

EVALUATION GUIDELINES



Society of Professional Rope Access Technicians

Society of Professional Rope Access Technicians

994 Old Eagle School Road, Suite 1019

Wayne, PA 19087 USA

www.sprat.org

info@sprat.org

Registry Number:

EC-01

Revision History:

Version 20B Board Approved September 2020

Table of Contents:

1. Purpose and Scope 3

2. Responsibilities of Involved Parties 3

3. Site and Equipment Requirements and Recommendations 5

4. Experience Documentation 8

5. Direct Entry and Conversion Application Process 8

6. Written Test Information 9

7. Grading System for Field Evaluation 11

8. Evaluation Session Feedback 11

9. Field Oral Evaluation 12

10. Field Practical Evaluation 13

11. Level I Technician Requirements: 15

12. Level II Technician Requirements 32

13. Level III Technician Requirements 42

Appendix 1. Equipment Criteria for Field Oral Evaluation 50

Appendix 2. Rope Access Work Plan and Job Safety Analysis Components to Supplement Job Safety 57

Appendix 3. Hazards, Associated Risks and Controls to Supplement Job Safety Oral Evaluation 58

Appendix 4. Angle Physics 59

Notes for Usage:

For the most recent [standards versions](https://sprat.org), [supporting documentation](https://sprat.org), and [news](https://sprat.org), visit <https://sprat.org>.

Terminology from SPRAT’s *Defined Terms* used in this document is shown in ***bold, italic*** type unless written in a primary section heading.

Usage of the word ‘shall’ denotes a mandatory requirement.

Usage of the word ‘should’ denotes a recommendation. The word ‘should’ does not connote indifference or ambivalence regarding a statement.

Approximate conversions of units are presented in parentheses. These approximations are provided as a reference and are not the standard. When a value is presented as a limit, approximations are greater than an expressed minimum or less than an expressed maximum.

Additional supplements, including a [candidate preparation form](#), [Evaluation Session Host preparation form](#), and a [poster](#) depicting the rope access certification requirements are available on the SPRAT website.

1. Purpose and Scope

1.1. Purpose

- 1.1.1. This document serves as a supplement to SPRAT's *Certification Requirements for Rope Access Work* and is to be used in conjunction with SPRAT's *Safe Practices for Rope Access Work* and SPRAT's *Defined Terms*.
- 1.1.2. The purpose of this document is to provide current and prospective **rope access technicians, competent trainers**, Evaluation Session Hosts, and Evaluators with the information and resources requisite in conducting impartial, consistent, and efficient evaluations.

1.2. Scope

- 1.2.1. The document provides:
 - 1.2.1.1. The **responsibilities** of all involved parties.
 - 1.2.1.2. Minimum and recommended **site and equipment requirements** for conducting an evaluation session.
 - 1.2.1.3. Candidate pre-qualifications and expectations for **documenting experience**.
 - 1.2.1.4. Details for **Direct Entry and Conversion** applicants.
 - 1.2.1.5. An explanation of the **grading system** used in an evaluation session.
 - 1.2.1.6. Information for administering the **written test**.
 - 1.2.1.7. Criteria for the **oral portion** of the field evaluation.
 - 1.2.1.8. Criteria for evaluation of and considerations for training to the requirements set forth in *Certification Requirements for Rope Access Work*, navigable through a rendering of the **Technician Evaluation Form** used during evaluation sessions.

2. Responsibilities of Involved Parties

2.1. Candidate Responsibilities

- 2.1.1. Prior to participating in an evaluation session, a candidate shall:
 - 2.1.1.1. Provide proof of age and identification.
 - 2.1.1.2. Receive training meeting the requirements of Section 3.2 of *Certification Requirements for Rope Access Work*.
 - 2.1.1.3. Ensure their personal data is accurate in SPRAT's system.
 - 2.1.1.4. Select their certification testing level.
 - 2.1.1.4.1. A candidate's testing level may not be changed after the evaluation session begins.
 - 2.1.1.5. Provide documentation verifying experience requirements in accordance with Section 5.
 - 2.1.1.5.1. Direct Entry Candidates shall provide notification of approval in accordance with Section 6.
 - 2.1.1.5.2. Candidates unable to demonstrate meeting eligibility requirements may not upgrade.
 - 2.1.1.6. Complete the *Candidate Affidavit*.
- 2.1.2. During an evaluation session, a candidate shall:
 - 2.1.2.1. Conduct themselves in a professional manner towards their Evaluation Session Host, Evaluator, and fellow candidates.
 - 2.1.2.2. Complete certification requirements for their desired level of testing in a safe, efficient, manner.
 - 2.1.2.3. Ask questions, if needed, to clarify an Evaluator's instructions
- 2.1.3. Following an evaluation session:
 - 2.1.3.1. Candidates should provide evaluation session feedback to the SPRAT Office.
 - 2.1.3.2. Candidates that do not pass the written test or evaluation session should retest in accordance with Section 7.3 and Section 8.3, respectively.
 - 2.1.3.3. Candidates should ensure their personal information remains current within SPRAT's system.
 - 2.1.3.4. Successful candidates should maintain their certification.

2.2. Evaluation Session Host Responsibilities

2.2.1. Prior to hosting an evaluation session, an Evaluation Session Host shall:

- 2.2.1.1. Maintain a Company or Company Premier membership with SPRAT.
- 2.2.1.2. Ensure a Host Agreement for the current calendar year has been submitted to and approved in SPRAT's system.
- 2.2.1.3. Ensure insurance documentation has been submitted to and approved in SPRAT's system in accordance with SPRAT's *Evaluation Session Insurance Policy*.
- 2.2.1.4. Provide or ensure provision of a site meeting the requirements of Section 3.
- 2.2.1.5. Establish an evaluation session, and assign an evaluator in SPRAT's system.
- 2.2.1.6. Schedule an evaluator to conduct the evaluation session.
- 2.2.1.7. Ensuring a maximum of eight candidates per evaluation session.
 - 2.2.1.7.1. While an Evaluator may only conduct one evaluation session per day, multiple Evaluators may conduct evaluation sessions at a site simultaneously.
- 2.2.1.8. Assist candidates with entering or updating personal information in SPRAT's system.
- 2.2.1.9. Ensure candidates meet all eligibility and training requirements of Section 3 of *Certification Requirements for Rope Access Work*.
- 2.2.1.10. Submit or ensure the submittal of, and verify the approval of Direct Entry applications

2.2.2. During an evaluation session, an Evaluation Session Host shall:

- 2.2.2.1. Provide or ensure provision for prompt rescue.

2.2.3. Following an evaluation session, Evaluation Session Hosts shall:

- 2.2.3.1. Provide feedback regarding evaluation sessions to the SPRAT Office.
- 2.2.3.2. Assist with the submittal and investigation of complaints and appeals from evaluation sessions as appropriate.
- 2.2.3.3. Provide payment of evaluation session fees in a timely manner.
 - 2.2.3.3.1. A fee of \$100 is assessed for each candidate.

2.3. Evaluator Responsibilities

2.3.1. Prior to administering an evaluation session, an Evaluator shall:

- 2.3.1.1. Maintain an Evaluator appointment in accordance with approved procedures.
- 2.3.1.2. Ensure their independence from all Level II and Level III candidates.
- 2.3.1.3. Inform the SPRAT Office and Evaluations Committee of any potential conflicts of interest.
- 2.3.1.4. Ensure Evaluation Session Hosts and candidates meet applicable eligibility requirements.
- 2.3.1.5. Verify site requirements.

2.3.2. During the evaluation session, an Evaluator shall:

- 2.3.2.1. Administer evaluation sessions in accordance with approved procedures.
- 2.3.2.2. Observe candidates' adherence to certification criteria.
- 2.3.2.3. Issue and explain session results to candidates and Evaluation Session Hosts.

2.3.3. Following an evaluation session, and Evaluator shall:

- 2.3.3.1. Submit evaluation session documentation to the SPRAT Office.
- 2.3.3.2. Assist with the investigation of complaints and appeals from evaluation sessions.

2.4. SPRAT Office Responsibilities

2.4.1. The SPRAT Office shall:

- 2.4.1.1. Assist with general certification program enquiries.
- 2.4.1.2. Review, approve, and manage Evaluation Session Host information.
- 2.4.1.3. Manage administration of the Direct Entry and Conversion program.
- 2.4.1.4. Compile and store evaluation session and written test information.
- 2.4.1.5. Collect and manage fees associated with certification processing.
- 2.4.1.6. Process certification documentation for all successful candidates.
- 2.4.1.7. Manage verification of current and expired SPRAT certifications.

3. Site and Equipment Requirements and Recommendations

3.1. General Requirements and Recommendations

3.1.1. All site requirements shall be met for an evaluation session to proceed.

- 3.1.1.1. If any requirement is not met, an Evaluator has the right to refuse to conduct an evaluation session.
- 3.1.1.2. The Evaluation Session Host shall provide proof of addressing any requirement deficiencies to the SPRAT Office prior to the scheduling of another evaluation session at that location.

3.1.2. Site recommendations should be met to facilitate administering an evaluation session.

3.2. Site Physical Requirements and Recommendations

3.2.1. General

3.2.1.1. The site shall be large enough to facilitate completion of all requirements without major adjustments during the evaluation session.

3.2.1.1.1. The site should have a floor area of at least 130 m² (1400 ft²).

3.2.1.2. The site shall have a classroom or other suitable location to facilitate the evaluation session and administer the written test.

3.2.1.2.1. A white board or blank paper and implements shall be provided.

3.2.1.2.2. A chart depicting the evaluation scheme for each candidate in accordance with Section 10.2 should be provided

3.2.1.3. The site shall facilitate suitable locations to observe candidates.

3.2.1.3.1. Provision shall be made to ensure a maximum vertical separation of no more than 15 m (49 ft) between any location required for the completion of requirements and either the next lower level or the floor.

3.2.2. **Anchorage Systems**

3.2.2.1. The site shall accommodate **fixed anchorage systems** that allow for the uninterrupted ascent and descent of at least 5 m (16.5 ft) of a **two-rope system**.

3.2.2.2. **Anchorage systems** shall meet the requirements of *Safe Practices for Rope Access Work* and any **presiding regulatory authority**

3.2.2.2.1. A documented inspection report prepared by a professional structural engineer appropriate to the **presiding regulatory authority** of the evaluation site is recommended.

3.2.2.3. **Anchorage systems** should be located to accommodate clearance requirements of attached fall protection systems.

3.2.2.3.1. During the performance of certification requirements, no additional protection is required where required clearance is lower than the available clearance.

3.2.3. Platform

3.2.3.1. The site shall have at least one platform that extends a minimum height of 2.5 m (8.3 ft) above the next lower level.

- 3.2.3.1.1. The platform should have the ability for a **fall zone** that extends a minimum of 3 m (9.9 ft) along one edge.
- 3.2.3.2. At least one platform that accommodates at least four people shall be available.
 - 3.2.3.2.1. A platform or platforms that accommodate a total of at least eight people are recommended.
- 3.2.4. Site Environment
 - 3.2.4.1. The site shall have appropriate noise and lighting levels.
 - 3.2.4.1.1. Noise levels should be below 85dBA per eight-hour period.
 - 3.2.4.1.2. Lighting levels should be between 300 and 800 lux.
 - 3.2.4.2. The site should be protected from adverse weather.
 - 3.2.4.3. The site should have regulated temperature between 7°C (45 °F) and 38°C (100 °F).
 - 3.2.4.4. The site should have ventilation to facilitate a minimum of 8 air changes per hour.
- 3.3. Rope Access Station Requirements and Recommendations
 - 3.3.1. Rope access stations shall be distinct and able to be occupied simultaneously.
 - 3.3.2. The following rope access stations shall be readily available during the entirety of the evaluation session:
 - 3.3.2.1. One **re-anchor** per four candidates in accordance with requirements of [CR 7.12](#).
 - 3.3.2.1.1. A minimum of four **re-anchors** is recommended.
 - 3.3.2.2. One **deviation** per four candidates in accordance with requirements of [CR 7.11](#).
 - 3.3.2.2.1. A minimum of four **deviations** is recommended.
 - 3.3.2.3. One set of adjacent **two-rope systems**, separated by more than 2 m (6.6 ft), per four candidates to accommodate rope-to-rope transfers in accordance with requirements of [CR 7.10](#).
 - 3.3.2.3.1. A minimum of four sets is recommended.
 - 3.3.2.4. One set of adjacent **two-rope systems**, separated by no more than 1 m (3.3 ft), per four in accordance with requirements of [CR 7.17](#).
 - 3.3.2.4.1. A minimum of four sets is recommended.
 - 3.3.2.5. One **two-rope system** with rope and/or edge protection for edge negotiation in accordance with requirements of [CR 7.13](#).
 - 3.3.2.5.1. A minimum of four, **two-rope systems** is recommended.
 - 3.3.2.6. One horizontal **aid climbing** station per four candidates in accordance with requirements of [CR 7.16](#).
 - 3.3.2.6.1. A minimum of four horizontal **aid climbing** stations is recommended.
 - 3.3.2.7. One vertical **aid climbing** station per four upper level candidates in accordance with requirements of [CR 8.10](#).
 - 3.3.2.7.1. A minimum of four vertical **aid climbing** stations is recommended.
- 3.4. Site Safety Requirements
 - 3.4.1. An **access work plan** in accordance with *Safe Practices for Rope Access Work* shall be provided.
 - 3.4.1.1. Provision shall be made to ensure **prompt rescue** in accordance with *Safe Practices for Rope Access Work*.
 - 3.4.2. The site **hazard** and **fall zones** shall be identified and marked in accordance with *Safe Practices for Rope Access Work*.
 - 3.4.3. Candidate emergency contact information shall be available.
 - 3.4.4. Provision shall be made to ensure no conflicting activities are present during the evaluation session.
 - 3.4.5. A suitable first aid kit and fire extinguisher shall be readily available.
 - 3.4.6. Emergency egress signage and lighting should be provided as appropriate.

3.5. Equipment Requirements and Recommendations

3.5.1. Equipment used during an evaluation session shall meet the requirements of *Safe Practices for Rope Access Work* and any ***presiding regulatory authority***.

3.5.2. Personal Equipment

3.5.2.1. Each candidate shall be equipped, at a minimum, with the following equipment:

3.5.2.1.1. Personal protective equipment required by the ***access work plan***

3.5.2.1.2. Helmet

3.5.2.1.3. Harness

3.5.2.1.4. Chest ***ascender***

3.5.2.1.5. Hand ***ascender*** with lanyard and foot loop

3.5.2.1.6. Two backup devices with compatible connecting equipment

3.5.2.1.6.1. One backup device per candidate shall be suitable for performing pick-off rescues.

3.5.2.1.7. ***Descender***

3.5.2.1.8. Sufficient locking ***carabiners*** to accommodate personal equipment

3.5.2.2. Personal equipment available in multiple sizes should be available to accommodate candidate needs.

3.5.2.2.1. A minimum of 16 helmets is recommended.

3.5.2.2.2. A minimum of 16 harnesses with affixed chest ascenders is recommended.

3.5.3. Shared Equipment

3.5.3.1. Four additional backup devices with compatible connecting equipment shall be available.

3.5.3.1.1. One additional backup device with compatible connecting equipment per candidate is recommended in addition to candidate personal equipment requirements.

3.5.3.2. Four additional ***descenders*** shall be available.

3.5.3.2.1. One additional ***descender*** per candidate is recommended in addition to candidate personal equipment requirements.

3.5.3.3. Sufficient hardware, such as ***carabiners, rope grabs***, pulleys, rigging plates, and/or other suitable equipment to accommodate requirements shall be available.

3.5.3.3.1. At least 40 carabiners should be available.

3.5.3.3.2. At least 16 rope grabs in addition to personal equipment should be available.

3.5.3.3.3. At least 16 pulleys should be available.

3.5.3.3.4. At least 4 multi-hole rigging plates or rings should be available.

3.5.3.4. Ropes that accommodate the needs of the site to complete requirements shall be available.

3.5.3.4.1. Eight ropes with length of approximately 3 m (10 ft) should be available for tying knots.

3.5.3.4.2. A minimum of eight ropes with length between 10 m (33 ft) and 30 m (99 ft) should be available for establishing temporary ***anchorage systems***.

3.5.3.4.3. A minimum of eight ropes with length of between 30 m (99 ft) and 60 m (196 ft) should be available.

3.5.3.5. Sufficient slings and/or other materials to accommodate requirements shall be available.

3.5.3.5.1. At least 16 slings should be available.

3.5.3.6. One mass of ≥ 30 kg (66.2 lbs) per four candidates shall be available.

3.5.3.6.1. A minimum of four masses of ≥ 30 kg (66.2 lbs) is recommended.

3.5.3.6.2. One mass of ≥ 60 kg (132.3 lbs) per four candidates is recommended.

3.5.3.6.3. One mass of ≥ 80 kg (177 lb) is recommended.

3.5.3.6.4. Modular weights may be used to accommodate recommendations.

3.5.4. As appropriate to the evaluation site, the following additional shared equipment should be considered:

3.5.4.1. Work seats

3.5.4.2. Energy absorbing lanyards or other fall protection systems

3.5.4.3. Positioning lanyards

4. Experience Documentation

4.1. General

4.1.1. Experience shall be documented in accordance with Section 7 of *Safe Practices for Rope Access Work*.

4.1.1.1. The sub-requirements of *SP 7.2* shall be provided.

4.1.1.2. No individual line item of experience should exceed 100 hours or two weeks.

4.1.2. Re-certification candidates should present up-to-date experience documentation.

4.2. Lost Logbook

4.2.1. The SPRAT Office can verify hours recorded prior to the date of a rope access technician's last evaluation session.

4.2.1.1. This information may be used to verify hours recorded prior to the date of that evaluation session.

4.2.2. Written reference including a signature from a **Rope Access Supervisor, employer, competent trainer, Evaluator, or client** may be used to verify hours required for certification advancement.

5. Direct Entry and Conversion Application Process

5.1. General

5.1.1. The requirements for Direct Entry for Level II and Conversion for Level III are stipulated in Section 6 of *Certification Requirements for Rope Access Work*. The application process is outlined on the [SPRAT website](#).

5.1.2. Applicants should send all required documentation via email to info@sprat.org no less than five weeks in advance of the scheduled evaluation session.

5.1.3. An application fee will be assessed at the time of submission.

5.1.3.1. This fee does not cover the certification processing cost assessed following the completion of a successful evaluation session.

5.1.4. All documentation related to Direct Entry and Conversion must be approved by the Evaluations Committee in advance of the evaluation session.

5.1.5. Notice of approval or rejection of applications will be sent to the applicant, the Evaluation Session Host, and the Evaluator, when possible.

5.1.5.1. This notice, as well as experience documentation, shall be presented at the beginning of the evaluation session.

5.1.5.2. Approval to test as a Direct Entry or Conversion candidate is valid for two attempts.

5.1.5.2.1. Following these two attempts, a new application shall be submitted.

5.1.6. Consideration for Direct Entry or Conversion shall not be given to candidates without notice of approval from the SPRAT Office.

5.2. Evaluations Committee Review of Direct Entry Applications

5.2.1. To recognize industries related to rope access, work experience of similar industries will be considered within the hours presented for Direct Entry.

5.2.2. No more than 100 hours from related industries will be counted within the experience requirements for Direct Entry.

5.2.3. These hours may include:

5.2.3.1. Rope rescue training, instruction, and operations.

5.2.3.1.1. If two ropes are used solely for a training environment that is teaching single rope technique, these hours will not be counted.

5.2.3.2. Bosun chair work, controlled descent, or rope descent systems with an effective and separate vertical lifeline (backup) system.

5.3. Evaluations Committee Review of Conversion Applications

5.3.1. The Evaluations Committee considers the following organizations to have commensurate Level III certifications:

5.3.1.1. Australian Rope Access Association (ARAA)

5.3.1.2. German Association for Rope Access (FISAT)

5.3.1.3. Industrial Rope Access Trade Association (IRATA)

5.3.1.4. IRATA Brasil Associação Comercial de Acesso por Cordas Industrial (IRATA Brasil)

5.3.1.5. Norwegian Association for Rope Access (SOFT)

5.3.1.6. Singapore Rope Access Association (SRAA)

5.3.2. The Evaluations Committee will consider other rope access certifications if the certification criteria are provided with the Conversion application.

6. Written Test Information

6.1. General

6.1.1. The written test evaluates candidates' understanding of SPRAT's *Safe Practices for Rope Access Work, Certification Requirements for Rope Access Work, and Defined Terms*

6.1.1.1. The written test level taken by the candidate must correspond to a candidate's field evaluation test level.

6.1.2. Candidates have one hour to complete the test.

6.1.3. The test is comprised of 40 multiple choice and true-false questions.

6.1.4. A score of 80% or better constitutes a passing score for the written test.

6.1.4.1. Candidates must answer at least 32 questions correctly to pass the written test.

6.1.5. The written test is closed book.

6.1.5.1. Consulting reference materials or discussion between candidates constitutes automatic failure of the written test.

6.1.6. Candidates should ensure their name, date, and test level is written on the answer sheet.

6.1.7. There is only one correct answer for each question.

6.1.7.1. Candidates should choose the best answer.

6.1.7.2. Candidates should ensure that they are marking their desired answer.

6.1.7.3. If a candidate wants to change their answer, they must X out the undesired answer and clearly mark the desired answer.

6.1.7.4. If a candidate wishes to return to a previously selected answer, they should mark this answer in a clear manner.

6.1.7.5. Unanswered questions will be considered as incorrect.

6.1.8. If a candidate does not understand a question, clarification can be given but discussion is not allowed.

6.1.9. A candidate may have the test read to them.

6.1.10. When finished with the test, a candidate shall leave the room or sit without disturbing others.

6.2. **Proctor** Responsibilities

6.2.1. An Evaluator may designate a **proctor** to administer the written test.

6.2.2. The **proctor** shall ensure that all testing materials, including the written test and answer keys, remain secured and unavailable to a candidate prior to the written test.

6.2.3. The **proctor** shall read Section 6.1 in its entirety to candidates.

- 6.2.4. The **proctor** shall ensure that no reference materials are consulted and that there is no discussion among candidates during the written test.
- 6.2.5. The **proctor** may grade the test.
 - 6.2.5.1. The correct answer for each incorrect question shall be marked so candidates can see the answer to the questions answered incorrectly.
 - 6.2.5.2. The test grade percentage shall be written on top of the answer sheet.
- 6.2.6. The **proctor** may review incorrectly answered questions with the candidates.
 - 6.2.6.1. The **proctor** shall ensure candidates have initialed incorrect answers to verify that the candidates understand the reason for their errors.
- 6.2.7. The **proctor** shall return all testing materials to the Evaluator.
- 6.2.8. The **proctor** shall complete and sign SPRAT's Proctor Affidavit.
- 6.3. Failure of the Written Test
 - 6.3.1. A failed written test does not prevent a candidate from participating in the field evaluation.
 - 6.3.1.1. A candidate who fails the written test but passes the field evaluation component of the evaluation session has one opportunity to retake the written test between 7 and 60 days after the evaluation session without being required to retake the field evaluation.
 - 6.3.2. The date of the field evaluation is used for the purposes of determining the expiration of the certification.
 - 6.3.3. A request to retake the written test shall be made directly to the Evaluator from the evaluation session.
 - 6.3.4. Written test materials shall be sent to a **proctor**.
 - 6.3.5. The **proctor** shall fulfill their responsibilities of the previous section.
 - 6.3.6. The **proctor** shall send the completed written test, either electronically or in hardcopy, to the Evaluator.
 - 6.3.7. The Evaluator shall verify and send the results to the SPRAT Office and the **proctor**.
 - 6.3.8. After the SPRAT Office has confirmed receipt of the results, if the **proctor** cannot return the written test materials to the Evaluator, the **proctor** shall destroy all testing materials.

7. Grading System for Field Evaluation

7.1. General

- 7.1.1. A candidate's performance of the field portion of the evaluation session is graded in accordance with Section 2.3 of *Certification Requirements for Rope Access Work*.
- 7.1.2. The Evaluator of a session has the sole authority to issue **discrepancies** and **fails**.
- 7.1.3. A **fail** or a **discrepancy** shall be issued immediately or prior to a candidate beginning a new exercise.
- 7.1.4. The examples of pass, **discrepancy**, and **fail** presented later in this document are derived from the non-exhaustive lists in *Certification Requirements for Rope Access Work* and SPRAT's *Evaluation Session Rubric*.
 - 7.1.4.1. Aggravating or mitigating circumstances may require an Evaluator to issue a different grade than the provided examples.
- 7.1.5. Candidates are subject to being issued **discrepancies** or a **fail** during the entire evaluation session.
 - 7.1.5.1. A candidate's evaluation is not considered complete until they and the Evaluator have signed the Technician Evaluation Form.

7.2. Time Limits

- 7.2.1. Fixed time limits are not provided for evaluation criteria, as safe completion of a task is the priority in an evaluation session.
- 7.2.2. An Evaluator shall not begin timing candidates at the assignment of an assigned task.
- 7.2.3. An Evaluator may invoke time limits for candidates, provided that one or more of the following conditions are met:
 - 7.2.3.1. Lack of forward progress
 - 7.2.3.2. Inefficient technique or procedure
 - 7.2.3.3. Poor rope management
- 7.2.4. If the Evaluator invokes a time limit for a candidate that has been in a maneuver for an extended period of time, a warning will be issued to the candidate with an agreed upon time limit and grading consequence.
- 7.2.5. If a candidate is unable to complete an assigned task, a **fail** shall be issued.
 - 7.2.5.1. If a candidate does not believe they have sufficient equipment to complete a task once they have started, the Evaluator shall have the ability to issue a pass, **discrepancy**, or **fail** at their discretion.

7.3. Failure of the Field Evaluation

- 7.3.1. In the case of a failed evaluation, a candidate retains any current certification.
- 7.3.2. A candidate who fails the field portion of the evaluation session must wait at least seven days before retesting.
 - 7.3.2.1. A candidate must retake, in their entirety, both the written test in accordance with Section 6 and the field portions in accordance with Section 9 and Section 10 as part of this process.

8. Evaluation Session Feedback

8.1. Evaluation Session Host and Candidate Feedback

- 8.1.1. Evaluation Session Host and Candidate Feedback is a confidential means to provide honest feedback and constructive criticism of their experience from the evaluation session.
- 8.1.2. This information contributes to assessing and improving the effectiveness of both the certification process and the Evaluator conducting the session.
- 8.1.3. Feedback may be submitted as an online survey or in hardcopy.

8.2. Complaints and Appeals.

- 8.2.1. The process for submitting complaints and appeals is provided in Section 10 of *Certification Requirements for Rope Access Work*.
- 8.2.2. Complaints and appeals must be submitted within 60 days of an evaluation session.

- 8.2.3. If a complaint is lodged against an Evaluator, the SPRAT Office shall anonymize the complaint and supporting documentation, as appropriate, and provide the redacted information to the Evaluations Committee.
- 8.2.4. Complaints and appeals may only be addressed one time by the Evaluations Committee and/or Board of Directors.

9. Field Oral Evaluation

9.1. General

- 9.1.1. The field oral evaluation is the first of two parts of the field evaluation.
- 9.1.2. The field oral evaluation tests a candidate's knowledge of equipment used in a rope access system.
 - 9.1.2.1. This knowledge can be general and non-item specific, but a candidate is expected to speak directly about equipment with which they are familiar.
- 9.1.3. Any **discrepancy** issued during the oral portion of the field evaluation carries over into the practical portion of the field evaluation.
- 9.1.4. The Evaluator shall not teach candidates.
- 9.1.5. The Evaluator shall not prompt a candidate during this portion of the evaluation session, but may ask questions for clarification of statements made by a candidate.

9.2. Equipment Use and Inspection

- 9.2.1. A candidate shall be asked to provide the following about one piece of rope access equipment:
 - 9.2.1.1. Name of equipment.
 - 9.2.1.2. Functions and features.
 - 9.2.1.3. Appropriate and prohibited handling and use.
 - 9.2.1.4. Inspection for function, wear and suspected damage.
- 9.2.2. Candidate may be provided up to five minutes to prepare notes for presenting this information.
 - 9.2.2.1. This time is for the candidates to gather their thoughts, not to consult any materials.
- 9.2.3. Criteria for each potential type of equipment to be evaluated are presented in [Appendix 1](#).
 - 9.2.3.1. These criteria are not item-specific.
 - 9.2.3.1.1. A candidate is expected to address these criteria for the piece of equipment that they will be using for the evaluation.
 - 9.2.3.2. To pass this portion of the evaluation, the following percentage of criteria must be mentioned:
 - 9.2.3.2.1. A **Level I Technician** candidate shall list at least fifty percent (≥50%) of line items in [Appendix 1](#) for a piece of equipment.
 - 9.2.3.2.2. A **Level II Technician** candidate shall list at least sixty-five percent (≥65%) of line items in in [Appendix 1](#) for a piece of equipment.
 - 9.2.3.2.3. A **Level III Technician** candidate shall list at least eighty percent (80%) of line items in in [Appendix 1](#) for a piece of equipment.
- 9.2.4. A **discrepancy** will be issued if a candidate fails to mention the required percentage of criteria for a piece of equipment.

10. Field Practical Evaluation

10.1. The field practical evaluation is the second of two parts of the field evaluation

10.2. The table presented is a re-creation of a portion of the Technician Evaluation Form used as a record of a candidate's performance during an evaluation session.

10.2.1. Hyperlinks are provided to assist in navigating to relevant portions presented later in this document.

10.2.2. Numbers used to navigate to individual requirements correspond to the requirements in *Certification Requirements for Rope Access Work*.

Technician Evaluation Form		L1	L2	L3
Rope Access Program	Roles and Responsibilities	7.1	8.3	9.3
	Equipment Use and Inspection	7.2	8.4	9.5
	Job Safety	7.3	8.5	9.6
	Management and Communication			9.4
	Team Scenario			9.8
Individual Maneuvers	Use of Backup Devices	7.5		
	Use of Descenders	7.6		
	Use of Ascenders	7.7		
	Change-overs	7.8		
	Passing Knots	7.9		
	Rope-to-Rope Transfer	7.10		
	Deviation	7.11		
	Re-anchor (>2 m)	7.12		
	Negotiate Edge	7.13		
	Rope and Sling Protection	7.14		
	Horizontal Aid Climbing	7.16		
Vertical Aid Climbing		8.10		
Rescue	Level 1 Rescue Scenario	7.17		
	Pick-off Rescue of Casualty Through Knots		8.11	
	Pick-off Rescue of Casualty through Deviation or Re-anchor			9.9.1
	Pick-off Rescue of Casualty from mid Re-anchor or Rope-to-Rope			9.9.2
	Rescue from Horizontal Aid Climbing		8.12	
Rigging	Knots: <input type="checkbox"/> end <input type="checkbox"/> join <input type="checkbox"/> mid <input type="checkbox"/> stop	7.4		
	Hitches: <input type="checkbox"/> prusik <input type="checkbox"/> tied-off münter hitch		8.7	
	Rigging and System Dynamics		8.6	
	Anchorage Systems	7.15	8.8	
	Hauling and Lowering System	7.18		
	Rope Access System Pre-rigged to Lower		8.13	
	Retrievable Rope Systems		8.9	
	Pitch Head Break in and Lower		8.14	
	Cross-haul		8.15	
	Hauling and Lowering Through Knots			9.10
	Tensioned Rope Systems			9.11

10.2. The table is divided into four categories:

- 10.2.1. Rope access program
- 10.2.2. Individual maneuvers
- 10.2.3. Rescue
- 10.2.4. Rigging

10.3. Experience requirements for upper level candidates in [CR 8.1](#) and [CR 9.1](#) are verified prior to beginning the evaluation session.

10.4. Skill proficiency of requirements, including [CR 8.2](#) and [CR 9.2](#), are addressed in the following manner:

- 10.4.1. All level I candidates shall complete all white boxes in the L1 column.
- 10.4.2. All level II candidates shall complete all white boxes in the L2 column.
- 10.4.3. Currently certified candidates testing at Level III shall complete all white boxes and at least 50% of the gray highlighted requirements in each category of the L3 column.
 - 10.4.3.1. Conversion and candidates with expired certifications testing at Level III shall complete all gray and white boxes in the L3 column
- 10.4.4. Direct Entry, Conversion, and expired upper level candidates shall also complete the [Level 1 Rescue Scenario](#).
 - 10.4.4.1. For these candidates, this requirement may be combined within another upper level rescue on the same *two-rope system*, or may be completed as a separate exercise.

10.5. The following sections, linked from the above table, present more information for requirements at each level in this manner:

Requirement:	
Requirement as stated in <i>Certification Requirements for Rope Access Work</i>	
Sub-Requirements:	
Sub-requirements as stated in <i>Certification Requirements for Rope Access Work</i>	
Interpretation and Training Considerations:	
Interpretation by the Evaluations Committee of requirement and individual sub-requirements as necessary. When appropriate, additional considerations for preparing a candidate for an evaluation and for rope access work are presented.	
Site Requirements:	
Specific requirements for an Evaluation Session Host to provide for an evaluation session. Schematics are provided when possible.	
Evaluation Instructions:	
Examples of how each requirement and/or sub-requirement may be tested.	
Evaluation Criteria:	
Pass	A non-exhaustive list of examples of pass, <i>discrepancy</i> , and <i>fail</i> that are common for a specific requirement. Examples are derived directly from <i>Certification Requirements for Rope Access Work</i> and the Field Evaluation Rubric . Please note there may be aggravating or mitigating circumstances during an that cause an Evaluator to deviate from this guidance.
Discrepancy:	
Fail:	
*Please note that not all sections are provided for each requirement.	

11. Level I Technician Requirements:

*Section 7 of *SPRAT Certification Requirements for Rope Access Work*

Requirement:
7.1. Roles and Responsibilities
Sub-Requirements:
7.1.1. Candidate shall be able to demonstrate an understanding of the responsibilities of a <i>Level I Technician</i> and how these fit into the overall responsibilities of a rope access program.
Interpretation and Training Considerations:
The <i>Level I Technician</i> requirements of <i>Certification Requirements for Rope Access Work</i> correlate to the responsibilities of a <i>rope access technician</i> in Section 5 of <i>Safe Practices for Rope Access Work</i> . This requirement is evaluated through the <i>Level I Technician written test</i> and through a candidate's performance during both portions of the field practical evaluation.
Site Requirements:
N/A
Evaluation Instructions:
Candidates are expected to participate in group exercises with the knowledge and skill required at their desired level of certification.

Requirement:
7.2. Equipment Use and Inspection
Sub-Requirements:
7.2.1. Candidate shall be able to demonstrate understanding of the use, inspection, and care of all equipment required for the technical skills of a <i>Level I Technician</i> .
7.2.2. Candidate shall understand the requirements of an <i>employer's</i> equipment management program as required by <i>Safe Practices for Rope Access Work</i> .
Interpretation and Training Considerations:
This requirement is largely evaluated through the <i>field oral</i> portion of the evaluation. Use of equipment by candidates is observed throughout the evaluation session. Candidates should be familiar with manufacturer specifications of equipment they will use to complete the skills required at this level. Emphasis should be placed on equipment compatibility, appropriate and prohibited use, as well as inspection requirements. Candidates should be familiar with equipment management requirements as stated in Section 13 of <i>Safe Practices for Rope Access Work</i> .
Site Requirements:
See <i>Site and Equipment Requirements</i> and <i>Appendix 1</i> .
Evaluation Instructions:
See <i>field oral evaluation</i> and <i>Appendix 1</i> .
Evaluation Criteria:
Discrepancy: • Failure to meet <i>field oral</i> evaluation criteria

Requirement:	
7.3. Job Safety	
Sub-Requirements:	
7.3.1 Candidate shall demonstrate an understanding of the rope access program safety requirements as stated in <i>Safe Practices for Rope Access Work</i> .	
7.3.2. Evaluation site safety policies shall be followed.	
Interpretation and Training Considerations:	
This requirement is evaluated by the <i>Level I Technician written test</i> , a candidate’s adherence to the Evaluation Session Host’s <i>access work plan</i> , and the candidate’s performance throughout the evaluation	
7.3.1. This requirement is largely evaluated by the <i>Level I Technician written test</i> . Candidates should be familiar with job safety requirements as stated in Section 9 of <i>Safe Practices for Rope Access Work</i> .	
7.3.2. This requirement is evaluated by a candidate’s adherence to the Evaluation Session Host’s <i>access work plan</i> , and the candidate’s performance throughout the evaluation session.	
Section 9 of <i>Safe Practices for Rope Access Work</i> provides a list of the minimum requirements for an <i>access work plan</i> . Section 9.9 of <i>Safe Practices for Rope Access Work</i> describes minimum requirements of a job safety analysis.	
Appendix 2 provides a non-exhaustive list of additional factors that may be included in an access work plan.	
Appendix 3 provides a non-exhaustive list of hazards, associated risk(s), and potential control measures common with rope access.	
Examples of <i>discrepancy</i> and <i>fail</i> provided here are for the field practical portion of the evaluation session.	
Site Requirements:	
An <i>access work plan</i> , including a <i>job safety analysis</i> , in accordance with <i>Safe Practices for Rope Access Work</i> .	
Evaluation Instructions:	
Candidates may be asked to participate in team scenarios under the direction of upper level candidates, if present.	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • CR 2.3.3.1. Unlocked <i>carabiner</i> in safety system • CR 2.3.3.2. Helmet chinstrap unfastened while in <i>fall zone</i> • CR 2.3.3.5. Dropped equipment
Fail:	<ul style="list-style-type: none"> • CR 2.3.2.1. Relying on one <i>rope system</i> when that system is the primary means of support • CR 2.3.2.3. Not capable of performing a required task • CR 2.3.2.10. No helmet while working at height

Requirement:	
7.4. Knots	
Sub-Requirements:	
7.4.1. Candidate shall demonstrate the tying of the following knots and have an awareness of their applications, strengths, and limitations:	
7.4.1.1. End or termination knot (e.g. Figure 8 on a bight, Figure 9 on a bight, Bowline)	
7.4.1.2. Knot to join two ropes (e.g. Double Fisherman’s Bend, Flemish Bend)	
7.4.1.3. Middle knot (e.g. Alpine Butterfly)	
7.4.1.4. Stopper knot to prevent descending off end of ropes (e.g. barrel knot)	
Interpretation and Training Considerations:	
7.4.1. Candidates may choose which knot they use within each category. Knots should be identifiable, dressed, and suitable for the applications where they are used. Candidates should be aware of the hazards associated with inappropriate gain or tails of knots. A general rule of thumb for strength reduction when tying a knot is sufficient (~30-50%).	
7.4.1.2. Rope of similar diameter should be used when joining ropes together.	
7.4.1.3. The middle knot should be tied in a way so that it cannot capsize.	
7.4.1.4. A barrel knot is equivalent to a double overhand or strangle knot.	
Site Requirements:	
Short rope lengths of ~10 m (~33 ft)	
Evaluation Instructions:	
Candidates may demonstrate these knots as a separate exercise, or the knots may be observed while completing other requirements throughout the evaluation session, such as Passing Knots or Rigging <i>Anchorage Systems</i> .	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • Small tail <5 cm (2 in) on end or stop knot • Excessive tail >30 cm (12 in) on end knot and not addressed to prevent misuse • Small gain <2.5 cm (1 in) on middle knot (ability to capsize) • Knot undressed • No stopper knots- rope ends do not touch ground, tails $0 < x \leq 1$ m (3.2 ft) above grade
Fail:	<ul style="list-style-type: none"> • Inability to tie knot • No stopper knots- rope ends do not touch ground, tails > 1 m (3.2 ft) above grade

Requirement:	
7.5. Use of Backup Devices	
Sub-Requirements:	
7.5.1. Candidate shall demonstrate the use of a backup device in accordance with manufacturer specifications.	
7.5.2. Candidate should pay attention to:	
7.5.2.1. Positioning the device to minimize free fall potential.	
7.5.2.2. Connecting to the device with a compatible lanyard type and length.	
7.5.2.3. Pairing the device to a compatible rope type and diameter.	
7.5.2.4. Not defeating the device through inappropriate handling.	
Interpretation and Training Considerations:	
Candidates are expected to maintain an effective <i>backup system</i> with <i>limited free fall potential</i> during the entire evaluation session. Some maneuvers may require multiple <i>backup systems</i> .	
Candidate should be aware of the stopping mechanism, the compatible connecting equipment requirements, and the clearance requirements of their backup device(s). See Appendix 1 for more information. Appropriate usage of backup devices is determined by the manufacturer.	
If supporting 100% of the candidate’s weight, the candidate’s hands and feet are considered a point of contact in the evaluation session. For example, a candidate may climb a structure or sit at an edge using only a <i>backup system</i> .	
Site Requirements:	
Two backup devices with compatible connecting equipment for each candidate. One backup device per candidate should be suitable for performing pick-off rescues.	
Evaluation Instructions:	
Beyond the criteria stipulated in the sub-requirements, usage of backup devices will be observed throughout the evaluation.	
Evaluation Criteria:	
Discrepancy:	• Low backup device
Fail:	• CR 2.3.2.2. Ineffectively used backup device (e.g. excessive slack above backup device; upside down backup device)

Requirement:	
7.6. Use of <i>Descenders</i>	
Sub-Requirements:	
7.6.1. Candidate shall demonstrate the use of a <i>descender</i> in accordance with manufacturer’s specifications.	
7.6.2. Candidate shall demonstrate:	
7.6.2.1. Descending in a controlled manner.	
7.6.2.2. Stopping, and locking or tying off the <i>descender</i> as appropriate.	
7.6.2.3. Ascending at least 2 m (6.6 ft).	
7.6.3. Candidate should pay attention to:	
7.6.3.1. Locking or tying off the <i>descender</i> when candidate is stopped and not in control of the slack end of the rope.	
7.6.3.2. Not operating or triggering a <i>descender</i> without appropriate control of the slack end of the rope.	
Interpretation and Training Considerations:	
Candidates should be aware of the stopping mechanism and other features of their <i>descender</i> . See Appendix 1 for more information. Appropriate usage of <i>descenders</i> is determined by the manufacturer.	
Site Requirements:	
One <i>descender</i> for each candidate.	
Evaluation Instructions:	
Beyond the criteria stipulated in the sub-requirements, usage of <i>descenders</i> will be observed throughout the evaluation.	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • Stationary - removing brake hand w/o lock or tie-off (as required by manufacturer) • Excessive slack > 0.6 m (2 ft) created above descender (i.e., standing on structure)
Fail:	<ul style="list-style-type: none"> • CR 2.3.2.5. Uncontrolled or dangerous descent or swing • CR 2.3.2.6. <i>Descender</i> threaded incorrectly and used in that manner

Requirement:	
7.7. Use of Ascenders	
Sub-Requirements:	
<p>7.7.1. Candidate shall demonstrate the use of <i>ascenders</i> in accordance with manufacturer’s specifications.</p> <p>7.7.2. Candidate shall demonstrate:</p> <p>7.7.2.1. Ascending 10 m (32.8 ft).</p> <p>7.7.2.2. Down-climbing 2 m (6.6 ft)</p> <p>7.7.3. Candidate should pay attention to:</p> <p>7.7.3.1. Attaching the <i>ascenders</i> to the harness to increase safety and prevent equipment from being inadvertently dropped.</p> <p>7.7.3.2. Using <i>ascenders</i> in such a way to eliminate a dynamic fall onto an <i>ascender</i>.</p> <p>7.7.3.2.1. A single <i>ascender</i> connection to the <i>main rope</i> is acceptable as long as the free fall potential is limited to less than 30 cm (0.9 ft) or eliminated entirely.</p>	
Interpretation and Training Consideration:	
<p>Candidates should be aware of the features of their <i>ascenders</i>. See Appendix 1 for more information.</p> <p>7.7.3.2. Static loading of a single <i>ascender</i> is permissible. Movement <i>on-rope</i> with a single <i>ascender</i> or with a second <i>ascender</i> not attached to a candidate will be evaluated based on manufacturer’s specifications.</p> <p>7.7.3.2.1. Determination of <i>discrepancy</i> or <i>fail</i> will be made based on the free fall potential, the consequence of that fall and the location of the backup device during the incident.</p>	
Site Requirements:	
One chest <i>ascender</i> and one hand <i>ascender</i> with lanyard and foot loop for each candidate.	
Evaluation Instructions:	
Beyond the criteria stipulated in the sub-requirements, usage of <i>ascenders</i> by candidates will be observed throughout the evaluation session.	
Evaluation Criteria:	
Pass:	<ul style="list-style-type: none"> • Potential fall onto toothed <i>ascender</i> < 30 cm (0.9 ft)
Discrepancy:	<ul style="list-style-type: none"> • Handling where device could be accidentally removed from rope • Potential fall onto toothed <i>ascender</i> 30 cm (0.9 ft) ≤ x ≤ 60 cm (1.9 ft) • Side-loading over an edge
Fail:	<ul style="list-style-type: none"> • <i>Ascender</i> used intentionally as backup device • Potential fall onto toothed <i>ascender</i> > 60 cm (1.9 ft)

Requirement:	
7.8. Change-overs	
Sub-Requirements:	
7.8.1. Candidate shall demonstrate switching from <i>ascent mode</i> to <i>descent mode</i> and from <i>descent mode</i> to <i>ascent mode</i> .	
7.8.2. Candidate should pay attention to careful handling of equipment and loading of <i>carabiners</i> during the maneuver.	
Interpretation and Training Considerations:	
Change-overs are observed through a number of individual maneuvers in the evaluation.	
The <i>descender</i> should be below the chest <i>ascender</i> with minimal rope between the equipment when in the middle of this maneuver.	
Candidates may back-feed their <i>descender</i> when switching from ascent to descent to minimize elevation loss during the maneuver.	
Site Requirements:	
None	
Evaluation Instructions:	
Candidates will be observed performing change-overs throughout the evaluation session.	
Evaluation Criteria:	
Discrepancy:	• Chest <i>ascender</i> loaded and taut below <i>descender</i>
Fail:	• Removing chest <i>ascender</i> prior to rigging <i>descender</i> (depends on free fall potential – see examples for CR 7.7).

Requirement:	
7.9. Passing Knots	
Sub-Requirements:	
7.9.1. Candidate shall demonstrate ascending and descending past knots tied in both <i>backup</i> and <i>main ropes</i> .	
7.9.2. Knots to be passed shall not be used as an attachment point.	
Interpretation and Training Considerations:	
7.9.2. For the purposes of evaluation, if a middle knot is used during this exercise, the knot represents isolation of a damaged section of rope.	
Knot passing may be approached as an exercise combining change-overs with appropriate use of down-climbing with <i>ascenders</i> , and potentially ascending with a <i>descender</i> .	
If completed in accordance with CR 7.7.3.2.1. , candidates may ascend past knots while only being attached to a single <i>ascender</i> . However, this technique is often precluded by the length of connection between the harness and the <i>ascender</i> . A backup device or <i>descender</i> may be used to protect against potential dynamic loading of an <i>ascender</i> . If a descender is used, minimum slack should exist above the <i>descender</i> to prevent potential dynamic loading of the harness at the ventral connection.	
Site Requirements:	
The knot tied may join two ropes together or be tied to simulate isolation of damaged rope sections. Knots should be placed on both the <i>main</i> and <i>backup ropes</i> at a similar height, a minimum of 2 m (6.6 ft) above grade.	
Evaluation Instructions:	
Candidates will be asked to ascend and descend past knots. If no dedicated <i>two-rope system</i> exists for passing knots, candidates may be asked to ascend, tie knots on both the <i>main</i> and <i>backup ropes</i> 2 m (6.6 ft) below them, descend past the knots, change-over, and ascend past the knots. The Evaluator should specify that these knots represent isolated damage on the rope.	
Evaluation Criteria:	
Pass:	<ul style="list-style-type: none"> Ascent past knot with no <i>descender</i> or backup device attached to <i>main rope</i> - free fall potential < 30 cm (0.9 ft)
Discrepancy:	<ul style="list-style-type: none"> Ascent past knot with no <i>descender</i> or backup device attached to <i>main rope</i> - free fall potential $30\text{ cm (0.9 ft)} \leq x \leq 60\text{ cm (1.9 ft)}$
Fail:	<ul style="list-style-type: none"> Use of knot that is simulating damaged rope in scenario as connection point Ascent past knot with no <i>descender</i> or backup device attached to <i>main rope</i> - free fall potential > 60 cm (1.9 ft)

Requirement:	
7.10. Rope-to-rope Transfer	
Sub-Requirements:	
7.10.1. Candidate shall demonstrate transferring from one <i>two-rope system</i> to another separated by more than 2 m (6.6 ft).	
7.10.2. Connection to 4 ropes is expected to control the swing potential if one rope were to fail during the maneuver.	
7.10.3. Two backup devices may be used; alternatively, candidate may use an appropriate knot as a backup.	
Interpretation and Training Considerations:	
7.10.2. An effective <i>backup system</i> is expected to be established on both the initial and destination <i>two-rope systems</i> to eliminate swing potential throughout the transfer.	
7.10.3. A middle knot may be used to establish a <i>backup system</i> if rope or lanyard tangles are present while a candidate completes the exercise.	
Rope-to-rope transfers may be utilized to facilitate lateral movement, increase access efficiency, and position a <i>rope access technician</i> .	
Candidates should be aware that transferring between <i>two-rope systems</i> separated by more than 1 m (3.3 ft) is more efficient when moving from <i>descent mode</i> to <i>ascent mode</i> .	
If <i>rope access technicians</i> will conduct work within a rope-to-rope transfer, <i>descenders</i> should be utilized within both <i>main systems</i> . Pre-rigging both <i>two-rope systems</i> to lower should be considered to facilitate <i>rescue</i> .	
Site Requirements:	
Rope-to-rope transfer must be capable of generating more than a 30-degree angle from the <i>fall line</i> of each of the <i>anchorage systems</i> when at the midpoint of the maneuver. The required interior angle to complete a rope-to-rope transfer should not exceed 120 degrees.	
Evaluation Instructions:	
Candidates will be asked to perform a rope-to-rope transfer. Candidate will not be asked to return to the initial <i>two-rope system</i> after completing the maneuver. Evaluators should specify that forgotten or dropped transfer rope(s) will result in a <i>discrepancy</i> .	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • Forgetting to attach transfer ropes prior to beginning maneuver • Rope-to-rope transfer done while ascending on <i>descenders</i> and descending on <i>ascenders</i> (inefficiently).
Fail:	<ul style="list-style-type: none"> • No backup connection to far <i>anchorage systems</i>, off <i>fall line</i> from near <i>anchorage systems</i> set $>20^\circ$

Requirement:

7.11. Deviation

Sub-Requirements:

- 7.11.1. Candidate shall demonstrate ascending and descending past a *directional anchorage system* that deviates the *fall line* of a *two-rope system* by no more than 20 degrees.
- 7.11.2. A single *directional anchorage system* is acceptable if there is no safety consequence of its failure.
- 7.11.3. The *directional anchorage system* shall not be relied upon as a primary point of connection.
- 7.11.4. Provision for returning to the *directional anchorage system* from above and facilitating a rescue or repeated use from below should be considered.

Interpretation and Training Considerations:

- 7.11.2. A deviation of 20 degrees (160 degree interior angle) places approximately 35% of the load on the *directional anchorage system*.
 - 7.11.3. While a connection may be made to the *directional anchorage system*, this connection is not considered a replacement of either the *main* or *backup systems* in the evaluation.
 - 7.11.4. Knots placed on the ropes below the *directional anchorage system* should be, at a minimum, a distance equal to the *directional anchorage system's* horizontal adjustment of the *fall line*.
- Candidate should remain in either *ascent mode* or *descent mode* while passing the *directional anchorage system*. No change-overs, removing or replacement of equipment from the *main* or *backup system* should occur at the *directional anchorage system*.
- A *deviation* may be utilized to avoid hazards, increase access efficiency, and position a *rope access technician*. When used to avoid hazards, a second *directional anchorage system* should be considered.

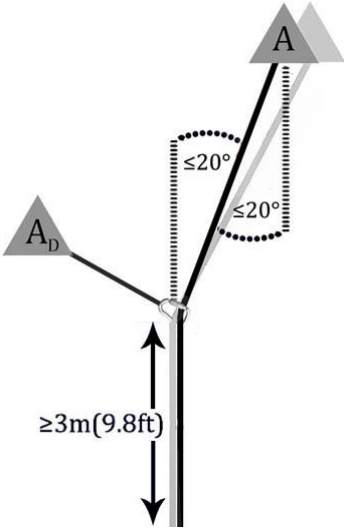
Site Requirements:

Deviation should be as close to 20 degrees as possible.

When permitting, a minimum of 0.5 m (1.7 ft) of distance should be rigged between the *anchorage* and the *anchorage connector(s)* that the *main* and *backup system* pass through

The height of the *directional anchorage system* should be sufficient so it cannot be reached from the ground (≥ 3 m).

The top *anchorage systems* should be separated from the *directional anchorage system* by another similar distance to provide clearance for candidates to continue ascending before performing a change-over.



The diagram illustrates a vertical rope system. A main vertical rope is shown with a directional anchorage system (A) attached. A deviation of $\leq 20^\circ$ is shown between the vertical rope and the anchorage system. A second anchorage system (A_D) is shown to the left. A height of $\geq 3\text{m}$ (9.8ft) is indicated for the anchorage system.

Evaluation Instructions:

Candidate will be asked to both ascend and descend past a *directional anchorage system*.

Evaluation Criteria:

Discrepancy:	<ul style="list-style-type: none"> • Unlocked <i>anchorage connector</i> on <i>directional anchorage system</i> – candidate above or below • Uncontrolled lower away from <i>directional anchorage system</i> on ascent • No knot below <i>directional anchorage system</i> to facilitate return through deviation
Fail:	<ul style="list-style-type: none"> • <i>Directional anchorage system</i> used as replacement of either the <i>main</i> or <i>backup systems</i>

Requirement:	
7.12. Re-Anchor	
Sub-Requirements:	
7.12.1. Candidate shall demonstrate ascending and descending past intermediate <i>fixed anchorage systems</i> that adjust the <i>fall line</i> of a <i>two-rope system</i> by more than 2 m (6.6 ft).	
7.12.2. The candidate should use four-point technique similar to that used in a rope-to-rope transfer and shall not pull the rope from below the <i>anchorages</i> across the area during the maneuver.	
Interpretation and Training Considerations:	
7.12.2. Ropes reaching grade in this maneuver should remain vertical as they may be needed to facilitate rescue or there may be a hazard below the horizontal span of the re-anchor.	
As compared to a deviation, connections to <i>anchorage systems</i> , if they are accessible, may replace a <i>main</i> or <i>backup system</i> .	
Candidates should be aware of how to negotiate and return back through a <i>re-anchor</i> , while avoiding its lowest point.	
<i>Re-anchors</i> may be utilized to avoid hazards, increase equipment or access efficiency, position a <i>rope access technician</i> , and mitigate rope weight and elongation.	
If <i>rope access technicians</i> will conduct work within a <i>re-anchor</i> , similar rigging and work practices as those specified for <i>rope-to-rope transfers</i> should be considered. While a <i>re-anchor</i> with a minimum horizontal span of 2 m (6.6 ft) is required for the evaluation, a <i>re-anchor</i> should have a minimum of 1 m (3.3 ft) of sag for shorter horizontal spans.	
Site Requirements:	
<p>A <i>re-anchor</i> should be rigged with a sag minimum equal to half the horizontal span of the <i>re-anchor</i>, to ensure the capability of generating an angle 45 degrees or shallower from the <i>fall line</i> of each of the <i>anchorages</i> when at the midpoint of the maneuver.</p> <p>The required interior angle to complete a rope-to-rope transfer should not exceed 120 degrees. The bottom of these ropes should be ≥ 2 m (6.6 ft) above grade.</p> <p>Ropes reaching grade may be present on both or only one side of the <i>re-anchor</i>.</p>	
Evaluation Instructions:	
Candidates will be asked to negotiate a <i>re-anchor</i> . In the schematic, a candidate could be asked to ascend climbing ropes and transfer across to the far side of the re-anchor and return, or descend along the dashed lines, if present at the evaluation site.	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • Ground ropes brought across towards destination <i>two-rope system</i> during transfer. • Loading of <i>ascender</i> in lowest point of <i>re-anchor</i> • Chest <i>ascender</i> only (w/backup) on destination set, off plumb from near <i>anchorage systems</i> $>20^\circ$
Fail:	<ul style="list-style-type: none"> • <i>Main</i> and <i>backup ropes</i> derive from same <i>anchorage system</i> • No <i>backup system</i> to far <i>anchorage systems</i>, off plumb from near anchor set $>20^\circ$

Requirement:	
7.13. Negotiate Edge	
Sub-Requirements:	
<p>7.13.1. Candidate shall demonstrate negotiating an edge obstruction in <i>ascent mode</i> and <i>descent mode</i>.</p> <p>7.13.2. This task should simulate field conditions experienced when negotiating the edge of a roof, cliff face, or parapet wall.</p> <p>7.13.3. Ideally, the <i>anchorages</i> should be at least 2 m (6.6 ft) from an unprotected edge and be located on the horizontal surface or within 2 m (6.6 ft) above the horizontal surface.</p> <p>7.13.4. If the edge is protected by a railing, the candidate may need to climb under or through the railing to demonstrate the edge negotiation.</p> <p>7.13.5. Edge protection, controlled movement, and avoidance of dynamic loads shall be demonstrated.</p>	
Interpretation and Training Considerations:	
7.13.3. Edge negotiations should allow the <i>rope access technician</i> to safely move on/off of the <i>rope access system</i> , whether by moving out of the <i>fall zone</i> , or safely attaching to another suitable fall protection system that meets the requirements of the <i>presiding regulatory authority</i> .	
Site Requirements:	
A 90-degree edge should be available for demonstrating the maneuver. Regardless of Evaluation Session Host measures to mitigate an edge, all edges in the evaluation setting will be required to have rope and/or edge protection.	
Evaluation Instructions:	
Candidate will be asked to ascend and descend past an edge.	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • Uncontrolled transition (slip) over edge • Side-loading of device(s) on edge • Backup device lanyard exposed to edge, not protected during transition.

Requirement:	
7.14. Rope and Sling Protection	
Sub-Requirements:	
7.14.1. Candidate shall demonstrate use of rope and sling protection as required by the evaluation session site .	
7.14.2. Candidate shall pass a rope protector installed on both the <i>main</i> and <i>backup ropes</i> .	
Interpretation and Training Considerations:	
7.14.1. Type of rope protection is not specified, but must be suitable to the Evaluation Session Host site.	
7.14.2. <i>Main</i> and <i>backup ropes</i> may be protected individually or together.	
Candidates should be aware of how to identify the need for rope protection, how to limit lateral movement of rope protection on sharp or abrasive surfaces, and when rope protection may not be a suitable means to protect against hazards.	
Site Requirements:	
Additional rope protection beyond what is used for rigging the Evaluation Session Host site is required for demonstrating this skill.	
Evaluation Instructions:	
This requirement is usually done on the edge negotiation, but can be set up elsewhere.	
Use of appropriate rope, sling or edge protection will be observed throughout the evaluation.	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • Rope not appropriately seated within protection • Rope protection left unfastened or unclosed
Fail:	<ul style="list-style-type: none"> • Rope protection ineffective and not addressed

Requirement:	
7.15. Rigging <i>Anchorage Systems</i>	
Sub-Requirements:	
7.15.1. Simple Structural <i>Anchorage System</i>	
7.15.1.1. Candidate shall demonstrate establishing an <i>anchorage system</i> using a structural member (e.g. steel beam).	
7.15.1.2. Appropriate use of hardware, choice of sling material, and appropriate sling protection shall be considered.	
7.15.2. Load Sharing <i>Anchorage System</i>	
7.15.2.1 Candidate shall demonstrate establishing a load sharing <i>anchorage system</i> with two <i>anchorages</i> or <i>anchorage connectors</i> less than 1 m (3.2 ft) apart horizontally (e.g. bolt anchors in concrete or rock).	
7.15.2.2 Considerations for establishing a load-sharing <i>anchorage system</i> should include:	
7.15.2.1 Failure consequences	
7.15.2.2 <i>Anchorage</i> location	
7.15.2.3 Bridle angle	
7.15.2.4 <i>Anchorage connector</i> loading	
7.15.2.5 Sling choice	
7.15.2.6 Edge protection	
Interpretation and Training Requirements:	
Candidate should understand reasons for establishing a load sharing <i>anchorage system</i> , such as achieving a desired <i>anchorage system</i> strength or a more desirable <i>fall line</i> .	
Candidates are expected to demonstrate an understanding of the sub-requirements of <i>CR 7.15.2.2</i> . when constructing load sharing <i>anchorage systems</i> . Table 1 in Appendix 4 presents loads applied to <i>anchorage systems</i> where the forces are distributed equally based on the interior (bridle) angle.	
Site Requirements:	
Four slings or other rigging materials, six <i>carabiners</i> or other suitable hardware, and two ropes per four candidates.	
Evaluation Instructions:	
This requirement may be fulfilled as a separate exercise or may be combined with others, such as CR 7.18 .	
The Evaluator should specify if one <i>anchorage system</i> per sub-requirement is sufficient to demonstrate this skill or if a full <i>two-rope system</i> is expected. For example, a candidate may be asked to create a <i>two-rope system</i> utilizing one simple structural <i>anchorage system</i> and one load sharing <i>anchorage system</i> .	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • Not load distributing in direction of pull
Fail:	<ul style="list-style-type: none"> • Single anchorage failure would cause anchorage system failure.

Requirement:	
7.16. Horizontal Aid Climbing	
Sub-Requirements:	
7.16.1. Candidate shall demonstrate horizontal <i>aid climbing</i> while maintaining connections to two independent <i>anchorage systems</i> .	
7.16.2. The candidate shall demonstrate horizontal movement using either <i>fixed</i> or movable <i>anchorage systems</i> .	
Interpretation and Training Considerations:	
Candidates should transition between <i>anchorage systems</i> while maintaining <i>limited free fall potential</i> . If <i>rope access technicians</i> will conduct work with <i>aid climbing</i> , equipment selection considerations should include ease of rescue.	
Site Requirements:	
Horizontal span must be at least 3 m (9.8 ft). <i>Fixed anchorage system</i> spacing should be between 30 cm (1 ft) and 1 m (3.2 ft). If movable <i>anchorage systems</i> are utilized, three should be available for passing obstructions.	
Evaluation Instructions:	
Candidate may be asked to transition to and from <i>aid climbing</i> via a <i>rope access system</i> or via structural climbing with an effective <i>backup system</i> .	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • Fall from foot loops onto lanyard • Excessive free fall potential
Fail:	<ul style="list-style-type: none"> • Connection(s) to only one <i>anchorage system</i>

Requirement:	
7.17. Level I Technician Rescue Scenario	
Sub-Requirements:	
<p>7.17.1. Candidate will be asked to perform a pick-off rescue of a casualty that is in <i>ascent mode</i>.</p> <p>7.17.2. Candidate shall approach casualty on an adjacent set of ropes.</p> <p>7.17.3. Candidate shall perform a change-over of the casualty from <i>ascent mode</i> to <i>descent mode</i>.</p> <p>7.17.4. Candidate shall then perform a rescue from descent.</p>	
Interpretation and Training Considerations:	
<p>7.13.3. Candidates should be as close to a casualty as is practical to facilitate the change-over of the casualty. Typically, the <i>main</i> and <i>backup systems</i> remain on the same <i>rope systems</i> during the change-over of the casualty. Alternatively, the <i>main</i> and <i>backup ropes</i> may be swapped during this change-over; however, this approach may not be appropriate for a long rope rescue and may unintentionally incorporate inappropriate equipment within the casualty's <i>backup system</i>.</p> <p>7.13.4. Either the candidate's or the casualty's equipment connected to the <i>main</i> and <i>backup systems</i> may be used to descend to grade.</p> <p>Demonstration of this requirement utilizes components that may be applied in the following rescues:</p> <ul style="list-style-type: none"> • Rescue from ascent. • Rescue from descent. • Rescue from a failed <i>main system</i>. • Rescue from long ropes. <p>The components of this requirement also introduce the concept of the ability to move another <i>rope access technician</i> using their equipment in a manner similar to individual maneuvers, which may be applied to more complicated rescues.</p>	
Site Requirements:	
<p>One set of adjacent <i>two-rope systems</i>, separated by no more than 1 m (3.2 ft).</p> <p>A minimum of three sets is recommended.</p>	
Evaluation Instructions:	
<p>Candidate may approach casualty from above or below. For example, if the site permits, a candidate could be asked to establish a <i>two-rope system</i> adjacent to the casualty in accordance with CR 7.15., negotiate an edge in accordance with CR 7.13., and then perform this rescue.</p>	
Evaluation Criteria:	
Pass:	<ul style="list-style-type: none"> • No "escape" carabiner used
Discrepancy:	<ul style="list-style-type: none"> • Extra friction carabiner not attached to sufficiently rated component of harness • Brake hand between descender and extra friction carabiner (extra friction carabiner not utilized)
Fail:	<ul style="list-style-type: none"> • Backup device insufficient for 2-person load

Requirement:	
7.18. Rigging and Operating a Hauling and Lowering System	
Sub-Requirements:	
<p>7.18.1. While working from a platform or ground level, a lone candidate shall demonstrate raising and lowering a load while using an appropriate <i>descender</i> attached to an <i>anchorage system</i>.</p> <p>7.18.2. Candidate may be asked to stop and lock-off the <i>descender</i>. A <i>fixed backup system</i> shall be utilized and managed by the candidate .</p> <p>7.18.3. Candidate may begin with raising or lowering the load, and shall not be required to negotiate an edge with the load.</p> <p>7.18.4. A mechanical advantage system shall be used when raising the load.</p>	
Interpretation and Training Considerations:	
<p>7.18.1. Candidate shall be asked to rig the system. Typically, a <i>descender</i>, used in conjunction with a backup device, is used for both the hauling and lowering applications. Dual <i>main systems</i> may be utilized as appropriate.</p> <p>7.18.2. Device refers to equipment incorporated in the <i>main system</i>. The use of a lanyard or other compatible extension between the backup device and the <i>anchorage system</i> is recommended to facilitate simultaneous management of the <i>main</i> and <i>fixed backup systems</i>.</p> <p>7.18.4. Typically, the mechanical advantage system is built integrally with the <i>main rope</i>. Candidates should know the theoretical mechanical advantage of the system that is utilized.</p>	
Site Requirements:	
Sufficient equipment to build a hauling system with a <i>two-rope system</i> . Rope lengths sufficient for the site with consideration of the use of <i>directional anchorage systems</i> .	
Evaluation Instructions:	
Candidates may be asked to establish both the <i>main</i> and <i>fixed backup systems</i> used to complete this requirement. If upper level candidates are present, this requirement may be combined within CR 8.15 . or CR 9.8 .	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • Inability to lock off lowering device • <i>Backup system</i> operated from harness and candidate attached to anchorage system
Fail:	<ul style="list-style-type: none"> • Insufficient amount of rope • <i>Backup system</i> operated from harness and candidate NOT attached to anchorage system

12. Level II Technician Requirements

*Section 8 of Certification Requirements for Rope Access Work

Requirement:
8.1. Candidate shall provide proof of at least 500 hours of work experience as a <i>Level I Technician</i> or equivalent.
Interpretation and Training Considerations:
See Section on expectations for Documenting Experience .

Requirement:
8.2. Candidate may be asked to demonstrate proficiency in the skills and knowledge required of a <i>Level I Technician</i> in addition to those specified below.
Interpretation and Training Considerations:
Candidate is expected to be competent in all the requirements to be a <i>Level I Technician</i> . See Section 10.4 for more information.

Requirement:
8.3. Roles and Responsibilities
Sub-Requirements:
8.3.1. Candidate shall demonstrate an understanding of the responsibilities of a <i>Level II Technician</i> and how these fit into the overall responsibilities of an <i>employer's</i> rope access program.
Interpretation and Training Considerations:
The <i>Level II Technician</i> requirements of <i>Certification Requirements for Rope Access Work</i> correlate to the responsibilities of a <i>rope access technician</i> in Sections 4 and 5 of <i>Safe Practices for Rope Access Work</i> . This requirement is evaluated through the <i>Level II Technician written test</i> and through a candidate's performance during both portions of the field practical evaluation.
Site Requirements:
N/A
Evaluation Instructions:
Unless otherwise specified, candidates are expected to participate in group exercises with the knowledge and skill required at their desired level of certification.

Requirement:	
8.4. Equipment Use and Inspection	
Sub-Requirements:	
<p>8.4.1. Candidate shall be able to demonstrate understanding of the use, inspection, and care of all equipment required for the technical skills of a <i>Level II Technician</i>.</p> <p>8.4.2. The candidate should understand an <i>employer's</i> equipment management program as required by <i>Safe Practices for Rope Access Work</i>.</p>	
Interpretation and Training Considerations:	
<p>This requirement is largely evaluated through the field oral portion of the evaluation.</p> <p>Use of equipment by candidates is observed throughout the evaluation session.</p> <p>Candidates should be familiar with manufacturer specifications of equipment they will use to complete the skills required at this level. Emphasis should be placed on equipment compatibility, appropriate and prohibited use, as well as inspection requirements.</p> <p>Candidates should be familiar with equipment management requirements as stated in Section 13 of <i>Safe Practices for Rope Access Work</i>.</p>	
Site Requirements:	
See Site and Equipment Requirements and Appendix 1 .	
Evaluation Instructions:	
See field oral evaluation and Appendix 1 .	
Evaluation Criteria:	
Discrepancy:	• Failure to meet field oral evaluation criteria

Requirement:	
8.5. Job Safety	
Sub-Requirements:	
8.5.1. Candidate shall demonstrate an understanding of the rope access program safety requirements as stated in <i>Safe Practices for Rope Access Work</i>	
8.5.2. Evaluation site safety policies shall be followed.	
Interpretation and Training Considerations:	
This requirement is evaluated by the <i>Level II Technician written test</i> , a candidate’s adherence to the Evaluation Session Host’s <i>access work plan</i> , and the candidate’s performance throughout the evaluation	
Section 9 of <i>Safe Practices for Rope Access Work</i> provides a list of the minimum requirements for an <i>access work plan</i> . Section 9.9 of <i>Safe Practices for Rope Access Work</i> describes minimum requirements of a job safety analysis.	
Appendix 2 provides a non-exhaustive list of additional factors that may be included in an access work plan.	
Appendix 3 provides a non-exhaustive list of hazards, associated risk(s), and potential control measures common with rope access.	
Examples of <i>discrepancy</i> and <i>fail</i> provided here are for the field practical portion of the evaluation session.	
Site Requirements:	
An <i>access work plan</i> , including a <i>job safety analysis</i> , in accordance with <i>Safe Practices for Rope Access Work</i> .	
Evaluation Instructions:	
Candidates may be asked to participate in team scenarios under the direction of upper level candidates, if present.	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • CR 2.3.3.1. Unlocked <i>carabiner</i> in safety system • CR 2.3.3.2. Helmet chinstrap unfastened while in <i>fall zone</i> • CR 2.3.3.5. Dropped equipment
Fail:	<ul style="list-style-type: none"> • CR 2.3.2.1. Relying on one <i>rope system</i> when that system is the primary means of support • CR 2.3.2.3. Not capable of performing a required task • CR 2.3.2.10. No helmet while working at height

Requirement:	
8.6. Rigging and System Dynamics	
Sub-Requirements:	
8.6.1. Candidate should understand the forces involved in rigging <i>rope access systems</i> , including concepts such as angle physics and dynamic loading.	
Interpretation and Training Considerations:	
This requirement is evaluated by the <i>Level II Technician written test</i> , as well as a candidate's understanding of the forces inherent in other requirements, such as CR 8.15 .	
Angle physics include both load-distributing and directional forces. Table 1 in Appendix 4 presents loads applied to <i>anchorage systems</i> where the forces are distributed equally based on the interior angle. Table 2 in Appendix 4 presents a table of loads applied to a directional anchorage system based on the interior angle.	
Candidates should be able to describe dynamic loading of a <i>backup system</i> in the case of failure of a <i>main system</i> and how the interplay of <i>limited free fall potential</i> and deceleration distance affect overall clearance requirements.	
Site Requirements:	
None.	
Evaluation Instructions:	
Candidates may be asked to estimate forces within systems that they establish to complete requirements at their desired level of certification.	
Evaluation Criteria:	
Discrepancy:	• See CR 8.8 , CR 8.14 , and CR 8.15 .
Fail:	

Requirement:	
8.7. Knots	
Sub-Requirements:	
8.7.1. In addition to the knots required of a <i>Level I Technician</i> , the candidate shall demonstrate the tying and dressing of:	
8.7.1.1. Prusik hitch	
8.7.1.2. Tied-off Münter hitch	
Interpretation and Training Considerations:	
8.7.1.1. The sub-requirement refers to a 3-wrap prusik hitch. Prusik cord should be at least 2 mm (0.08 in) smaller than the rope on which it is applied. The application of the prusik hitch determines the MBS of the cord used.	
8.7.1.2. Münter hitch may be tied off in any releasable manner, such as a half hitch on a bight or mule hitch. The tie-off must be additionally secured by another knot or hitch.	
Site Requirements:	
Prusik cord and rope	
Evaluation Instructions:	
Candidates may demonstrate these knots as a separate exercise, or the knots may be observed while completing other requirements throughout the evaluation session, such as CR 8.13 and CR 8.14 .	
Evaluation Criteria:	
Discrepancy:	• Not dressed - twists
	• Mule hitch or half hitch on a bight with no secondary backup hitch, knot or clip to prevent inadvertent release

Requirement:	
8.8. Load-sharing <i>Anchorage Systems</i>	
Sub-Requirements:	
<p>8.8.1 Candidate shall demonstrate establishing a 2-point load sharing <i>anchorage system</i> in one of the following situations:</p> <p>8.8.1.1 Two <i>Anchorage</i> or <i>Anchorage connectors</i> greater than 2 m (6.6 ft) apart horizontally (perpendicular to the plane of the rope).</p> <p>8.8.1.2 Two <i>anchorage</i> or <i>anchorage connectors</i> greater than 2 m (6.6 ft) apart vertically (parallel to the plane of the rope).</p> <p>8.8.2. Considerations for establishing a load-sharing <i>anchorage systems</i> should include:</p> <p>8.8.2.1 Failure consequences</p> <p>8.8.2.2 <i>Anchorage</i> location</p> <p>8.8.2.3 Bridle angle</p> <p>8.8.2.4 <i>Anchorage connector</i> loading</p> <p>8.8.2.5 Sling choice</p> <p>8.8.2.6 Edge protection</p>	
Interpretation and Training Requirements:	
<p>Candidate should understand reasons for tying a load sharing <i>anchorage system</i>, such as achieving a desired <i>anchorage system</i> strength or a more desirable <i>fall line</i>.</p> <p>Candidates are expected to demonstrate an understanding of the sub-requirements of <i>CR 8.8.2.2</i>. when constructing load sharing <i>anchorage systems</i>. Table 1 in Appendix 4 presents loads applied to <i>anchorage systems</i> where the forces are distributed equally based on the interior (bridle) angle.</p>	
Site Requirements:	
Four slings or other rigging materials, six <i>carabiners</i> or other suitable hardware, and two ropes per four candidates.	
Evaluation Instructions:	
<p>This requirement may be fulfilled as a separate exercise or may be combined with others, such as CR 8.13.</p> <p>The Evaluator should specify if one <i>anchorage system</i> per sub-requirement is sufficient to demonstrate this skill or if a full <i>two-rope system</i> is expected. For example, a candidate may be asked to create a <i>two-rope system</i> utilizing one simple structural <i>anchorage system</i> and one load sharing <i>anchorage system</i>.</p>	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • Not load distributing in direction of pull • Internal angle unnecessarily >120°
Fail:	<ul style="list-style-type: none"> • Single anchorage failure would cause anchorage system failure.

Requirement:	
8.9. Retrievable <i>Rope Systems</i>	
Sub-Requirements:	
8.9.1. Candidate shall demonstrate a method to retrieve ropes from a structural <i>anchorage</i> after descent.	
8.9.2. Considerations include:	
8.9.2.1. Connector loading.	
8.9.2.2. Edge protection.	
8.9.2.3. Rope abrasion.	
Interpretation and Training Considerations:	
Candidates are expected to consider the criteria presented when deciding which method is appropriate.	
There are many ways to delineate the pull ropes (e.g., leaving pull ropes coiled until on <i>two-rope system</i> or tying knots in pull ropes); however, pull ropes must be marked in some manner. Pull ropes may be different than ropes used to establish the <i>rope systems</i> .	
Site Requirements:	
Sufficient rope to accommodate descent and retrieval of the two-rope system. <i>Carabiners</i> and rope protection may be required.	
Evaluation Instructions:	
Candidate may be asked to demonstrate retrievable <i>rope systems</i> as a separate exercise or combined with another, such as CR 8.12 .	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • Unmarked pull rope(s) • Retrieval method could damage equipment
Fail:	<ul style="list-style-type: none"> • Backup device or <i>descender</i> attached to pull rope and attempted to weight (only one effective system) • Failure to retrieve ropes

Requirement:	
8.10. Vertical <i>Aid Climbing</i>	
Sub-Requirements:	
8.10.1. Candidate shall demonstrate vertical <i>aid climbing</i> on <i>anchorage systems</i> spaced 45 cm (1.5 ft) apart or less, for a minimum distance of 3 m (9.9 ft).	
Interpretation and Training Considerations:	
Candidates should transition between <i>anchorage systems</i> while maintaining <i>limited free fall potential</i> .	
Site Requirements:	
Vertical <i>aid climbing</i> station may be no further than 30 degrees from the vertical, with a minimum of seven <i>anchorage systems</i> spaced no farther apart than 45 cm (1.5 ft).	
Evaluation Instructions:	
Candidate may be asked to transition to and from <i>aid climbing</i> via a <i>rope access system</i> or via structural climbing with an effective <i>backup system</i> This requirement may be combined with other requirements, such as CR 8.12 .	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • Fall from foot loop onto lanyard.
Fail:	<ul style="list-style-type: none"> • Connection(s) to only one <i>anchorage system</i>

Requirement:	
8.11. Pick-off Rescue of Casualty Through Knots	
Sub-Requirements:	
<p>8.11.1. Candidate shall perform a pick-off rescue of a casualty, from either <i>ascent mode</i> or <i>descent mode</i>, with knots in both <i>backup</i> and <i>main ropes</i>.</p> <p>8.11.2. The casualty shall be suspended a distance of at least 60 cm (2 ft) above both knots.</p> <p>8.11.3. The candidate shall then descend with the casualty while negotiating the obstacle.</p> <p>8.11.4. Knots to be passed shall not be used as an attachment point.</p>	
Interpretation and Training Considerations:	
<p>8.11.2. The intent is for the pick-off element to be separate from the knot passing element within the requirement.</p> <p>8.11.3. Candidate cannot circumvent obstacle. For example, a candidate may not utilize a <i>rope access system</i> pre-rigged to lower or bring extra ropes to fulfill the requirement. This proscription does not preclude using the tails of the <i>two-rope system</i> with the knots from being utilized in the exercise.</p> <p>While the requirement separates the casualty from the knots in the exercise, utilization of techniques covered within the Level I Rescue Scenario allow for rescuing a casualty that is located closer to a knot.</p> <p>This requirement is typically completed by a candidate swapping their <i>main</i> and <i>backup systems</i> using two <i>descenders</i>. During this process or after passing the knots, a dual <i>main system</i> may be utilized.</p>	
Site Requirements:	
The knot tied may join two ropes together or be tied to simulate damaged rope sections. Knots should be placed on both the <i>main</i> and <i>backup ropes</i> at a similar height, a minimum of 2 m (6.6 ft) above grade.	
Evaluation Instructions:	
Candidate shall rescue a casualty in <i>ascent mode</i> or <i>descent mode</i> as directed by the Evaluator.	
Evaluation Criteria:	
Pass:	<ul style="list-style-type: none"> • Extra friction removed while <i>descenders</i> share load
Discrepancy:	<ul style="list-style-type: none"> • Descent onto knot

Requirement:	
8.12. Rescue from Horizontal Aid Climbing	
Sub-Requirements:	
8.12.1. Candidate shall demonstrate rescuing a casualty from horizontal <i>aid climbing</i> to a designated location below one side of the traverse.	
8.12.2. Candidate shall utilize a rope-to-rope transfer to reach the designated location with the casualty.	
Interpretation and Training Considerations:	
8.12.1. Casualty shall utilize a <i>main system</i> realistic for performing <i>aid climbing</i> . Casualty should be located between 20 cm (8 in) and 50 cm (19 in) below the lowest point of the <i>anchorage system</i> .	
8.12.2. The rope-to-rope transfer may be operated from <i>descenders</i> on either the candidate's or the casualty's harness.	
Site Requirements:	
See site requirements of CR 7.16 .	
Evaluation Instructions:	
This requirement may be combined with others, such as CR 8.9. , and CR 8.10 .	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • Transfer without casualty's main connection to transfer <i>descender</i> • Transfer into <i>ascent mode</i> on rescuer

Requirement:	
8.13. Rigging and Operating a Rope Access System Pre-Rigged to Lower	
Sub-Requirements:	
8.13.1. Candidate shall establish a <i>two-rope system</i> for another <i>rope access technician</i> to use that allows for a <i>remote rescue</i> .	
8.13.2. Once the <i>rope access technician</i> is <i>on-rope</i> , candidate shall demonstrate lowering the <i>rope access technician</i> to the ground.	
Interpretation and Training Considerations:	
8.13.1. As defined, a <i>two-rope system</i> denotes that either <i>rope system</i> could be utilized within a <i>rope access technician's main</i> or <i>backup system</i> . If necessary, the <i>rope access technician</i> may be simulated in this requirement.	
8.13.2. Lowering the <i>rope access technician</i> may be done by addressing the <i>main</i> and <i>backup systems</i> individually or simultaneously.	
Site Requirements:	
Rope lengths sufficient to lower a <i>rope access technician</i> from any point within the <i>rope access system</i> .	
Evaluation Instructions:	
This requirement may be combined with others, such as CR 8.7. , CR 8.8. , and/or CR 7.13 .	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • Device not secured beyond normal lock-off • Rope not stacked or coiled for ease of deployment
Fail:	<ul style="list-style-type: none"> • Rope insufficient length (<2x drop)

Requirement:	
8.14. Pitch Head Break in and Lower	
Sub-Requirements:	
<p>8.14.1. Candidate shall demonstrate breaking into and lowering a load suspended from a <i>rope access system</i>.</p> <p>8.14.2. Candidate shall be in suspension while performing this maneuver.</p> <p>8.14.3. Load shall be suspended at least 1 m (3.3 ft) above grade, and must be lowered to the grade.</p> <p>8.14.4. Candidate may access the <i>anchorage systems</i> via any means.</p> <p>8.14.5. Connections shall not be made to the load or the <i>two-rope system</i> suspending the load until the candidate is suspended from the <i>anchorage systems</i>.</p>	
Interpretation and Training Considerations:	
<p>8.14.1. Load should be suspended in a manner to simulate a <i>rope access technician in ascent mode or descent mode</i>.</p> <p>8.14.2. Candidate may be suspended from the same <i>anchorage systems</i> as the load.</p> <p>8.14.4. Candidate may utilize the <i>two-rope system</i> suspending the load, if required.</p> <p>8.14.5. The intent is that appropriate <i>rope grabs</i> are utilized to break into the system rather than making direct connections to the load.</p> <p>This requirement introduces the concept of using an external mechanical advantage system comprised of appropriate rope access equipment to convert <i>fixed anchorage systems</i> into hauling and lowering system.</p> <p>Pre-rigged systems, such as mini-hauls, may be used if the candidate can explain the applied mechanical advantage.</p> <p>While continued hauling is not a requirement, candidates should understand the use of an additional rope grab extended from the anchorage system that would allow the <i>fixed anchorage system</i> to allow for a mechanical advantage system to be established integrally with the <i>main rope</i> suspending the load.</p>	
Site Requirements:	
See site requirements of CR 7.18 .	
Evaluation Instructions:	
This requirement may be fulfilled as a separate exercise, or may be combined with others such as CR 8.15. , and CR 7.18 .	
Evaluation Criteria:	
Pass:	<ul style="list-style-type: none"> For use of ascenders in <i>main</i> and <i>backup systems</i>, refer to CR 7.7.
Discrepancy:	
Fail:	

Requirement:	
8.15. Cross-Haul	
Sub-Requirements:	
8.15.1. Candidate shall demonstrate using two hauling systems in concert to move a load vertically and horizontally.	
8.15.2. The load may start from the ground or platform level.	
8.15.3. Candidate may operate both hauling systems or may direct another person to operate one of the hauling systems .	
Interpretation and Training Considerations:	
8.15.1. <i>Two-rope systems</i> shall be utilized within each hauling system.	
8.15.2. This requirement demonstrates the lateral movement of a load or <i>rope access technician</i> by using two hauling systems. Combining this requirement with CR 8.14 . permissible, but not required.	
8.15.3. The two hauling systems may be operated from the same or separate locations.	
Site Requirements:	
Sufficient equipment to build two hauling systems as required by CR 7.18 .	
Evaluation Instructions:	
This exercise may be combined with others such as CR 8.15 . and CR 7.18 .	
Evaluation Criteria:	
Discrepancy:	• Internal angle unnecessarily >120°
Fail:	• < 2 ropes in either direction

13. Level III Technician Requirements

*Section 9 of Certification Requirements for Rope Access Work

Requirement:
9.1. Candidate shall provide proof of at least 500 hours of work experience as a <i>Level II Technician</i> or equivalent (1000 hours total).
Interpretation and Training Considerations:
See Section on expectations for Documenting Experience .

Requirement:
9.2. Candidate may be asked to demonstrate proficiency in the skills and knowledge required of a <i>Level II Technician</i> in addition to those specified below.
Interpretation and Training Considerations:
Candidate is expected to be competent in all the requirements to be a <i>Level II Technician</i> . See Section 10.4 for more information.

Requirement:
9.3. Roles and Responsibilities
Sub-Requirements:
9.3.1. Candidate shall demonstrate a clear understanding of the responsibilities of a <i>Level III Technician</i> and how these fit into the overall responsibilities of an <i>employer's</i> rope access program as required by <i>Safe Practices for Rope Access Work</i> .
Interpretation and Training Considerations:
The <i>Level III Technician</i> requirements of <i>Certification Requirements for Rope Access Work</i> correlate to the responsibilities of a <i>rope access technician</i> in Section 4 and 5 of <i>Safe Practices for Rope Access Work</i> . This requirement is evaluated through the <i>Level III Technician written test</i> and through a candidate's performance during both portions of the field practical evaluation.
Site Requirements:
N/A
Evaluation Instructions:
Unless otherwise specified, candidates are expected to participate in group exercises with the knowledge and skill required at their desired level of certification.

Requirement:	
9.4. Management and Communication	
Sub-Requirements:	
9.4.1. Candidate shall demonstrate an ability to manage the safety of other <i>rope access technicians</i> and the public.	
9.4.2. Candidate shall demonstrate clear communication skills and be able to read, write, and speak in the language of the work place (unless provisions are made by an <i>employer</i> to provide a consistent and reliable translator).	
9.4.3. Candidate should be familiar with using communication methods available in various field environments.	
Interpretation and Training Considerations:	
This requirement is evaluated through the <i>Level III Technician written test</i> and through a candidate's performance in CR 9.8 .	
Site Requirements:	
None	
Evaluation Instructions:	
Candidates may be asked to lead or act under direction of other upper level candidates in team scenarios in accordance with CR 9.8 .	
Evaluation Criteria:	
Discrepancy:	• See CR 9.8 .
Fail:	

Requirement:	
9.5. Equipment Use and Inspection	
Sub-Requirements:	
9.5.1. Candidate shall be able to demonstrate a thorough understanding of the use, inspection, and care of all equipment required on a rope access work site.	
9.5.2. Candidate should be able to manage and carry out an <i>employer's</i> equipment management program as required by <i>Safe Practices for Rope Access Work</i> .	
Interpretation and Training Considerations:	
This requirement is largely evaluated through the field oral portion of the evaluation.	
Use of equipment by candidates is observed throughout the evaluation session.	
Candidates should be familiar with manufacturer specifications of equipment they will use to complete the skills required at this level. Emphasis should be placed on equipment compatibility, appropriate and prohibited use, as well as inspection requirements.	
Candidates should be familiar with equipment management requirements as stated in Section 10 of <i>Safe Practices for Rope Access Work</i> .	
Site Requirements:	
See Site and Equipment Requirements and Appendix 1 .	
Evaluation Instructions:	
See field oral evaluation and Appendix 1 .	
Evaluation Criteria:	
Discrepancy:	• Failure to meet field oral evaluation criteria

Requirement:	
9.6. Job Safety	
Sub-Requirements:	
9.6.1. Candidate shall have a comprehensive knowledge of the rope access program safety requirements as stated in <i>Safe Practices for Rope Access Work</i> . .	
9.6.2. Evaluation site safety policies shall be followed.	
Interpretation and Training Considerations:	
This requirement is evaluated by the <i>Level III Technician written test</i> , a candidate’s adherence to the Evaluation Session Host’s <i>access work plan</i> , and the candidate’s performance throughout the evaluation	
Section 9 of <i>Safe Practices for Rope Access Work</i> provides a list of the minimum requirements for an <i>access work plan</i> . Section 9.9 of <i>Safe Practices for Rope Access Work</i> describes minimum requirements of a job safety analysis.	
Appendix 2 provides a non-exhaustive list of additional factors that may be included in an access work plan.	
Appendix 3 provides a non-exhaustive list of hazards, associated risk(s), and potential control measures common with rope access.	
Examples of <i>discrepancy</i> and <i>fail</i> provided here are for the field practical portion of the evaluation session.	
Site Requirements:	
An <i>access work plan</i> , including a <i>job safety analysis</i> , in accordance with <i>Safe Practices for Rope Access Work</i> .	
Evaluation Instructions:	
Candidates may be asked to lead or act under direction of other upper level candidates in team scenarios in accordance with CR 9.8 .	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • CR 2.3.3.1. Unlocked <i>carabiner</i> in safety system • CR 2.3.3.2. Helmet chinstrap unfastened while in <i>fall zone</i> • CR 2.3.3.5. Dropped equipment
Fail:	<ul style="list-style-type: none"> • CR 2.3.2.1. Relying on one <i>rope system</i> when that system is the primary means of support • CR 2.3.2.3. Not capable of performing a required task • CR 2.3.2.10. No helmet while working at height

Requirement:	
9.7. Rigging and System Dynamics	
Sub-Requirements:	
9.7.1. Candidate shall understand the forces involved in rigging rope access systems including concepts such as angle physics and dynamic loading.	
Interpretation and Training Considerations:	
<p>This requirement is evaluated by the <i>Level III Technician written test</i>, as well as a candidate’s understanding of the forces inherent in other requirements, such as CR 9.11.</p> <p>Angle physics include both load-distributing and directional forces. Table 1 in Appendix 4 presents loads applied to <i>anchorage systems</i> where the forces are distributed equally based on the interior angle. Table 2 1 in Appendix 4 presents a table of loads applied to a directional anchorage system based on the interior angle.</p> <p>Candidates should be able to describe dynamic loading of a <i>backup system</i> in the case of failure of a <i>main system</i> and how the interplay of <i>limited free fall potential</i> and deceleration distance affect overall clearance requirements.</p>	
Site Requirements:	
None.	
Evaluation Instructions:	
Candidates may be asked to estimate forces within systems that they establish to complete requirements at their desired level of certification.	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • See CR 9.11, CR 8.8, CR 8.14, and CR 8.15.
Fail:	<ul style="list-style-type: none"> • No understanding of criteria stated in requirement

Requirement:	
9.8. Team Scenario	
Sub-Requirements:	
<p>9.8.1. Candidate will be given a rescue or work task to complete with the assistance of one or more individuals.</p> <p>9.8.2. The Level III candidate will be evaluated on their ability to effectively:</p> <p> 9.8.2.1. Communicate and delegate tasks.</p> <p> 9.8.2.2. Safely manage the completion of the scenario.</p> <p>9.8.3. Candidates supporting the operation are accountable for accomplishing tasks at their desired certification level and will be evaluated accordingly.</p> <p> 9.8.3.1. Supporting candidates that have completed their evaluation shall not be evaluated while supporting a team scenario.</p>	
Interpretation and Training Considerations:	
<p>Candidate is expected to be able to efficiently and safety manage a <i>rescue</i> or work task. Candidate is expected to direct other candidates to complete a task, not rig the entire scenario. A work task shall not become a <i>rescue</i>, but candidates will be expected to plan for <i>rescue</i>. Criteria to be evaluated during through this requirement are as follows:</p> <p>Planning:</p> <ul style="list-style-type: none"> • Use of other candidates' skill sets. Assumed skill sets correspond to desired levels of other candidates. • Equipment requirements • Efficiency of designed solution • Use of briefing aids • Rescue plan for work <p>Execution:</p> <ul style="list-style-type: none"> • Management and communication in accordance with CR 9.4. • Delegation of responsibilities • Efficiency of completion of scenario 	
Site Requirements:	
None	
Evaluation Instructions:	
Candidates should be adequate planning time to design a solution to the scenario. Any requirement may be employed to complete the exercise. While the candidate being evaluated for this requirement will have overall responsibility for the scenario, the Evaluator may selectively limit this candidate's responsibility so other candidates may be evaluated on their individual performance	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • CR 2.3.3.3. Task not completed in a timely manner • Inappropriate addressing of potential rescues in planning portion of work scenario
Fail:	<ul style="list-style-type: none"> • Not addressing potential rescues in planning portion of work scenario.

Requirement:	
9.9. Pick-Off Rescue of Casualty while Negotiating Obstacles	
Sub-Requirements:	
<p>9.9.1. Candidate shall perform a pick-off rescue of a casualty and descend with the casualty while negotiating one of the following:</p> <p>9.9.1.1. <i>Deviation</i></p> <p>9.9.1.2. <i>Re-anchor</i></p> <p>9.9.2. Candidate shall perform a pick-off rescue of a casualty from within an obstacle. The casualty shall be mid-transfer in one of the following:</p> <p>9.9.2.1. <i>Re-anchor</i></p> <p>9.9.2.2. Rope-to-Rope Transfer</p>	
Interpretation and Training Considerations:	
<p>9.9.1. Candidate shall be asked to perform a pick-off rescue of a casualty in either <i>ascent mode</i> or <i>descent mode</i>. The intent is for the pick-off element to be separate from the obstacle element within the requirement.</p> <p>9.9.2. A casualty within the obstacle is expected to be performing or simulating a standard transition from <i>descent mode</i> to <i>ascent mode</i>.</p>	
Site Requirements:	
None	
Evaluation Instructions:	
Evaluator shall ask candidate to perform two separate rescues. For both exercises, casualty shall be placed in a realistic location, such as avoiding high interior angles or the lowest point of the <i>re-anchor</i> .	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • Transfer without casualty's main connection to transfer <i>descender</i> • Transfer into <i>ascent mode</i> on rescuer

Requirement:	
9.10. Hauling and Lowering Through Knots	
Sub-Requirements:	
<p>9.10.1. Candidate shall demonstrate raising and lowering a casualty or load with knots located in both backup and main ropes located at a similar height while working from the ground, a platform, or while suspended from anchorage systems.</p> <p>9.10.2. The casualty or load shall be suspended at least 2 m (6.6 ft) below knots that are at least 2 m (6.6 feet) below the anchorage systems.</p> <p>9.10.3. Load shall be raised to the anchorage systems and returned to its initial location.</p> <p>9.10.4. Candidate may access the anchorage systems via any means.</p> <p>9.10.5. Connections shall not be made to the load or the two-rope system supporting the load until the candidate is located at the anchorage systems.</p> <p>9.10.6. Knots will be located at a similar height.</p> <p>9.10.7. Knots to be passed shall not be used as an attachment point.</p>	
Interpretation and Training Considerations:	
<p>9.10.1. Load may begin from the ground or from a point suspended by fixed anchorage systems.</p> <p>9.10.2. The intent is that there is sufficient separation between the anchorage systems, the knots, and the load to require rope grabs to be used on the main rope on both sides of the knots.</p> <p>9.10.3. Main and backup systems shall both be managed. A second backup device or a tied-off load-releasing hitch may be utilized to pass the knot on the backup rope. Alternatively, dual main systems may be utilized.</p> <p>9.10.4 Candidate may perform the skill from a platform or while in suspension.</p>	
Site Requirements:	
None	
Evaluation Instructions:	
Evaluator shall direct a candidate to haul and lower a load through knots. A candidate may not be asked to haul or lower knots through directional anchorage systems .	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> • Slack > 0.6 m (1.9 ft) in backup rope

Requirement:	
9.11. Tensioned Rope Systems	
Sub-Requirements:	
9.11.1. Candidate shall demonstrate transporting a load along a horizontal or angled tensioned <i>rope system</i> .	
9.11.2. Candidate shall know how to estimate the forces placed on the system.	
9.11.3. Rigging considerations should include potential failure of the tensioned rope(s) in the system.	
Interpretation and Training Considerations:	
9.11.1 Candidate should maintain as little tension in the tensioned rope system as is practical to complete the requirement.	
9.11.2. Candidate should know where the highest forces are experienced by the <i>anchorage systems</i> of the tensioned <i>rope system</i> as a load is transported along a horizontal or angled tensioned <i>rope system</i> .	
9.11.3. Consequences of failure within any part of the system must be considered in rigging. A single tensioned rope is acceptable if the control ropes provide an effective <i>backup system</i> if a component of the tensioned <i>rope system</i> were to fail. Typically, two connections from the load are required to the tensioned rope. Tension rope(s) should be rigged above control ropes	
Application of the angle physics tables presented in Appendix 4 are useful for analyzing tensioned <i>rope systems</i> .	
The highest forces at the <i>anchorage systems</i> of a horizontal tensioned <i>rope system</i> are generally found when the load is at the middle of the horizontal span, as the control ropes are slack in that location.	
The highest forces at the <i>anchorage systems</i> of an angled tensioned <i>rope system</i> are generally found as the load approaches, but remains above the lower <i>anchorage system</i> , as the tensioned <i>rope system</i> takes a higher percentage of the load in comparison to the upper control ropes.	
Site Requirements:	
Sufficient equipment to rig six <i>rope systems</i> (two hauling systems and two tension <i>rope systems</i>)	
Evaluation Instructions:	
Candidates may be asked to complete this requirement individually, as a team, or as part of CR 9.8 .	
Evaluation Criteria:	
Discrepancy:	<ul style="list-style-type: none"> Excessive tensioning of system for scenario.
Fail:	<ul style="list-style-type: none"> All control ropes go to carriage (not to load) - 1 connection to carriage from load Single upper control rope in angled tensioned <i>rope system</i> scenario.

Appendix 1. Equipment Criteria for Field Oral Evaluation

This appendix provides criteria for the [field oral evaluation](#). The criteria presented are not item-specific. A candidate is expected to address these criteria for the piece of equipment that they will be using for the evaluation

Contents:

- [Helmet](#)
- [Harness](#)
- [Carabiner](#)
- [Backup Device](#)
- [Descender](#)
- [Ascender](#)
- [Lanyard/Rope](#)
- [Pulley](#)

Equipment:	Helmet	Appendix 1
Primary functions and features:		
<ul style="list-style-type: none"> <input type="checkbox"/> Protects user from impact from above <input type="checkbox"/> May provide limited side impact protection <input type="checkbox"/> Designed without a visor brim for better vision and mobility <input type="checkbox"/> Integrated chinstrap 		
Appropriate Handling and Use:		
<ul style="list-style-type: none"> <input type="checkbox"/> Compliance with industry standards and be suitable for work environment <input type="checkbox"/> Fitted appropriately on head, with chinstrap fastened <input type="checkbox"/> Do not place anything between suspension system and shell <input type="checkbox"/> Avoid chemicals, adhesives (excessive stickers) 		
Inspect for Function:		
<ul style="list-style-type: none"> <input type="checkbox"/> Check adjustment controls <input type="checkbox"/> Check chin strap buckle <input type="checkbox"/> Webbing attachments secure on helmet 		
Inspect for Wear:		
<ul style="list-style-type: none"> <input type="checkbox"/> Cracks or chips <input type="checkbox"/> Discoloration from chemicals or excessive UV exposure <input type="checkbox"/> Webbing <ul style="list-style-type: none"> <input type="checkbox"/> Glazing <input type="checkbox"/> Cuts or fraying <input type="checkbox"/> UV, chemical exposure 		
Criteria for Evaluation (Total: 16 Line Items):		
<ul style="list-style-type: none"> <input type="checkbox"/> Level 1: 8 <input type="checkbox"/> Level 2: 10 <input type="checkbox"/> Level 3: 13 		

Equipment:	Harness	Appendix 1
Primary functions and features:		
<ul style="list-style-type: none"> □ Multi-purpose, designed for suspension as well as fall protection □ Names and uses for all D rings <ul style="list-style-type: none"> ○ Dorsal (back) used conventional fall arrest or <i>travel restraint</i>, potentially used for rope access <i>backup systems</i> ○ Sternal (chest) used for rope access <i>backup systems</i> ○ Ventral (waist) used for positioning devices such as the <i>descender</i> ○ Lateral (side) for positioning used only in pairs, or individually single as a redirect 		
Appropriate Handling and Use:		
<ul style="list-style-type: none"> □ Correct size □ Fitted and adjusted correctly <ul style="list-style-type: none"> ○ Snug at waist ○ Leg loops tightened ○ Rear riser straps for leg loops tightened ○ Dorsal D in correct location ○ Snug on chest 		
Inspect for Function:		
<ul style="list-style-type: none"> □ Metal components: <ul style="list-style-type: none"> ○ Latching of buckles ○ Hard links tightened □ Webbing: <ul style="list-style-type: none"> ○ No twists 		
Inspect for Wear:		
<ul style="list-style-type: none"> □ Metal connections: <ul style="list-style-type: none"> ○ Excessive corrosion ○ Deformation □ Webbing <ul style="list-style-type: none"> ○ Connection points with metal connections ○ Critical stitching (potential contrasting color) ○ Glazing ○ Cuts or fraying ○ UV, chemical exposure 		
Criteria for Evaluation (Total: 22 Line Items):		
<ul style="list-style-type: none"> □ Level 1: 11 □ Level 2: 14 □ Level 3: 18 		

Equipment:	<i>Carabiner</i>	Appendix 1
Primary functions and features:		
<ul style="list-style-type: none"> <input type="checkbox"/> Connect components in rope access system <input type="checkbox"/> Nomenclature of parts: <ul style="list-style-type: none"> <input type="checkbox"/> Gate <input type="checkbox"/> Nose <input type="checkbox"/> Spine 		
Appropriate Handling and Use:		
<ul style="list-style-type: none"> <input type="checkbox"/> Locking: may be auto-lock or screw gate <input type="checkbox"/> Screw gates should be oriented to prevent unscrewing by gravity and shaking and must be locked <input type="checkbox"/> Multi-stage auto-locking <i>carabiners</i> <input type="checkbox"/> Commonly made out of steel and aluminum <input type="checkbox"/> Many shapes, including the most common, which are D, oval, and pear (HMS) <input type="checkbox"/> MBS of 22.2 kN (5000 lbf) <input type="checkbox"/> Designed to be loaded along the major axis, which places the load on the spine <input type="checkbox"/> Avoid inappropriate loading: <ul style="list-style-type: none"> <input type="checkbox"/> Cross loading <input type="checkbox"/> Side loading <input type="checkbox"/> Open gate <input type="checkbox"/> Nose hook <input type="checkbox"/> Trigonal / over-loading <input type="checkbox"/> Torsional (twist potential when directly linked to other hard goods) 		
Inspect for Function:		
<ul style="list-style-type: none"> <input type="checkbox"/> Check gate and locking feature operation 		
Inspect for Wear:		
<ul style="list-style-type: none"> <input type="checkbox"/> Nicks and abrasion, especially on inside of spine and where <i>carabiner</i> is typically loaded <input type="checkbox"/> Excessive corrosion of steel <i>carabiners</i> 		
Criteria for Evaluation (Total: 20 Line Items):		
<ul style="list-style-type: none"> <input type="checkbox"/> Level 1: 10 <input type="checkbox"/> Level 2: 15 <input type="checkbox"/> Level 3: 18 		

Equipment:	Backup Device	Appendix 1
Primary functions and features:		
<input type="checkbox"/> Designed to arrest fall if primary means of support were to fail (e.g., <i>main system</i> failure) <input type="checkbox"/> Describe how device functions to arrest fall and minimize impact force by decelerating the fall		
Appropriate Handling and Use:		
<input type="checkbox"/> Minimize free fall potential <input type="checkbox"/> Use with compatible connections (e.g., energy absorber or specific lanyard length and type) <input type="checkbox"/> Attached to appropriate harness connection (generally sternal - manufacturer dependent) <input type="checkbox"/> Correct orientation on rope <input type="checkbox"/> Use with correct rope type and diameter <input type="checkbox"/> Minimize or eliminate drop hazard <input type="checkbox"/> Must be compatible for application (e.g., suitable for rescue) <input type="checkbox"/> Must not be defeated by inappropriate handling or placement <input type="checkbox"/> May be used within <i>fixed backup system</i>		
Inspect for Function:		
<input type="checkbox"/> Check all moving and spring-loaded parts <input type="checkbox"/> Check function on rope		
Inspect for Wear:		
<input type="checkbox"/> Deformities or cracks <input type="checkbox"/> Excessive wear in areas of contact with rope or connectors		
Criteria for Evaluation (Total: 15 Line Items):		
<input type="checkbox"/> Level 1: 8 <input type="checkbox"/> Level 2: 10 <input type="checkbox"/> Level 3: 11		

Equipment:	Descender	Appendix 1
Primary functions and features:		
<input type="checkbox"/> Designed to control descent <input type="checkbox"/> Can ascend short distances <input type="checkbox"/> Describe main features of device (e.g., l'D: handle position, anti-error catch, horizontal movement button)		
Appropriate Handling and Use:		
<input type="checkbox"/> Use with correct rope type and diameter <input type="checkbox"/> Correct orientation on rope <input type="checkbox"/> Attached to appropriate harness connection (generally ventral) <input type="checkbox"/> Lock or tie-off when hand is not on control rope (as required by manufacturer) <input type="checkbox"/> Extra friction required for rescue (if required by manufacturer) <input type="checkbox"/> Other potential uses (e.g., lowering, progress capture in haul system, <i>fixed backup system</i> , load limiter in tension line) <input type="checkbox"/> Avoid side loading of device		
Inspect for Function:		
<input type="checkbox"/> Check all moving parts <input type="checkbox"/> Ensure moving side plate closes securely		
Inspect for Wear:		
<input type="checkbox"/> Deformities <input type="checkbox"/> Rope channel <input type="checkbox"/> Wear indicator? <input type="checkbox"/> Burring at connection point		
Criteria for Evaluation (Total: 16 Line Items):		
<input type="checkbox"/> Level 1: 8 <input type="checkbox"/> Level 2: 10 <input type="checkbox"/> Level 3: 13		

Equipment:	<i>Ascender (e.g., Chest and Hand Ascenders)</i>	Appendix 1
Primary functions and features:		
<ul style="list-style-type: none"> <input type="checkbox"/> Designed for ascending and static suspension <input type="checkbox"/> Can descend short distances <input type="checkbox"/> Hand ascenders may be used as <i>rope grabs</i> in hauling and other systems 		
Appropriate Handling and Use:		
<ul style="list-style-type: none"> <input type="checkbox"/> Should not be used as backup device <input type="checkbox"/> Minimize free fall potential to avoid dynamic loading – can damage rope <input type="checkbox"/> Use with correct rope type and diameter <input type="checkbox"/> Designed to be used in pairs when moving on rope <input type="checkbox"/> Chest <i>ascender</i> may be used alone when worker is in static position and rope is not tensioned below ascender <input type="checkbox"/> Should be handled so <i>ascender</i> is not inadvertently removed from rope <input type="checkbox"/> Avoid side-loading 		
Inspect for Function:		
<ul style="list-style-type: none"> <input type="checkbox"/> Check moving and spring-loaded parts <input type="checkbox"/> Inspect presence of rivet 		
Inspect for Wear:		
<ul style="list-style-type: none"> <input type="checkbox"/> Ascender body deformation <input type="checkbox"/> Flaring of rope channel <input type="checkbox"/> Burring at connector interface <input type="checkbox"/> Sharp edges <input type="checkbox"/> Teeth in good condition 		
Criteria for Evaluation (Total: 17 Line Items):		
<ul style="list-style-type: none"> <input type="checkbox"/> Level 1: 9 <input type="checkbox"/> Level 2: 11 <input type="checkbox"/> Level 3: 14 		

Equipment:	Lanyard / Rope	Appendix 1
Primary functions and features:		
<ul style="list-style-type: none"> □ Made of synthetic material – commonly nylon and/or polyester □ Kernmantle construction - Outer sheath for protection, inner core that provides strength and elongation characteristics □ Elongation <ul style="list-style-type: none"> ○ Static: elongation of 6% or less at 10% of minimum breaking strength. ○ Low Stretch: elongation of 6% to 10% at 10% of minimum breaking strength. ○ Dynamic: designed to absorb the energy of a fall by extending in length. 		
Appropriate Handling and Use:		
<ul style="list-style-type: none"> □ Use with compatible equipment □ Length compatible with application (e.g., length for backup device or positioning) □ May have knots or sewn terminations □ Knots reduce strength approximately 30-50% from MBS □ Lanyard should have MBS of 18 kN (4046 lbf) □ Use appropriate rope or edge protection where applicable 		
Inspect for Function:		
<ul style="list-style-type: none"> ○ N/A 		
Inspect for Wear:		
<ul style="list-style-type: none"> □ Tactile and visual inspection: <ul style="list-style-type: none"> ○ UV or chemical exposure ○ Glazing ○ Thin or soft areas ○ Pliability ○ Core exposure 		
Criteria for Evaluation (Total: 16 Line Items):		
<ul style="list-style-type: none"> □ Level 1: 8 □ Level 2: 10 □ Level 3: 13 		

Equipment:	Pulley	Appendix 1
Primary functions and features:		
<input type="checkbox"/> Redirects rope <input type="checkbox"/> Minimizes friction		
Appropriate Handling and Use:		
<input type="checkbox"/> Use with correct type and diameter of rope <input type="checkbox"/> Use with compatible <i>carabiner</i> (e.g., oval that doesn't compress attachment tabs) <input type="checkbox"/> Be aware of directional forces (potential force multiplier) – don't overload <input type="checkbox"/> If present, close side-plate completely <input type="checkbox"/> If present, ensure attachment tabs are captured by pulley <input type="checkbox"/> Maintain correct orientation of rope through pulley (not running over side-plate – watch fleet angle) <input type="checkbox"/> Both pulleys often must be used for safe application of a double pulley		
Inspect for Function:		
<input type="checkbox"/> Pulley turns freely <input type="checkbox"/> If present, side-plate moves freely and can be locked		
Inspect for Wear:		
<input type="checkbox"/> Deformity of attachment tabs <input type="checkbox"/> Deformity of pulley axle or bearing <input type="checkbox"/> Sharp edges <input type="checkbox"/> Burring at attachment point(s) <input type="checkbox"/> Grit in pulley axle or bearing		
Criteria for Evaluation (Total: 16 Line Items):		
<input type="checkbox"/> Level 1: 8 <input type="checkbox"/> Level 2: 10 <input type="checkbox"/> Level 3: 13		

Appendix 2. Rope Access Work Plan and Job Safety Analysis Components to Supplement Job Safety

Site / Client Information <ul style="list-style-type: none"> • Location • Site contact • Security clearances • Site specific personal protective equipment requirements • Site specific pre-work safety training 	Rescue Plan <ul style="list-style-type: none"> • Method of rescue with diagrams or supporting information • Rescue leader, alternate and team member responsibilities • Sufficient dedicated rescue equipment (inspected) • Specialized rescue equipment (multi-pod, litter, lift kits, etc) • Pre job rescue/equipment training and practice
Site Safety Plan <ul style="list-style-type: none"> • Assembly/muster point • Evacuation plan and alarms • Site safety officer contact • Site EMS protocol/dispatch contact • Site rules and restrictions 	Communication <ul style="list-style-type: none"> • Methods (direct verbal, radio, hand signals, cell phone, etc.) • Agreed upon language (for multi-national teams) • Radio protocol (channel verified, charged, etc.) • Method of communicating with client and EMS from field
Permits <ul style="list-style-type: none"> • Required (by client, <i>presiding regulatory authority</i>)? • Conflicting activities with operators holding other permits? • Special training required for permit controlled activities? • Appropriate documentation and posting 	Personnel List <ul style="list-style-type: none"> • Name and contact information • Emergency contact and relation • Rope access qualifications • Trade qualifications • Off site project management
Lockout-Tagout <ul style="list-style-type: none"> • Site LOTO requirements and orientation • Contact of site person in charge of LOTO • LOTO equipment required or provided: locks, tags etc. 	Special Training and Qualifications <ul style="list-style-type: none"> • Rope access technician levels appropriate for the job? • Trade skills and certifications current and appropriate? • Fall arrest certification requirements (OSHA) if necessary • First aid and CPR current as required • Refresher training necessary prior to work?
Work Plan <ul style="list-style-type: none"> • Scope of work to be performed (inspection, repair, etc) • Dates/duration of expected work • Method/overview/rigging • Detailed description of client expectations • Photos, blueprints and diagrams 	Technician Personal Equipment <ul style="list-style-type: none"> • Appropriate equipment for job scope • Specific equipment that is needed per technician • Inspection of equipment prior to job • Training required for unfamiliar equipment?
Work Zones <ul style="list-style-type: none"> • Identify zones in advance from images and client • Material to adequately mark zones • Additional personnel needed to control zones? • Permission needed to restrict or limit access? • Revise as necessary once on site 	Personal Protective Equipment (PPE) <ul style="list-style-type: none"> • Job specific requirements for rope access work • Site specific requirements from client • SDS (safety data sheets) available • Inspection prior to job
Anchorage <ul style="list-style-type: none"> • <i>Anchorage</i> and <i>anchorage system</i> strengths and locations • <i>Anchorage connectors</i> (slings, bolts, beam clamps, etc) • Client permission required for desired anchorages? 	Team Equipment <ul style="list-style-type: none"> • Determine the right type of equipment for the job • Sufficient equipment to do the job efficiently and safely • Training required for unfamiliar equipment? • inspection prior to job
First Aid Kit <ul style="list-style-type: none"> • Location • Inspected for contents prior to work • Special needs and training (epi-pen, etc.) • Client resources (first aid kits, AEDs at work site and their location) 	Tools <ul style="list-style-type: none"> • Correct tools for the work, inspected and tested • Current required trade certifications and training for tools • Tool specific required PPE and tool requirements • Method of attachment (lanyards, separate ropes, etc.) • Power source and client permission for use
Emergency Medical Services <ul style="list-style-type: none"> • Nearest hospital • On site facilities if available • EMS contact (911 or dispatch?) • Specific site coordinates/location to inform EMS • Life flight pre-contact/landing and pick up protocol 	Hazard Analysis / Risk Mitigation <ul style="list-style-type: none"> • Identify hazards • Determine who is at risk and how • Evaluate the hazards and risks and decide on precautions • Take measures to eliminate the hazard • Take measures to mitigate risk(s) to an acceptable level • Review the risks and revise measures as needed during the job
Post Job Debrief <ul style="list-style-type: none"> • Daily safety talks and documented post job debrief • What went well and what could be improved for efficiency • Near misses and specific measures to improve safety • Practical travel information (lodging, dining, transportation) 	

Appendix 3. Hazards, Associated Risks and Controls to Supplement Job Safety Oral Evaluation

Hazard	Risk(s)	Control(s)
Working at Height	<ul style="list-style-type: none"> Falling 	<ul style="list-style-type: none"> Identify fall zone Fall protection Rope Access
Human Error	<ul style="list-style-type: none"> Rigging errors Skipped procedural steps 	<ul style="list-style-type: none"> Use 2-rope System Use independent anchors Buddy checks
Communication Difficulty	<ul style="list-style-type: none"> Safety warnings ineffective Miscommunication 	<ul style="list-style-type: none"> Agree on communication signals Multiple means of communication
Dropped Tools	<ul style="list-style-type: none"> Damage to individuals, equipment or property 	<ul style="list-style-type: none"> Identify and mark hazard zone PPE Appropriate securing methods
Heavy Tooling / Materials	<ul style="list-style-type: none"> Damage to individuals, equipment or property 	<ul style="list-style-type: none"> Identify and mark hazard zone PPE Appropriate securing methods Independent anchorage and support
Suspended Loads	<ul style="list-style-type: none"> Damage to individuals, equipment or property 	<ul style="list-style-type: none"> Identify and mark hazard zone PPE Appropriate securing methods Independent anchorage and support
Use of specialized tooling	<ul style="list-style-type: none"> Injury to self or others Damage to rope access system 	<ul style="list-style-type: none"> Appropriate training PPE Appropriate securing methods
Tooling by-products (slag, dust)	<ul style="list-style-type: none"> Injury to self or others Damage to rope access system 	<ul style="list-style-type: none"> Appropriate equipment (e.g., rope material) PPE
Machinery	<ul style="list-style-type: none"> Injury from machinery (pinching, crushing) 	<ul style="list-style-type: none"> Appropriate LOTO
Electrical Systems	<ul style="list-style-type: none"> Electrocution 	<ul style="list-style-type: none"> Appropriate LOTO
Sharp, Abrasive or Hot Surfaces	<ul style="list-style-type: none"> Injury to self or others Damage to rope access system 	<ul style="list-style-type: none"> Appropriate rope/edge protection Rope redirection PPE Appropriate LOTO
Low Lighting	<ul style="list-style-type: none"> Increased exposure to work environment Increased chance of dropped objects 	<ul style="list-style-type: none"> Provide additional lighting Headlamps, backup batteries
Confined Space	<ul style="list-style-type: none"> Low oxygen, flammable and/or toxic environment Converging Walls Increased Rescue Difficulty 	<ul style="list-style-type: none"> PPE Air monitoring Forced air ventilation Rig for retrieval
High Noise area	<ul style="list-style-type: none"> Temporary or permanent hearing damage Increased communication difficulty 	<ul style="list-style-type: none"> PPE Multiple means of communication
Vehicular Traffic	<ul style="list-style-type: none"> Injury to self or others Damage to rope access system Increased communication difficulty 	<ul style="list-style-type: none"> Identify and mark hazard zone PPE (e.g., high-visibility vests)
General Public	<ul style="list-style-type: none"> <i>Highly location dependent</i> 	<ul style="list-style-type: none"> Identify and mark hazard zone Control entry to hazard and fall zones
Chemicals	<ul style="list-style-type: none"> <i>Highly chemical dependent</i> 	<ul style="list-style-type: none"> Appropriate PPE SDS
Sun / Heat	<ul style="list-style-type: none"> Sunburn Dehydration Heat exhaustion / heat stroke 	<ul style="list-style-type: none"> Ample water Sufficient breaks PPE
Cold Temperatures	<ul style="list-style-type: none"> Loss of dexterity Hypothermia Frostbite 	<ul style="list-style-type: none"> Appropriate clothing Warm liquids available
Precipitation (Snow, Rain, Ice)	<ul style="list-style-type: none"> Increased environmental exposure Decreased friction on rope systems Increased electrical exposure 	<ul style="list-style-type: none"> Appropriate clothing Appropriate communication of conditions Ground Fault Circuit Interruption (GFCI) on electrical devices
Lightning	<ul style="list-style-type: none"> Electrocution 	<ul style="list-style-type: none"> Lightning detection systems
Wildlife (Insects, Venomous Animals)	<ul style="list-style-type: none"> Injury or incapacitation Allergic reactions 	<ul style="list-style-type: none"> PPE Personnel allergies discussed
Slippery Surfaces	<ul style="list-style-type: none"> Increased risk of falling 	<ul style="list-style-type: none"> Clean and organized work area Appropriate footwear
Rock Fall	<ul style="list-style-type: none"> Injury to self or others Damage to rope access system 	<ul style="list-style-type: none"> Identify and mark hazard zone Scaling prior to beginning work Loose materials secured Rope management
Wind	<ul style="list-style-type: none"> Increased environmental exposure Increased size of hazard zone 	<ul style="list-style-type: none"> Identify and mark hazard zone Multiple means of communication

Appendix 4. Angle Physics

Table 1: Load-Sharing Anchorage System Forces

Forces on a single anchorage in an equally distributed, load-sharing *anchorage system* as a function of the applied load.

	θ	$\%F_A/F_L$
	0	50%
	30	52%
	60	58%
	65	59%
	90	71%
	120	100%
	150	193%
	160	288%
170	574%	
<p>θ: Interior angle at anchorage connector F_A: Force at anchorage F_L: Force from applied load</p>		

Table 2: Directional Anchorage System Forces

Forces on a *directional anchorage system* as a function of the applied load.

	θ_1	θ_2	$\%F_D/F_L$
	0	180	200%
	30	150	193%
	60	120	173%
	90	90	141%
	120	60	100%
	150	30	52%
	160	20	35%
	165	15	26%
	180	0	0%
<p>θ_1: Interior angle at <i>anchorage connector</i> θ_2: Angle of <i>fall line</i> displacement F_D: Force at <i>anchorage</i> F_L: Force from applied load</p>			