whether they were a rigger employee, or an employer of riggers (as indicated in Figure 38).

Figure 38 RESPONDENT PROFILE: RESPONDENTS BY SECTOR



Respondent profile: type of rigging

Employees and employers provided data on the type of rigging in which they are involved (see Figure 39).

Figure 39 RESPONDENT PROFILE: TYPE OF RIGGING

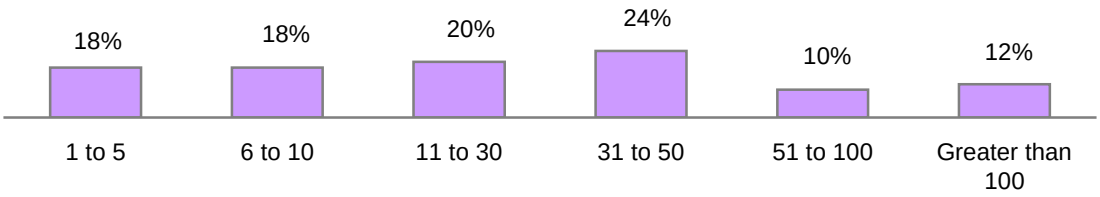
Type of rigging	%
Theatre	66%
Movie	47%
Arena	46%
Aerial	34%
Concert	31%
Equipment rentals, sales or installation company	14%
Textile / tent	12%

Note: Percentages exceed 100% because multiple responses were accepted.

Respondent profile: company size

kisquared asked employers to report how many employees on average have worked in their organization in the past year (see Figure 40). The average number of employees per company is 273, while the median (middle-most) is 20 employees.

Figure 40 RESPONDENT PROFILE: NUMBER EMPLOYED PER COMPANY

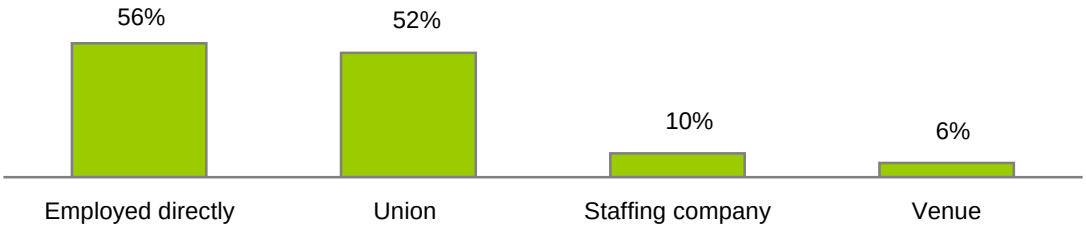


Respondent profile: hiring procedures

Employers

Employers were asked to indicate whether they hired staff through external agencies or whether they employed directly.

Figure 41 RESPONDENT PROFILE: EMPLOYER HIRING RESOURCES

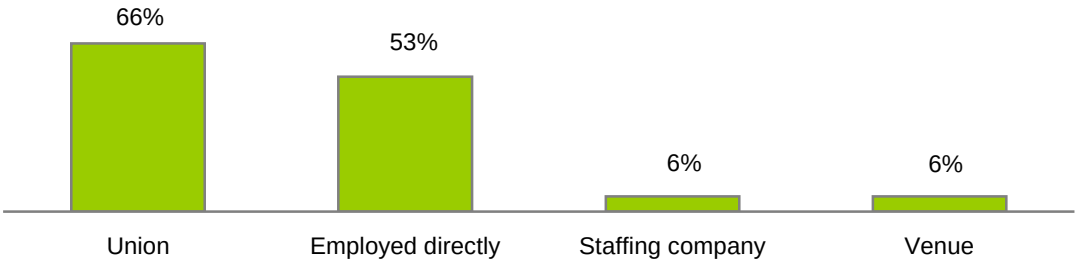


Note: Percentages exceed 100% because multiple responses were accepted

Riggers

Riggers were asked to indicate whether they were hired through a union, employed directly, employed by a venue or by a staffing company.

Figure 42 RESPONDENT PROFILE: RIGGER HIRING RESOURCES



Note: Percentages exceed 100% because multiple responses were accepted.

Respondent profile: employment status

Employers were asked to indicate by what types of arrangements they employ riggers (e.g., full-time, part-time, contract-by-contract, etc.). Where employers use more than one type of arrangement, they were also asked to provide the approximate distribution of their rigger workforces between each type of arrangement. Results are shown in Figure 43, below.

Figure 43 RESPONDENT PROFILE: TERMS OF EMPLOYMENT FROM EMPLOYERS

Employment arrangement	Percent of employers using arrangement	Percent distribution of riggers across arrangement
Contract-by-contract or show-by-show	67%	61%
Permanent full-time	19%	13%
Seasonal returning	15%	8%
On-call	15%	9%
Permanent part-time	15%	9%

Note: Percentages in the second column exceed 100% because multiple responses were accepted. Percentages in the third column represent averages of percentages provided by employers.

Riggers were also asked to describe their employment status – permanent full-time, permanent part-time, seasonal returning, contract-by-contract / show-by-show, on-call, on tour, or some other arrangement. As illustrated in Figure 44, the results for riggers mirror the results for employers above.

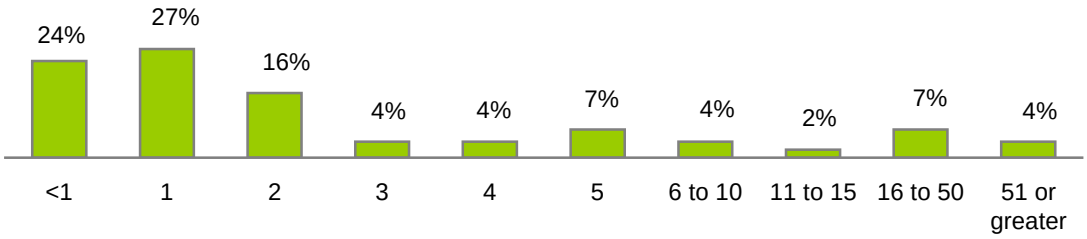
Figure 44 RESPONDENT PROFILE: TERMS OF EMPLOYMENT FROM RIGGERS

Employment	Percent of employers hiring riggers of this type	Percent distribution of workers, on average
On a contract-by-contract basis or show by show basis	57%	51%
Permanent full-time	25%	23%
On-call	15%	9%
Permanent part-time	10%	10%
Other	6%	5%
Seasonal returning	3%	2%

Note: Percentages exceed 100% because multiple responses were accepted.

Employers provided information on the number of full-time-equivalent (FTE) rigging positions within their organizations (see Figure 45).

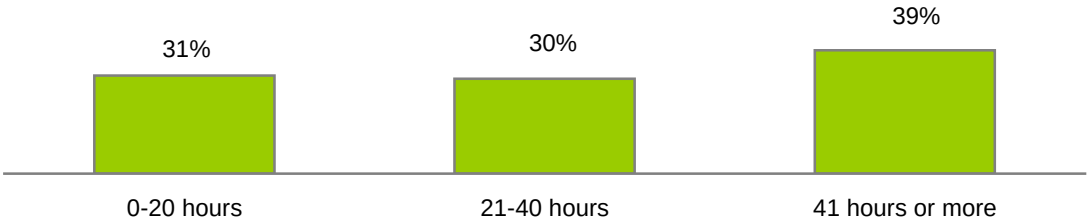
Figure 45 RESPONDENT PROFILE: FULL-TIME-EQUIVALENT POSITIONS



Note: Percentages do not equal 100% due to rounding.

Riggers were asked to report the average number of hours they worked per week in the past year (see Figure 46).

Figure 46 RESPONDENT PROFILE: AVERAGE NUMBER OF HOURS WORKED PER WEEK



Respondent profile: union /group membership

Employers and riggers were asked a number of questions related to union and / or group membership (see Figure 47). IATSE represents the most common employee organization, with representation in 66% of workplaces and among 80% riggers interviewed.

Figure 47 EMPLOYERS WHO HIRE RIGGERS FROM UNIONS OR OTHER GROUPS AND RIGGERS WHO BELONG TO UNIONS OR OTHER GROUPS

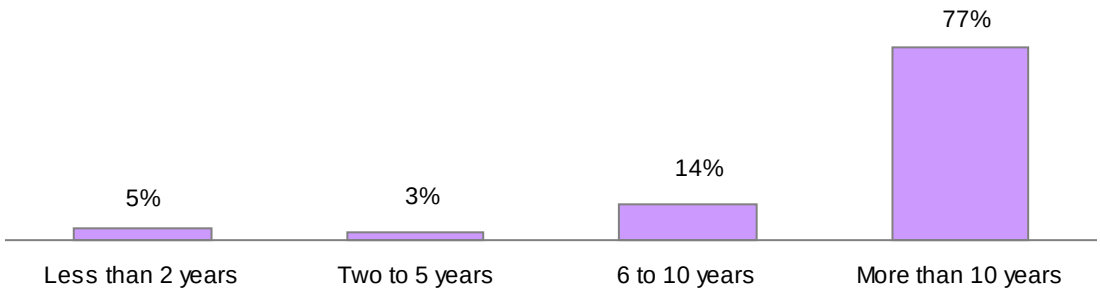
	Employers			Riggers
	Percent of employers	Total employees represented	Percent of employees represented	Percent riggers
IATSE	66%	411	88%	80%
NASCO	6%	16	3%	4%
CUPE	6%	5	1%	1%
AQTIS	4%	15	3%	4%
Riggit	4%	7	2%	-
PDK	2%	8	2%	-
NABET	2%	3	1%	1%
CITT	-	-	-	3%
OPSEU	-	-	-	2%
Professional group in university	-	-	-	1%
None of the above	24%	-	-	14%
TOTAL	**114%**	**465**	**100%**	**110%**

Note: Percentage may not add up to 100% due to rounding.

Respondent profile: length of active participation in the rigging industry

Riggers were asked how long they have been involved in the rigging industry (see Figure 48).

Figure 48 RESPONDENT PROFILE: EMPLOYMENT DURATION



Note: Percentages may not total 100% exactly due to rounding.

Appendix A: Marginals

N = (97 employees / 53 employers)

INTERVIEWER: __ __ __ SURVEY # __ __ __

SECTOR: Employee .....65% Employer 35%

PROVINCE: BC .....9% AB ..... 11% SK .....2% MB..... 2% ON.....55%
PQ .....17% NB ..... 2% PEI/NF .....0% NS..... 3%

EMPLOYEE NAME: _____ _____

EMPLOYER NAME: _____

COMPANY NAME: _____

PHONE: (__ __ __) __ __ __ - __ __ __ __ EXT: __ __ __ __

May I please speak to _____ _____?

ANSWERING MACHINE MESSAGE: Hello, my name is _____, and I'm calling on behalf of CHRC – the Cultural Human Resources Council – about participation in the national entertainment riggers study. We are aware that there is the ESTA **[PRONOUNCED S-TAH]** standard, but it's important that I reach entertainment riggers in your organization. Please return my call. Again, I'm conducting the national entertainment riggers study on behalf of the CHRC. The number is 204-989-8002, or toll free at 1-888-950-8002. Thanks!

Hello, my name is _____ and I'm calling on behalf of the Cultural Human Resources Council, about the national entertainment riggers study, which includes riggers working in the performing arts and in the movie industry. We need to speak to employers of riggers about the training needs of employees at your organization, their competency levels and your thoughts about professional recognition, which may be interpreted as certification or some other form of written recognition. Would you be the correct person to talk to about this study? **IF YES, CONTINUE. IF NO, ASK WHO WOULD BE APPROPRIATE RESPONDENT AND RECORD CONTACT INFO.**

We also need to speak to entertainment riggers themselves to learn about their individual training experiences and views on professional recognition, which may be interpreted as certification or some other form of written recognition. May I please speak with a rigger employed with your organization? **IF NO, ASK WHO WOULD BE APPROPRIATE RESPONDENT AND RECORD CONTACT INFO.**

IF YES… This survey should only take about 20 minutes of your time – do you have time right now to complete this survey? **IF NOT, ASK IF THERE IS A BETTER TIME AND ARRANGE TO CALL BACK**

Before we begin I would like to assure you this information will never be shared with any other agency, including the government. All the information gathered is strictly confidential. We guarantee your anonymity. We will be asking questions about your own training experiences, but no individual or business names will be attached to the research findings, and the report submitted to the CHRC will only discuss the results of the survey as a whole.

Q1 **[EMPLOYER QUALIFICATION]** Are you someone who is involved with the training, hiring, or supervision of entertainment riggers, for your organization? An entertainment rigger is someone who may plan, assemble, prepare, install, operate, inspect, propose modifications and take down rigging equipment in a building in which a live show takes place.

Yes	35%	**GO TO Q3**
No	65%	
Don't know / refused	0%	

Q2 **[ENTERTAINMENT RIGGER QUALIFICATION]** Are you someone who may plan, assemble, prepare, install, operate, inspect, propose modifications and take down rigging equipment in a building in which a live show takes place?

Yes	100%	
No	0%	**TERMINATE**
Don't know / refused	0%	**TERMINATE**

Q3 Can you please tell me what type of rigging ***your company*** [**EMPLOYER**] / ***you use*** [**RIGGER**]? **READ LIST AND CIRCLE ALL THAT APPLY.**

Theatre rigging	66%
Movie rigging	47%
Arena rigging	46%
Aerial rigging	34%
Concert rigging	32%
Equipment rentals, sales or installation company	14%
Textile / tent rigging	12%
Other (Specify_____)	7%
Don't know / refused	0%

RIGGERS SKIP TO Q8

Q4 [**EMPLOYER**] In the past year, how many employees, on average, work in your company?

___ ___ ___ ___ **DK / REF ENTER 9999**

Q5 [**EMPLOYER**] Do you hire entertainment riggers through a union, a staffing company, through a venue, or do you employ them directly? **CIRCLE ALL THAT APPLY**

Employed directly	55%
Union	51%
Staffing company	9%
Venue	6%
Don't know / refused	2%

Q6 [**EMPLOYER**] Would you say the riggers hired by your organization work on a permanent full-time basis, permanent part-time basis, on a seasonal returning basis, on a contract-by-contract or show-by-show basis, on call, on tour, or some other arrangement? **CIRCLE ALL THAT APPLY. IF MORE THAN ONE SELECTED, ASK** Approximately what percentage of your riggers work on each basis? **ENTER PERCENTAGE – MUST ADD UP TO 100%**

Contract by contract / show by show	66%	___ ___ ___%
Permanent full-time	19%	___ ___ ___%
Permanent part-time	15%	___ ___ ___%
Seasonal returning	15%	___ ___ ___%
On-call	15%	___ ___ ___%
On tour	0%	___ ___ ___%
Other	0%	___ ___ ___%
		100%
Don't know / refused	2%	

Q7 [**EMPLOYER**] Thinking about the riggers that work in your organization, how many full-time equivalent positions are there?

___ ___ ___ . ___ **DK / REF ENTER 9999**

GO TO SKILLS CHART NOW

Q8 [**RIGGER**] Are you hired through a union, staffing company, a venue, or are you employed directly? **CIRCLE ALL THAT APPLY**

Union	65%
Employed directly	52%
Staffing company	6%
Venue	6%
Don't know / refused	2%

Q9 [**RIGGER**] How would you best describe your employment status? Are you employed on a permanent full-time basis, permanent part-time basis, on a seasonal returning basis, on a contract by contract or show-by-show basis, on call, on tour, or some other arrangement? **CIRCLE ALL THAT APPLY. IF MORE THAN ONE SELECTED, ASK** Approximately what percentage of your time do you spend working **[FILL IN ANSWER]**? **ENTER PERCENTAGE – MUST ADD UP TO 100%**

Contract by contract / show by show	56%	__ __ __%
Permanent full-time	25%	__ __ __% **GO TO SKILLS CHART**
On-call	13%	__ __ __%
Permanent part-time	10%	__ __ __%
Seasonal returning	3%	__ __ __%
On tour	0%	__ __ __%
Other	7%	__ __ __%
		100%
Don't know / refused	2%	**GO TO SKILLS CHART**

Q10 [**RIGGER**] In the past year, how many hours per week, on average, did you work as an entertainment rigger?

___ ___ ___ . ___ DK / REF ENTER 9999

GO TO SKILLS CHART NOW

[EMPLOYER] Now let's turn to job skills. For each one of the following, please tell me if riggers *in general* require this skill to perform their job. Please think about the riggers *currently employed* by your organization and if they currently have this skill, or whether your riggers need to still acquire this skill. Then I will ask where your riggers learned this skill – on the job, self-teaching, formal training or informal training such as seminars and workshops?
[RIGGER] Now let's turn to job skills. For each one of the following, please tell me if this skill is required *in general* to perform your job. Next, please think about your personal situation, and whether you currently have this skill, or whether you need to acquire this skill. Then I will ask where you learned this skill – on the job, self-teaching, formal training or informal training such as seminars and workshops?

		Do you / they need the skill?			Already have, still need or some have, some still need				Where did you / they learn this skill / Where do you expect to learn this skill / Where do you expect them to learn this skill?				
	Skill	Yes	No	DK REF	Have	Need	[EMPLOYER ONLY] Some have / some need	DK REF	On the job	Self-taught	Formal	Informal / Seminars / Workshops	DK REF
SS1	Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements	71%	29%	1%	83%	4%	10%	3%	54%	27%	42%	42%	2%
SS2	Generate a rigging plot	57%	41%	2%	89%	2%	6%	2%	64%	24%	30%	28%	1%
SS3	Perform layout	69%	20%	11%	90%	4%	6%	0%	72%	23%	25%	28%	2%
SS4	Fabricate components	47%	52%	1%	89%	6%	6%	0%	74%	21%	29%	31%	4%
SS5	Assemble rigging components	92%	7%	1%	95%	1%	4%	0%	80%	19%	21%	28%	1%
SS6	Identify and communicate health and safety requirements	93%	7%	0%	91%	1%	7%	0%	54%	16%	29%	51%	2%
SS7	Inspect, install and maintain health and safety equipment	76%	23%	1%	84%	5%	11%	0%	50%	18%	32%	50%	3%
SS8	Check and install anchors (for example concrete anchors or ground anchors)	54%	43%	3%	84%	7%	7%	1%	65%	19%	24%	33%	4%
SS9	Install and operate motorized systems	75%	25%	0%	89%	4%	6%	2%	74%	16%	22%	33%	3%
SS10	Install and operate counter-weight systems	65%	34%	1%	88%	3%	8%	1%	81%	21%	24%	22%	2%
SS11	Install scaffolds, catwalks, permanent and temporary grids	58%	41%	1%	86%	3%	9%	1%	78%	19%	17%	28%	1%

Skill	Do you / they need the skill?			Already have, still need or some have, some still need				Where did you / they learn this skill / Where do you expect to learn this skill / Where do you expect them to learn this skill?				
	Yes	No	DK REF	Have	Need	[EMPLOYER ONLY] Some have / some need	DK REF	On the job	Self-taught	Formal	Informal / Seminars / Workshops	DK REF
SS12 Assemble, adjust and stabilize production elements including flying scenic and others	78%	21%	1%	89%	2%	9%	1%	81%	22%	23%	22%	2%
SS13 Set and mark trims	73%	24%	3%	96%	0%	3%	1%	78%	19%	18%	17%	1%
SS14 Install, test and operate performer apparatus	47%	49%	3%	86%	10%	3%	1%	77%	17%	23%	21%	1%
SS15 Raise, attach, secure and test rigging equipment	83%	17%	0%	91%	2%	6%	1%	76%	19%	30%	26%	2%
SS16 Determine and schedule maintenance requirements of rigging equipment and systems	59%	39%	2%	80%	12%	7%	1%	64%	21%	24%	36%	7%
SS17 Perform sensory (for example, visual, tactile) and operational inspections	88%	12%	0%	90%	2%	7%	1%	74%	17%	21%	34%	2%
SS18 Set up rigging equipment and systems	89%	11%	0%	92%	0%	7%	2%	83%	19%	24%	31%	2%
SS19 Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools	83%	17%	0%	89%	2%	8%	1%	77%	22%	23%	27%	2%
SS20 Comply with all pertinent regulations, standards and best practices	96%	3%	1%	89%	3%	8%	1%	68%	18%	28%	42%	3%
SS21 Demonstrate teamwork skills and sensitivity to other people's needs	97%	3%	1%	92%	0%	7%	1%	73%	34%	10%	16%	1%
SS22 Communicate verbally in a clear and concise manner	99%	1%	0%	93%	1%	6%	1%	70%	32%	17%	14%	1%
SS23 Use and inspect aerial lift platforms such as Genie or scissor lifts	84%	16%	0%	94%	1%	4%	1%	49%	10%	42%	46%	1%
SS24 Tie knots	96%	3%	1%	94%	1%	5%	1%	67%	36%	25%	20%	1%

Thinking specifically about health and safety, which two specific skills or aspects of health and safety do you think are top training priorities for riggers?

1)

2)

Q11 Thinking about all the things that riggers do in their job, are there any specific rigging skills or related skills that we have missed speaking to you about? **PROBE** Anything else? Any others?

Q12 Have you ever participated in a formal training program for riggers, such as a college program?

Yes	22%	
No	78%	**GO TO Q15**
Don't know / refused	0%	**GO TO Q15**

Q13 What was the name of the institution where you took this program?

Q14 What was the name of the program? **IF NECESSARY** What was your major or area of concentration?

Q15 In the past year, have you attended any conference or workshops related to professional development as a rigger?

Yes	34%	
No	66%	**GO TO Q18**
Don't know / refused	0%	**GO TO Q18**

Q16 And what skill or skill set did you learn? **PROBE** Anything else? Anything else?

Q17 Who offered the training? **CONFIRM NAME AND SPELLING** So that was…

Q18 When thinking about rigger training, what would you say are the greatest training needs right now or in the foreseeable future? **PROBE** Anything else? Any others?

Professional recognition

Q19 **[RIGGERS ONLY]** As a rigger, do you have professional recognition which some may interpret as certification?

Yes	42%	**GO TO Q21**
No	56%	
Don't know / refused	2%	

Q20 **[RIGGERS ONLY]** Are you working toward achieving such recognition? **(N=56)**

Yes	29%
No	70%
Don't know / refused	2%

Q21 **[RIGGERS ONLY]** What is the value for you personally in achieving professional recognition or certification as a rigger? **PROBE** Anything else? Anything else?

Q22 Have you heard of the North American Entertainment Technician Certification Program offered by ESTA **[PRONOUNCED: S-TAH]**? **IF NECESSARY** ESTA is the Entertainment Services Technology Association.

Yes. I have heard of this program	71%
Yes, I am already certified through this program	1%
No	27%
Don't know / refused	1%

Q23 Have you heard of the certification programs offered by the Professional Lighting and Sound Association in the United Kingdom and Germany?

Yes, both	21%
Yes, UK	6%
Yes, Germany	1%
No	71%
Don't know / refused	1%

There is discussion about the development of a professional recognition program in Canada which may be interpreted as certification. We would like to get your views on possible program components. For each one that I read, please tell me if the program component is very beneficial, somewhat beneficial or unnecessary for the creation of such a program. **ROTATE.**

		Very beneficial	Somewhat beneficial	Un-necessary	DK Ref
Q24	If professional recognition which may be interpreted as certification was voluntary	27%	41%	27%	4%
Q25	If professional recognition which may be interpreted as certification was mandatory	55%	28%	13%	4%
Q26	In order to achieve recognition, an applicant would have to successfully complete a written exam only	9%	37%	54%	0%
Q27	In order to achieve recognition, an applicant would have to write an exam, perform tasks under observation of a master rigger, and have prior experience	85%	9%	3%	3%
Q28	Recognition that differentiates between 'human rigging' and 'non-human rigging'	75%	12%	9%	4%
Q29	Recognition that differentiates between arena riggers, movie riggers and theatre riggers	52%	25%	23%	0%
Q30	Recognition that differentiates skills levels such as trainee, junior, senior and master rigger	70%	27%	3%	0%
Q31	Recognition that consists of an industry recognized skills card for entertainment rigging with a photo on it and your level of recognition	59%	31%	9%	1%
Q32	Recognition that consists of having a rigger's name published on a searchable website as proof of professional achievements	47%	35%	17%	1%
Q33	Recognition that lasts for five years before recertification must occur	44%	36%	18%	2%
Q34	To recertify, riggers must log ongoing training and professional development	52%	34%	11%	3%

Demographic information

Q35 **[EMPLOYER]** How many of your riggers are part of: **READ LIST**

IATSE **[PRONOUNCED EYE-AT-SEE]**.. ___ ___ ___
NASCO ..... ___ ___ ___
AQTIS ..... ___ ___ ___
Belong to none of the above 888
Don't know / Refused 999

Q36 **[EMPLOYER]** Are there any other unions or groups that your riggers belong to that I have not mentioned? If so, could you please tell me the name of the union or group and how many of your riggers belong to them? **IF NO, ENTER 'NONE' AND '999' IN FIRST ENTRY AND GO TO Q40**

Name_____Number:___ ___ ___
Name_____Number:___ ___ ___
Name_____Number:___ ___ ___

Q37 **[RIGGER]** Are you a part of the following…**READ LIST AND CIRCLE ALL THAT APPLY**

IATSE **[PRONOUNCED EYE-AT-SEE]**. 78%
NASCO 4%
AQTIS 4%
Belong to none of the above 19%
Don't know / Refused 1%

Q38 **[RIGGER]** Are there any other unions or groups that you belong to that I have not mentioned? If so, could you please tell me the name of the union or group that you belong to? **IF NO, ENTER 'NONE' IN FIRST ENTRY AND GO TO Q39**

Name_____
Name_____

Q39 **[RIGGER]** How long have you been a rigger?

Less than 2 years 5%
Two to 5 years 3%
6 to 10 years 14%
More than 10 years 77%
Don't know / refused 0%

Q40 Finally, one of the goals of this study is to ensure we speak to a representative sample of riggers across Canada. Can you provide us with the names and contact numbers of riggers, OR companies that may employ riggers, that you think should be included in this study? **CHECK DATABASE AND ENTER ANY CONTACTS NOT ALREADY LISTED**

Riggers

Name _____Ph: ___ ___ ___ - ___ ___ ___ - ___ ___ ___ ___

Name _____Ph: ___ ___ ___ - ___ ___ ___ - ___ ___ ___ ___

Name _____Ph: ___ ___ ___ - ___ ___ ___ - ___ ___ ___ ___

Companies

Name _____Ph: ___ ___ ___ - ___ ___ ___ - ___ ___ ___ ___

Name _____Ph: ___ ___ ___ - ___ ___ ___ - ___ ___ ___ ___

Name _____Ph: ___ ___ ___ - ___ ___ ___ - ___ ___ ___ ___

That concludes this survey, thank you very much for taking the time to participate in this study.

Appendix B: Formal training offerings

This Appendix contains information on programs offering training in rigging skills. Secondary research on the programs was conducted along with an interview to confirm program information and solicit new information regarding specific rigging training. A summary table listing the skills for which training is offered is included wherever an interview was completed with a given institution.

British Columbia

Douglas College

Douglas College offers a two-year undergraduate Stagecraft Program, which specializes in production, but offers some training pertinent to entertainment rigging.

http://www.douglas.bc.ca/programs/theatre-stagecraft/index.html

Skills offered at Douglas College
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements
Assemble rigging components
Identify and communicate health and safety requirements
Inspect, install and maintain health and safety equipment
Install and operate motorized systems
Install and operate counter-weight systems
Assemble, adjust and stabilize production elements including flying scenic and others
Set and mark trims
Raise, attach, secure and test rigging equipment
Perform sensory (for example, visual, tactile) and operational inspections
Set up rigging equipment and systems
Comply with all pertinent regulations, standards and best practices
Demonstrate teamwork skills and sensitivity to other people's needs
Communicate verbally in a clear and concise manner
Use and inspect aerial lift platforms such as Genie or scissor lifts
Tie knots

Note: Data derived from interview with Douglas College.

Alberta

Grant MacEwan College

Grant MacEwan College offers a full-time, two-year Diploma in Theatre Production, although some courses in Theatre Production may be offered on a part-time basis. Courses that relate to rigging include technical theatre, rigging and practicums.

http://www.macewan.ca/web/pvca/production/home/index.cfm

Mount Royal College

The two-year Diploma in the Theatre Arts – Technical Stream, offered at Mount Royal College, provides hands-on experience working behind a theatre. The course of most interest to rigging is Stage Carpentry and Scenic Construction 2, which is a two credit, one hour lecture with a three hour lab. Students learn stage carpentry through practical exercises and projects in rigging and flying scenery, rigging knots and safety.

http://www.mtroyal.ab.ca/academics/diplomas/TADT.shtml

Red Deer College

Red Deer College offers a two-year Technical Production Diploma. While no specific course is dedicated to rigging, students learn some rigging skills as part of their program through other courses. Courses in this program cover play analysis, sound, theatrical properties, lighting, stagecraft, drafting and drawing, stage management, theatre design, and practicums.

http://www.rdc.ab.ca/programs_and_courses/

Skills offered at Red Deer College
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements
Generate a rigging plot
Perform layout
Fabricate components
Assemble rigging components
Identify and communicate health and safety requirements
Inspect, install and maintain health and safety equipment
Install and operate motorized systems
Install and operate counter-weight systems
Install scaffolds, catwalks, permanent and temporary grids
Assemble, adjust and stabilize production elements including flying scenic and others
Set and mark trims
Raise, attach, secure and test rigging equipment
Perform sensory (for example, visual, tactile) and operational inspections
Set up rigging equipment and systems
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools
Comply with all pertinent regulations, standards and best practices
Demonstrate teamwork skills and sensitivity to other people's needs
Communicate verbally in a clear and concise manner
Use and inspect aerial lift platforms such as Genie or scissor lifts
Tie knots

Note: Data derived from interview with Red Deer College.

University of Alberta

The University of Alberta offers a four-year Bachelor of Fine Arts in Technical Theatre that is taught in a hands-on learning environment. This program provides training related to lighting, sound, properties, and technology.

http://www.uofaweb.ualberta.ca/drama/index.cfm

Saskatchewan

University of Regina

The University of Regina offers a four-year Bachelor of Fine Arts Degree in Stage Management / Technical Theatre. This degree-granting program first graduated students in 1972 and aims to prepare students to mount and run a production. Courses available for a theatre major can cover production management / technical direction, lighting, sound, costume construction and theatre design.

http://www.uregina.ca/finearts/theatre/about.html

Skills offered at University of Regina
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements
Generate a rigging plot
Perform layout
Fabricate components
Assemble rigging components
Identify and communicate health and safety requirements
Inspect, install and maintain health and safety equipment
Check and install anchors (for example concrete anchors or ground anchors)
Install and operate motorized systems
Install and operate counter-weight systems
Assemble, adjust and stabilize production elements including flying scenic and others
Set and mark trims
Install, test and operate performer apparatus
Raise, attach, secure and test rigging equipment
Determine and schedule maintenance requirements of rigging equipment and systems
Perform sensory (for example, visual, tactile) and operational inspections
Set up rigging equipment and systems
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools
Comply with all pertinent regulations, standards and best practices
Demonstrate teamwork skills and sensitivity to other people's needs
Communicate verbally in a clear and concise manner
Use and inspect aerial lift platforms such as Genie or scissor lifts
Tie knots

Note: Data derived from interview with University of Regina.

Ontario

Cambrian College of Applied Arts and Technology

Cambrian College offers a two-year Diploma in Technical Theatre Production through the Department of Business, Media and Creative Arts. Through practical experience, students learn skills in lighting, sound production, costume management, stagecraft, set painting, prop making and rendering, special effects, and stage management techniques.

http://www.cambrianc.on.ca

Humber College Institute of Technology and Advanced Learning

The School of Creative and Performing Arts at Humber College offers a two-year Technical Production Diploma. The curriculum for this Diploma as it relates to rigging consists of two courses titled: Rigging 1 (compulsory) and Rigging 2 (optional).

http://creativeandperformingarts.humber.ca/theatreprod/home.html

Skills offered at Humber College Institute of Technology and Advanced Learning
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements
Generate a rigging plot
Perform layout
Fabricate components
Assemble rigging components
Identify and communicate health and safety requirements
Inspect, install and maintain health and safety equipment
Install and operate motorized systems
Install and operate counter-weight systems
Install scaffolds, catwalks, permanent and temporary grids
Assemble, adjust and stabilize production elements including flying scenic and others
Set and mark trims
Install, test and operate performer apparatus
Raise, attach, secure and test rigging equipment
Perform sensory (for example, visual, tactile) and operational inspections
Set up rigging equipment and systems
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools
Comply with all pertinent regulations, standards and best practices
Demonstrate teamwork skills and sensitivity to other people's needs
Communicate verbally in a clear and concise manner
Use and inspect aerial lift platforms such as Genie or scissor lifts
Tie knots

Note: Data derived from interview with Humber College Institute of Technology and Advanced Learning.

Ryerson University

Ryerson's Theatre School offers a four-year Bachelor of Fine Arts Degree in its Performance Production Program, which consists of both academic and studio training. The program provides students with two years of general study and two years of focused study in either production, design or management.

http://www.ryerson.ca/~rytheatr/

Sheridan College Institute of Technology and Advanced Learning

Sheridan College offers a two-year program in Theatre Arts – Technical Production over the course of four terms in a practical, hands-on environment. Courses include carpentry, drafting, lighting, properties, rigging, scene painting, sound, stage management, wardrobe, technical production, stagecraft, career management, English for technical theatre, technology, presentation skills, and design.

http://theatretechnical.sheridaninstitute.ca/index.cfm?catg_id=0

University of Waterloo

The Department of Drama and Speech Communication at the University of Waterloo offers a four-month course in Stage Combat that exposes students to basic rigging. This course is offered once every two years.

http://drama.uwaterloo.ca/

York University

The Department of Theatre at York University offers a four-year Bachelor of Fine Arts Degree in production. The courses of greatest interest to rigging include Proscenium Stage Equipment, which introduces rigging theory, and Health and Safety in the Arts, which exposes students to the components that produce a safe work environment.

http://www.yorku.ca/web/futurestudents/programs/template.asp?id=554

Skills offered at York University
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements
Assemble rigging components
Identify and communicate health and safety requirements
Inspect, install and maintain health and safety equipment
Install and operate motorized systems
Install and operate counter-weight systems
Install scaffolds, catwalks, permanent and temporary grids
Assemble, adjust and stabilize production elements including flying scenic and others
Set and mark trims
Raise, attach, secure and test rigging equipment
Perform sensory (for example, visual, tactile) and operational inspections

Set up rigging equipment and systems
Use rigging materials, equipment, instruments and tools like chains, lasers, pneumatic and hydraulic tools
Comply with all pertinent regulations, standards and best practices
Demonstrate teamwork skills and sensitivity to other people's needs
Communicate verbally in a clear and concise manner
Use and inspect aerial lift platforms such as Genie or scissor lifts
Tie knots

Note: Data derived from interview with York University.

Quebec

Cégep de Saint Hyacinthe

The Cégep de Saint Hyacinthe offers the equivalent of a three year Diplôme d'études collégiales (DEC) spread out over a four year schedule. The option Théâtre – Production provides a broad-based introduction to the theatre professions and offers a specialization in stage management and technology (gestion et techniques de scène) to develop competencies in lighting, sound, production direction, and technical direction. The program consists of both in-class instruction as well as hands-on production experience.

This program is not intended to offer specialized training in rigging. However, a student will receive a brief introduction to rigging (approximately 7-8 hours), that is more theoretical than practical in nature. The Cégep is looking at offering a two day training component to the program that would deal specifically with rigging. The two day component would be offered off-site in collaboration with professional riggers. They are planning to have this component ready for students as of either September 2007 or January 2008.

http://www.cegepsth.qc.ca/section02/02_1_2_12.html

College Lionel-Groulx

The *Collège Lionel-Groulx* offers a four year program in *Théâtre – Production* that introduces students to the theatre professions, and offers a specialization in stage management and technology (*gestion et techniques de scène*) to develop competencies in lighting, sound, production direction, and technical direction. The program consists of both in-class instruction as well as hands-on production experience through participation in four theatre productions per year.

http://www.clg.qc.ca/for/index.html

National Circus School

The National Circus School in Montreal offers various programs of study aimed at producing performing artists for the circus. These programs begin as early as the high school level as well as the college or Cégep level. Students receive a basic introduction to rigging fundamentals that comprises a total of approximately 45 hours of training. However, the objectives of the National Circus School are not to produce professional riggers – its objectives are to produce artists, and the training students receive is designed to ensure that the artists who graduate from the program have the training necessary to safely analyze, set-up, and operate the equipment they need to use in their performances.

The National Circus School is currently exploring options to partner with the Cégep Lionel-Groulx to offer a concentration in rigging as an option of the Cégep's four year technical theatre production program. The objectives of this partner program will be to produce technicians trained to work as riggers in support of circus productions.

http://www.enc.qc.ca/en/index.asp

National Theatre School of Canada

The National Theatre School of Canada, located in Montreal, offers several programs in Acting, Playwriting, Directing, Set and Costume Design, and Technical Production. The Technical Production option is a three-year, full-time program that provides students with skills to pursue careers in production, management, technical direction, stage management, and sound or lighting design. Rigging is covered in the curriculum in each of the three years of the program. In-class instruction is provided to students; however, most of the student's time is spent learning technical production skills in a hands-on environment.

http://www.ent-nts.qc.ca/nts/techproduction.htm

Skills offered at National Theatre School of Canada
Analyze plans, technical drawings and blueprints to determine loads, forces and rigging requirements
Generate a rigging plot
Perform layout
Fabricate components
Assemble rigging components
Identify and communicate health and safety requirements
Inspect, install and maintain health and safety equipment
Install and operate motorized systems
Install and operate counter-weight systems
Install scaffolds, catwalks, permanent and temporary grids
Assemble, adjust and stabilize production elements including flying scenic and others
Set and mark trims
Install, test and operate performer apparatus
Perform sensory (for example, visual, tactile) and operational inspections
Comply with all pertinent regulations, standards and best practices
Demonstrate teamwork skills and sensitivity to other people's needs
Communicate verbally in a clear and concise manner
Use and inspect aerial lift platforms such as Genie or scissor lifts
Tie knots

Note: Data derived from interview with National Theatre School of Canada.

Appendix C: Informal training

Secondary research and interviews were conducted with organizations that offer informal training such as professional development, workshops or conferences.

National

Canadian Institute of Theatre Technology (CITT)

The mission of the CITT is "to actively promote the professional development of its members and to work for the betterment of the Canadian live performance community." To achieve its mission, the CITT offers numerous workshops. Workshops related to fall protection and rigging have been conducted over the past 20 years, largely through the Regional Sections of the CITT. In August 2007, the CITT Annual Conference and Trade Show to be held in Vancouver, British Columbia, will offer a 90 minute workshop related to ropework. Also in August, a one day workshop related to the installation of rigging equipment will be held in Quebec while a two day workshop on arena rigging is planned for the Fall in Atlantic Canada.

Alberta

Safe Stages

Theatre Alberta, in partnership with the Alberta theatre community and Alberta Human Resources and Employment, have created a binder that outlines health and safety tips and best practices for working in the various sections of the theatre. The binder is expected to be released in early 2007. To date, no training workshops have been planned.

Fall Protection Group

This company provides fall protection and high angle rescue training for clients and their members. Their workshops are not generally offered publicly, but to the members of the client. Courses include half day, one day and multi-day fall protection awareness courses, site/equipment specific courses and two to five day Industrial High Angle Rescue courses.

IATSE Local 212 (Stage Employees) and Local 210 (Stage Employees)

IATSE Local 210 and 212 share jurisdiction for the Province of Alberta. Local 212 offers one-day workshops to its members on the following topics: ground rigging, high-angle rescue training, and knot tying. It also provides fall protection certification to its members. Other workshops include a 16 hour Standard First Aid Course through St. John Ambulance and a Workplace Hazardous Materials Information System (WHMIS) course. Local 210 offers a one day workshop on fall protection that is offered on an as-needed basis.

British Columbia

IATSE Local 891 (Motion Picture Studio Production Technicians)

IATSE Local 891 runs a three-day Supervisor Safety course in conjunction with SHAPE about once per year for its members. This Local also partially reimburses its members who complete the following courses offered by SHAPE: Aerial platform, Counterbalanced Forklift and Skyjack training.

IATSE Local 118 (Stage Employees)

This Local offers occasional rigging seminars to its members that range from one to three days in duration. These seminars are often led by an American instructor and cover the "nuts-and-bolts" of rigging, including such topics as fall protection, harnesses, loads and cables.

IATSE Local 168 (Stage Employees)

Local 168 has no rigging course per se, but two years ago it offered some training specific to rigging. This Local offers a safety training workshop to its members that is run by the local fire department.

Safety and Health in Arts Production and Entertainment (SHAPE)

SHAPE is a not-profit organization that promotes workplace health and safety in the performing arts and motion picture industries in British Columbia. Part of its mandate it to provide health & safety education and training opportunities on such topics as aerial lift, forklift operation, first aid, supervisor safety and safety awareness. SHAPE also provides information on fall arrest and harness protection.

Riggit Services

Riggit provides rigging equipment and supplies to clients in North America. Its services include a team of riggers who provide consultation services, installation and on-site technical expertise. Hands-on training is provided to riggers.

EFX Specialty Rigging

EFX supplies rigging equipment and consulting services to film, fire and rescue departments and to the military, but does not offer training sessions on rigging.

Manitoba

Film Training Manitoba

Film Training Manitoba's mission is to train Manitobans to work in film and television by providing training and professional development programs on such topics as specialty accents, branding and marketing, WHMIS, transportation of dangerous goods, firearms safety and set etiquette. Film Training Manitoba produced the Manitoba Advanced Film and Television Workshop held in January 2007 on such topics as lighting, grips, and production design.

Ontario

IATSE Local 873 (Motion Picture Studio Production Technicians)

This Local offers various training courses on such topics as WHMIS and workplace health and safety to its members. A seven to nine day training session is planned for members of Local 873. This intensive training session will focus on both stage and arena rigging to allow the participants to obtain their ETCP certification. This upcoming training session is the first time it will be held, though Local 873 hopes to offer this once per year.

IATSE Local 471 (Stage Employees)

This Local offers an apprenticeship program (approximately 2.5 years) for new riggers to the industry and delves into every aspect of the rigging industry including health and safety, harnesses and tying knots. Local 471 is also developing new courses related to fall arrest, fall protection and rescue.

Theatre Ontario

Theatre Ontario has a program titled To Act in Safety, which is a general awareness program on health and safety aspects of operating a theatre. As such, it is not specifically geared to riggers.

Health and Safety Advisory Committee for the Live Performance

This volunteer committee works with the Ontario Ministry of Labour to develop health and safety guidelines for theatre. No training is provided by this organization.

Joel Theatre Rigging

Joel Theatre Rigging provides in-house training to its riggers only and is done through hands-on training.

Quebec

En Piste – Circus Arts National Network

En Piste is a professional organization serving the circus arts industry, which includes performers, creators, trainers, troupes, learning institutions, presenters, etc. *En Piste* offers a selection of professional development courses on an annual basis, which includes a program offered once per year in February called *Accrocheur d'appareils acrobatiques* (Acrobatic equipment hanger).

This program provides a basic introduction to the materials, equipment, methods, calculations, knots, and safety principles, and the relevant legislation in a 78-hour program. The course is taught by professional riggers and is aimed at professionals in the performing arts industry. The program accommodates approximately 12 participants per year in total, roughly one half of which are artists and the other half stage technicians. The course offers both theoretical (about 60%) and practical (about 40%) components and it is expected that those who complete the training would be qualified as an entry-level rigger who would then go on to receive further training on the job.

IATSE Local 56 (Stage Employees)

This Local offers training to its members only and the topics vary depending on the needs of members and availability to instructors. The number of workshops varies from year to year.

Productions Jeun'Est

This program is aimed at adults between the ages of 18-30 who are looking to start a career. Now in its 10th year, Productions Jeun'Est offers general stage training in the areas of sound, lighting, scenery and video. This general stage training program contains 60 hours of rigging training. Last year, Productions Jeun'Est added a rigging specialization to its program that consists of 240 hours of rigging training.

Atlantic Canada

IATSE Local 849 (Motion Picture Studio Production Technicians)

Local 849 provides training on an as needed basis depending upon the needs of industry. An instructor is brought in to teach the courses. Local 849 is currently discussing future training needs for its members.

Appendix D: Verbatims

Figure 49 Q11. THINKING SPECIFICALLY ABOUT HEALTH AND SAFETY, WHICH SPECIFIC SKILLS OR ASPECTS OF HEALTH AND SAFETY DO YOU THINK ARE TOP TRAINING PRIORITIES FOR RIGGERS?

Tie knots
Tying knots. (3 responses)
Basic tying skills.
Fall protection / working at heights
Fall arrest. (21 responses)
Fall protection. (6 responses)
Working on heights. (2 responses)
Fall arrest, lift and boom.
Safe work practice at heights.
Code, fall protection.
Aerial safety – harness.
Height - fall arrest.
Fall arrest safety.
Height training.
Knowing craft at 80 feet in air.
Aerial safety.
The security of not falling.
To make sure things don't fall.
Training in fall arrest equipment.
Fall arrest system. Know how to be safe in the air.
Checking and making sure riggers do not fall down.
Fall arrest training.
Harness locked off will hold you.
Working above people.
Body harness.
Height security.
Fall rescue
Fall rescue. (3 responses)
How to go get someone unstuck in the air.
To move on heights in order to save someone.
Understanding health and safety regulations, codes and standards
Best practices. (2 responses)
Reading regulation from Ministry of Labour.
Guidelines and the law.
Rigging manual and standard, physical aspects.

Understanding health and safety regulations, codes and standards (continued)
Compliance with safety codes.
Safety guidelines.
Understanding job duties and responsibility.
Proper rigging practice.
Safe working procedures.
Maintaining safety codes.
Understanding insurance liability.
Identifying safe working conditions.
Knowledge of standards.
Manufacturer's standards.
Standards, laws and regulations of the different places we work.
Rescue someone who is hanging on only by a harness.
Understanding job and responsibilities.
Ability to stay informed of changes.
Knowledge of regulations.
Standardized practice.
Risk assessment.
Understanding equipment standards.
Ability to apply guidelines.
Knowledge of safety guidelines.
Standards of health and safety.
Knowledge of regulations and laws.
Not to work intoxicated.
Electrical safety
Electrical safety. (3 responses)
Understanding how to use health and safety equipment
Equipment knowledge. (3 responses)
Equipment design. (2 responses)
Knowing equipment limits. (2 responses)
Failure proofing. (2 responses)
Knowledge of apparatus.
Use of equipment. Knowing how to rig.
Working knowledge of equipment.
Personal safety equipment.
Knowledge of equipment.
How to safely use cables, lift other equipment.
Awareness of equipment.
Know equipment.
Knowledge of rigging systems.

Understanding how to use health and safety equipment (continued)
Knowing equipment.
Due diligence of equipment.
Equipment safety.
All the height equipment.
Knowledge of the equipment.
Use of correct equipment.
Use of harness, ballistics.
First aid
First aid training. (3 responses)
What to do in case of an accident.
Communication of health and safety requirements and practices
Communication skills. (8 responses)
Personal hazard assessment. (2 responses)
Communication - listening and understanding.
Basic communication skills.
Proper understanding and good listening skills.
Ability to stay informed of changes.
General communication.
Awareness surrounding.
Writing up safety reports.
General communication.
Reporting health and safety issues.
Communication to others about what is going on to prevent harm.
General awareness of surroundings / practicing general safety / common sense
Common sense. (3 responses)
Personal safety. (3 responses)
Safe work practices. (3 responses)
Awareness of surroundings. (2 responses)
Due diligence. (2 responses)
Awareness. (2 responses)
Self-awareness of what you are doing.
Self-awareness of where you are.
Attitude for the job.
Attitude toward safety.
Safety in general.
Safety to anyone it could apply to.
Safety to riggers.
Awareness of physics and safety.
Knowledge of physics and safety.

General awareness of surroundings / practicing general safety / common sense (continued)
Care and awareness.
Job awareness (safe work practices).
How to practice safety.
Operational safety.
Learning to be careful and aware.
Being aware and alert at all times.
Safety around sets.
Work safely.
To have a safe work place.
Rigging safety in general.
Good common sense.
To be alert and attentive.
To have good vision.
Take the job seriously.
The standard security.
On job safety.
Proper technique to do rigging.
Work safely overhead.
Head protection.
Healthy, safe practice.
Being conscious of what is underneath you.
Keep watching and being sensitive to 1,000 pound center hanging overhead.
Safe environment.
Health and safety for all members who work floor.
Floor security.
Rigging safety.
To be aware of the surroundings.
Comprehension to the security.
The security.
Understanding loads and forces
Understanding loads. (2 responses)
Loads assessment.
Understanding loads and stress.
Determining safe loads.
Education to figure out loads.
Loads.
Safety, reading manuals. Load learning.
Be sure of equipment loads.
Learning weights loads.
Load engineering.

Understanding loads and forces (continued)
Work and equipment loads.
Knowing the resistance of the force of things.
Maintenance of equipment
Good upkeep of gear.
Maintenance.
Maintenance of safety equipment.
Maintenance of equipment (continued)
Inspection of personal tools and equipments.
Visual inspection.
Conducting inspections (i.e. visual inspections)
Visual inspection. (2 responses)
Basic inspection skills.
Inspecting personal protection equipment.
Inspection of safety equipment.
Inspection of health and safety components.
Physical fitness / knowing your limits
Physical fitness.
Knowing limits.
Physical ability.
Taking your time.
Be sure of yourself because of the potential consequences. Realize the potential for back injuries.
Realize the potential for back injures from physical labour and pulling the weight.
To be in good physical shape.
Need to be in good health and not be sick.
Math / physics
Mathematics. (2 responses)
Physics.
Knowledge of the laws of physics.
Formal education / need for certification
Proper training. (2 responses)
Learn from someone qualified.
Certified rigging course.
More formal training is needed on overestimating own capability.
Whole training program.
Competent formal training.
Formal courses.
Proper certification.
Instruction.
Observation.

Formal education / need for certification (continued)
Continuous upgrading.
Usage of mechanics course.
Other
Knowledge of trade. (2 responses)
Construction.
Live performing skills.
Operating flys.
Comfortable in gear.
Knowledge of jobs.
Knowledge of reading plans.
Competency of rigging used to the right discipline.
Competent supervision.
Understand components.
Training in lifts and ladders.
Tests of moving apparatus.
Taking time to plan events.
System balance.
SSCP courses.
Nothing
Nothing. (2 responses)
Nothing comes to mind at the moment.
Don't know
Don't know. (5 responses)
Unsure. (2 responses)
Not sure.

Figure 50 Q12. THINKING ABOUT ALL THE THINGS THAT RIGGERS DO IN THEIR JOB, ARE THERE ANY SPECIFIC RIGGING SKILLS THAT WE HAVE MISSED SPEAKING TO YOU ABOUT?

Fall protection
Fall arrest. (6 responses)
Installation of temporary fall arrest system.
Knowing how to use fall protection equipment.
Aerial safety.
Use of personal protective equipments, i.e. harnesses.
Electrical safety / electrical rigging
Electrical safety. (3 responses)
Rigging – electrical safety.
Electrical rigging. Lack of training in electrical cables.
Electric rigging.
Rigging wiring.
Electrical skills and knowledge.
Basic electrical principles. Using electrical chains.
Mathematics / geometry
Angle calculation.
Algebra and trigonometry.
Mathematics and geometry.
Weight loads / engineering / applied physics
Safe working load practices.
Applied physics.
Computerization of equipment – ability to use.
Up-to-date information on equipment, technology and courses.
Engineering loads in buildings.
Weight loads.
Always be aware of the amount of load you hang.
Films are different from theatres, i.e. 140,000 lbs in film.
Basic architecture knowledge.
Strength of materials, angles of force, bridling.
To know the weight and dimension of the objects for the security of people.
Human rigging
Flying people. (2 responses)
Limitation of ability to fly individually.
Working at heights
High angle safety.
Working on high places, in the middle of the air.
Working on heights.

Working at heights (continued)
Being comfortable with moving at heights.
High wire.
Covered by tested skills
Current practices.
Safety equipment.
Use of personal protective equipments, i.e. helmets.
Lifting platform as rigging equipments.
Visual inspection
Crimping, swaging metal cable wire.
Roof top. Forklift.
Control of motorized systems.
More questions on counter-weight systems.
Everything that has to be attached to the floor.
Inspect steel ropes.
Different certifications in the US and Canada needs attention.
Other
Rescue plan. Having a complete plan in place to rescue riggers who have suffered a fall. Must include removing riggers who may still be stuck in harnesses as well as medical treatment to deal. (2 responses)
Ability to act fast. (2 responses)
Know which material to use for different kinds of shows.
Must know the terminology of rigging structures and their functions.
Computer skills related to automation
Use of aerial platforms and equipment.
Physical ability, being able to lift and raise equipment.
Know your system: if you don't know, don't do it. .
New gear.
Analytic skills.
Proper supervision of employees.
Need apprenticeship program - no infrastructure for training.
Need to differentiate between theatre, arena, human rigging and moving motors.
Tasks related to cinema.
Attitude.
Rope access.
Nothing (93 responses)

Figure 51 Q14 AND Q15. WHAT WAS THE NAME OF THE INSTITUTION WHERE YOU TOOK THIS PROGRAM? WHAT WAS THE NAME OF THE PROGRAM? WHAT WAS YOUR MAJOR OR AREA OF CONCENTRATION?

Formal rigger training program	
Location / institution	**Program name / major or concentration**
Canadian Institute of Theatre Technology	International rigging skills
Canadian Institute of Theatre Technology	Rigging
Canadian Institute of Theatre Technology	Rigging for stage technique
Cégep André-Laurendeau	Conception de matériel acrobatique
L'École Nationale de Cirque	Conception de matériel acrobatique
Fanshawe College	Theatre arts technology
Grant MacEwan College	Technical theatre
Grant MacEwan College	Theatre production
Humber College	Technology production for theatre
Humber College	Theatre arts technology
Humber College	Theatre performing art
Humber College	Theatre production
Northern Alberta Institute Technology	Industrial rigging
Production Jeun'est	Technique de scène (2 Responses)
Red Deer College	Technical theatre
Ryerson University	Rigging class
Ryerson University	Introduction to Film
Ryerson University	Theatre and Film – special effects
Ryerson University	Theatre technology
Seneca College	Rig Rescue and Rappel Level 3
University of Alberta	Technical theatre program (2 Responses)
University of Waterloo	Theatre technology
Workshop / seminar offered through university or college in Canada	
Location / institution	**Program name / major or concentration**
Dalhousie University	IATSE - seminar
Langara College	2 day union workshop (2 responses)
Workshop / seminar offered through university or college in U.S.	
Location / institution	**Program name / major or concentration**
Duke University	Riggers workshop
University of Nevada	Master rigging seminar
Other	
Location / institution	**Program name / major or concentration**
Cambrian College	Hydro guideline and safety
Canadian Coast Guard College	Officer training
Freelance course	Rigging seminars

Other (continued)	
Location / institution	**Program name / major or concentration**
Niagara College	Radio And TV
Don't know program name / major or concentration	
Location / institution	**Program name / major or concentration**
British Columbia Institute of Technology	Don't know
University of Chicago	Don't know
Don't know / refused (1 response)	

Figure 52 Q17. WHAT SKILL SET DID YOU LEARN IN THE PAST YEAR AT THE CONFERENCE OR WORKSHOP RELATED TO PROFESSIONAL DEVELOPMENT AS A RIGGER THAT YOU ATTENDED?

Fall protection / rescue
Fall arrest. (3 responses)
High angle rescue.
Fall arrest and rescue.
Arial rigging
Arial rigging.
Arial.
Safety inspection, regulations and general safety (including electrical safety)
Rules and regulations about safety. (2 responses)
Electrical safety. (2 responses)
Work place safety inspection.
Safety course.
WHMIS.
Motor safety, scaffold dynamics.
Safety in the workplace. New equipment.
Safety inspection and equipment.
Lifts
Genie and scissors lift.
Platform maintenance.
The lifting equipment, genie and scissors lift, and cherry pickers.
Lift platform training.
Calculations (i.e. math skills) / problem solving
Problem solving. (2 responses)
How to calculate shock loads on human. Connect gear in heights.
Math and physics.
Math skills.
Arena and Theatre. Plotting weights.
Calculations.
Discussion on rigging problems.
Weight calculation.
Automated rigging
Programming automated rigging.
Programmed computerized rigging. Learning to do inspection and regulations.
Pyrotechniques
Pyrotechnics. (2 responses)
Loads
Basic loads.

Motorized systems / counter weights
Details on chain motors.
Operational maintenance of chain hoists.
Counter-weight system maintenance and inspection.
I was teaching the course
Teaching courses. (2 responses)
General rigging (i.e. chains, cables)
Stage and arena rigging: theory and practical. (2 responses)
Equipment usage. Crane usage.
Chain hoists going through their stuff.
Yearly updates.
Rigging seminar.
More knowledge.
Steel cable inspection. Security course.
Flying effects
Trapeze rigging.
Flying effects.
Aerobatic rigging apprentice.
Other
Supplier and trade show. (2 responses)
Don't know (1 response)

Figure 53 Q18. WHO OFFERED THE TRAINING AT THE CONFERENCE OR WORKSHOP RELATED TO PROFESSIONAL DEVELOPMENT AS A RIGGER THAT YOU ATTENDED?

Fire Department
Saanich Fire Department.
CITT
CITT. (8 responses)
IATSE
Union. (2 responses)
IATSE. (2 responses)
IATSE in Calgary.
IATSE; Dwight Crane.
Federal government
Federal Government. (2 responses)
SHAPE
Work safe (SHAPE).
Cirque du Soleil
Cirque du Soleil.
Taught by individuals (Thomas Pruss, Harry Donovan, Mono Andrews, Rocky Paulson)
Harry Donovan, Jay Glerum. (3 responses)
Monge Andrews. (2 responses)
Harry Donovan. (2 responses)
Thomas Pruss.
Rocky Paulson.
Taught in the USA or Mexico
California.
LDI in Las Vegas.
Taught by Jay Glerum in Las Vegas .
Lalo Caesar - Mexico.
LDI in Las Vegas.
ZFX, Louisville.
LDI in Las Vegas.
JR Clancy
JR Clancy.
JR Clancy; Theatrical Engineering and Architecture Conference.
Production Jeun'Est
Production Jeun'Est.
Capital Safety Group
Capital Safety Group. (2 responses)

PRG Lighting Company
PRG - lighting company.
Studio City Rentals
Vancouver - Studio City; scaffolding, LA (CNM Crane).
Dwight Crane
Dwight Crane.
Other
Chain master.
Mountain Productions CM Hoist School.
The team leaders, provided on the job.
Rigging Seminars.
Production.
Don't know (3 responses)

Figure 54 Q19. WHEN THINKING ABOUT RIGGER TRAINING, WHAT WOULD YOU SAY ARE THE GREATEST TRAINING NEEDS RIGHT NOW OR IN THE FORESEEABLE FUTURE?

Fall arrest and fall rescue
More rescue training.
Fall arrest. High angle rescue.
Standard fall protection. Basic rigging.
Fall arrest. Personal safety.
Fall arrest. Ability on beams.
Training on fall arrest and best work methods.
Rigger certified course. Fall arrest training.
Security falling.
Knowledge and understanding of rigging equipment
Knowledge of equipment.
Know equipment. Proper training.
Knowledge of equipment.
Know your equipment.
Basic health and safety
Basic safety. (9 responses)
Health and safety, best practices. (2 responses)
Safe practice.
Safety, qualified people.
Know the gear and safety practices.
Using correct equipment.
Basic health and safety (continued)
Safety, new innovative technology, refresher courses.
Safety, cooperation, communication on the job.
Fall arrest. Job awareness.
Equipment and inspection.
Safe practices.
Occupational safety.
Safety awareness.
Security.
Health and security of the employees at work. General comprehension.
How to work safely.
Know your equipment.
More safety courses.
Safety awareness.
Health and safety. Basic skills refresher.
How to handle safety
Know safety limits of equipment.

Apprenticeships / hands on learning opportunities
Graduated licensing.
Proper apprenticeship.
Need training manuals.
On job training.
Need an apprenticeship program.
Hands on experience.
Development of hands-on experience.
Keeping up with new standards and regulations
Knowledge of components and regulations.
New standard in how equipment makes newer technology.
Updates on new equipment.
Updates on new laws.
Keeping up with technology and new standards in health and safety.
Need more trained employees
New employees. (2 responses)
More trained people. (2 responses)
There is a shortage of arena riggers.
Short-staffed.
Not enough people are working in arenas and theatres.
Finding enough qualified people.
Motorized / automation systems / new technologies
Understanding of motorized aspect.
Understanding of new technologies.
Motorized / automation systems / new technologies (continued)
Learning to accept change or moving ahead.
Course in electrical preparedness.
Motorized systems. Advancing technology. Ballistics.
Motorized systems.
Automation.
Automation of fly systems.
Certification / certified training
Certification. (2 responses)
Certified trainers.
Need a proper certified course.
Becoming certified as an environmental and power technician.
Becoming certified as an entertainment industrial power technician.
Proper certified training.
Certification.
Trainings given by professionals.

Regular, accessible and affordable training
Courses that are close by and affordable. (2 responses)
Low cost. It is expensive for training seminars. (2 responses)
Regularly scheduled rigging training.
More safety workshops.
Accessibility of training.
Not enough competency in training regarding scaffold. Lack of education overall.
Local training.
Rigging training.
More affordable and accessible workshops.
Not enough training in Montreal. Need more certified riggers in Montreal.
Course availability.
Funding for training.
Making it more accessible.
Lack of access to courses.
Accessibility to programs. It is difficult to travel for the available course.
Affordable training.
Formal training / standardized learning
Formal program needed.
Standardized learning.
Format standardized training.
Lack of formal training about computerized and electronic systems.
Engineering / math / physics / mechanics
Higher level of engineering understanding, better motorized and automated skills. (2 responses)
Physics.
Engineering / math / physics / mechanics (continued)
Schooling skills - understanding the science behind rigging.
People with mechanics skills.
Course in electrical preparedness.
Ability to calculate trigonometry.
Math skills.
Physics job skills. Electrical and motorized systems.
Loads, forces and stresses
Load forces for equipment.
Line loads. Roof specification.
Loads and stress.
How to handle loads.
Safety loads, bridles, basic rigging.
Capacity to evaluate loads, assemble components such as shackles.
Good forces for equipment.

Loads, forces and stresses (continued)
Determining loads.
Loads.
Calculate load factors.
Aerial / Arena / Film rigging
Course that is related to film industry's rigging needs.
Use of motors for arena rigging.
Arena style rigging.
Shows are getting bigger. Arenas are not all made for the new heavy shows. We have to understand the building structure.
Arena rigging. Wire rope pick-up production.
Arena rigging. Theatre rigging effects.
Aerial rigging - weights.
Aerial assistance.
Everything
Industry rigging in general.
Everything is important.
All-around training.
All skills.
Other
Current rigging development.
Educational operations and applications.
Advertising courses.
Competent supervision.
Installation of clips. Attachments to the ceiling.
Steel ropes, using ropes. Moving at heights.
Standardization of rigging process and materials used.
Other (continued)
Standardized work methods.
Know the names of the things well.
Have members be more strict with our employees.
Nothing
Nothing. (3 responses)
None. (3 responses)
Don't know
Don't know. (12 responses)
Unsure.

Figure 55 WHAT IS THE VALUE FOR YOU PERSONALLY IN ACHIEVING PROFESSIONAL RECOGNITION OR CERTIFICATION AS A RIGGER?

Nothing
Nothing. (7 responses)
No value. (9 responses)
Pyrotechnic license is a useless piece of paper.
Very little.
I am 55 years old, out of business.
Doesn't matter to me. I am too old.
Doesn't matter.
No value at all.
Better employability or financial gains
Increased employability. (2 responses)
Financial - employability.
Monetary, employability, liability.
More employable, higher income.
More employable, job security.
Monetary - more employable.
Increased marketability.
More opportunity to work and ability to share teaching.
Employability, prestige.
More job opportunities.
More employable.
Higher pay.
Monetary, more employable. Higher wages.
Better employment opportunities.
Increases likelihood of employment.
Higher employability.
Monetary.
More financial value.
Personal satisfaction / pride
Personal satisfaction.
Personal satisfaction.
Personal love for business.
Personal satisfaction. It's recognized credit.
Professional knowledge.
Personal growth.
Confidence in ability to do job properly.
Increased pride.
Prestige.

Personal satisfaction / pride (continued)
Knowledge of ability to do the job correctly.
Personal achievement.
Just for training. No monetary value.
Personal pride.
There is some value in terms of personal reason, but no value financially.
Self-knowledge.
I feel like the luckiest person in the world.
Personal growth.
Personal satisfaction.
I find it somewhat important.
The pride.
Proof of competency
Installation certified.
Zero career, important for business.
Job recognition.
Proof of competency.
Denotes competency.
Recognized by peers and outside entertainment industry.
Being able to say 'I am qualified'.
To show certification.
I know my job and I can prove it.
Should have cards for certain shows.
Have a paper for personal and employer insurance.
It must be done. It is important.
Promotes professionalism and confidence in the industry
Gets the "cowboy" out, but testing does not always weed out incompetence.
Jobs can be done right.
Pass knowledge onto people below.
Decreases liability inspection costs.
Consistency for industry.
Job confidence.
To see our profession recognized.
Have a booklet or security cards.
You need it if you want to be a rigger.
Should have a certificate to have lifetime recognition.
Promotes health and safety
Health and safety. No monetary benefit.
Protection.
Being known as a safe worker.

Promotes health and safety (continued)
Always be safe.
Knowledge of job and safe work practices.
Other
Not over $500 certification cost.
More knowledge of heavy equipment.
Don't know
Don't know. (6 responses)
Not applicable. (2 responses)
Not sure.