Certification Requirements: Passenger Ropeways Inspection

Issued under the Authority of the

Certification Board for Inspection Personnel (CBIP), New Zealand

1. Introduction

These Certification Requirements: Passenger Ropeways Inspection (CR Passenger Ropeways Inspection) must be read in conjunction with CBIP's Certification Requirements: General (CR General). Together, these documents define the requirements for the issue of discipline recognition to inspectors performing inspection of passenger ropeways within the scope of the Health and Safety in Employment (Pressure Equipment, Cranes and Passenger Ropeways) Regulations 1999 (PECPR Regulations).

Inspectors performing specified activities defined in the PECPR Regulations must hold certificates of competence that are relevant to the activity. CBIP issues Competence Certificates as the WorkSafe NZ recognised 'Qualification Issuing Agency' in accordance with the PECPR Regulations.

2. Scope

CR Passenger Ropeways Inspection covers the qualifications, training, experience, and examination requirements for the issue of a discipline recognition to passenger ropeway inspectors commissioning, performing fabrication, repair/modification, and in-service inspection and overseeing repairs of passenger ropeways.

3. Certification Process

Candidates seeking discipline recognition as a Passenger Ropeways Inspector must meet the requirements of the CR General and the CR Passenger Ropeways.

4. Pre-Requisites for Certification

Candidates will have qualifications, training and experience that demonstrates understanding of passenger ropeways, including their manufacture, maintenance, inspection and/or operation.

Where candidates hold an existing CWI or SWI Competence Certificate, they must demonstrate to CBIP that this requirement has been met by past inspection work, or they must undertake sufficient additional inspection work related to passenger ropeways, to satisfy certification requirements.

For candidates whose background does not include the specified qualifications, training or experience outline in sections 4.1, 4.2 and 4.3, a statement of experience and competence relevant to these certification requirements may be acceptable to CBIP's Board.

Exceptions to the requirements of sections 4.1, 4.2 and/or 4.3 may be approved by CBIP's Board on a case-by-case basis.

4.1 Qualifications

Candidates will submit evidence of a relevant qualification or credential such as:

a) a trade qualification in a relevant engineering or inspection discipline, or

b) a diploma, degree, or master's in engineering or related discipline, or

c) New Zealand Certificate in Engineering or equivalent qualification.

4.2 Training

Candidates will provide evidence of training in passenger ropeways inspection sufficient for them to be able to demonstrate the competency requirements defined in Section 5.

Training will include:

a) knowledge requirements for inspection, including in-service inspection; and

b) practical training on items of passenger ropeways.

4.3 Experience

Candidates will have a minimum number of years' experience in relation to the qualification held as show in Table 1. This experience will preferably have increased responsibility in a related field to passenger ropeways inspection, such as fabrication, maintenance, operation or similar experience.

Experience will include:

a) inspection, including in-service inspection, on a range of passenger ropeways equipment; and

b) documentation of results sufficient to demonstrate competence requirements defined in Section 5.

Table 1. Inspection Industry Experience

Qualification	Inspection experience (years)
Degree in engineering (relevant to PR inspection)	2
NZ Diploma in Engineering Practice	3
NZ Certificate in Engineering (formerly AAVA)	3
Trade Certificate	4
Other qualification	To be determined by CBIP

4.4 Pre-requisite for Recertification

Candidates who have held a PRI certification, with an associated Competence Certificate, for a period of five years or more, and who carry out welding inspections as part of their passenger ropeways inspection are not required to hold a current CWI or SWI.

When applying for recertification, candidates shall provide evidence of welding inspection related to passenger ropeways, which may be a current CWI or SWI certification.

4.5 Referee Statement

Candidates will provide a Referee Statement sourced from CBIP's Website and signed by a suitable Referee to verify that their training and experience meets or exceeds these certification requirements.

5. Competency and Performance Requirements for Certification

To be certified as a Passenger Ropeways Inspector, candidates must demonstrate knowledge of:

a) commissioning and baseline testing requirements.

b) operational requirements of the various types of passenger ropeway.

c) inspection method for passenger ropeways.

d) fabrication materials, welding materials and methods used in passenger ropeways construction.

e) type and cause of defects found in passenger ropeways.

f) repair methods for passenger ropeways.

g) methods of hauling rope inspection and maintenance of ropeway systems.

h) compliance with all working at height and other guidance necessary to ensure safety of persons during inspection of passenger ropeways.

i) planning inspections and maintaining inspection documentation and records.

j) review and analysis of inspection reports and reporting review findings.

k) methods of fabrication, testing and inspection used during the construction of passenger ropeways.

l) various standards and codes of practice used in the construction and testing of the various types of passenger ropeways.

m) requirements outlined in Appendix A.

6. Examinations

The Passenger Ropeways examination is based on:

a) the knowledge expected of a competent equipment inspector of the PECPR Regulations; and

b) requirements of NZS 8635:2018 *Passenger Ropeways and Passenger Conveyors* which incorporates Canadian Standards Association document Z98-14, including update No 1 published March 2014. This shall include current and future supplements and updates.

Two papers must be completed:

- Paper 1: Inspector's responsibilities and legislative requirements
- Paper 2: Passenger Ropeways Inspection

6.1 Paper 1: Inspector's responsibilities and legislative requirements

Content includes:

i. Personal protective equipment and safety;

ii. Inspector's responsibilities; and

iii. Legislative requirements.

6.2 Paper 2: Passenger Ropeways Inspection

Content includes:

i. Quality management processes, quality assurance and control

ii. Inspection planning and inspections methods

iii. Fabrication methods and materials of construction

iv. New construction inspection

v. Commissioning inspections

vi. In-service inspection

vii. Operation and maintenance

viii. Equipment failures and defects,

ix. Review of operational records, and

x. Inspection reports and maintenance of inspection records.

6.3 Technical content of examination

The examination will include questions on the following aspects of passenger ropeway inspection for both new-construction and in-service inspection:

a) Approval of inspection and test plans and preparation/approval of any specific inspection procedures required,

b) Witnessing and verifying tests including mechanical testing of welding procedures during fabrication, repairs, and in-service inspection,

c) Understanding and recognising the types and causes of deterioration and defects,

d) Inspection of repairs and alterations,

e) Interpretation and evaluation of inspection results,

f) Reporting results of inspection, and

g) Recommendations on future inspection periods, and on the remaining life of the equipment, based on the records of the amount and type of usage.

6.4 Recertification examination

The recertification examination is one paper based on questions from Paper 1 and Paper 2.

6.5 Examination references

The Passenger Ropeways Examination Reference list is published on CBIP's Website. These documents are permitted in the examination.

Appendix A: Knowledge Requirements

A.1 Objectives of inspection.

- Comply with the PECPR regulations and NZS 8635:2018.
- Verify fabrication, installation, commissioning, and testing in accordance with the design and the NZS 8635:2018.
- Determine when repairs, replacements, overhauls, or modifications are required.
- Assess and report on the condition of ropeway and associated equipment.
- To ensure that the ropeway performs reliably under operating conditions between inspections.

A.2 Inspection competences.

- Recognise the importance of performing inspections impartially, competently, and efficiently.
- Recognise the correct inspection method.
- Recognise the importance of experience gained from other inspections.
- Recognise the value of operating data and equipment records.
- Ensure the extent, level and frequency of inspections is adequate to ensure equipment reliability.
- Use fabrication and inspection history.
- Communicate openly and efficiently on all safety related matters promptly, clearly and effectively.
- Relationships with others.

A.3 Stages of Inspection.

- Fabrication – local and overseas components.
- Installation.
- Commissioning and initial certification.
- Periodic inspection.
- Operation – within design limits and correct sequence.
- Servicing – maintenance, modification.
- Repairs – checks and assessments.

A.4 Construction documentation requirements.

A. 5 NZ manufactured components.

- Verification of:
  - Component size and configuration.
  - Material certificates and identification.
  - Welding procedures.
  - Welder qualification.
  - Interpretation of non-destructive testing reports.
  - Interpretation of destructive testing reports.
  - Load testing

A.6 Imported components

- Verification and identification with certificates.

A.7 Installation

- Compliance to approved manufactured drawings and NZS 8635:2018.
  - Location
  - Width of clearing.
  - Electrical protection.
  - Lightning protection.
  - Acceptance tests and inspection.
  - Anchor connections.
  - Machine rooms
  - Exposed equipment.
  - Protection against moving parts.
  - Prime movers.
  - Internal combustion engines.
  - Fuel storage
  - Speed reducers.
  - Bearings, couplings, and shafts.
  - Clutches.
  - Foundations.
  - Tension systems.
  - Tension system adjustment.
  - Buildings and structures.
  - Wire ropes.
  - Telephone and signal cables.

- Design check requirements for new ropeways.
- Approval and inspection requirements.

A.8 Periodic Inspection and Tests as specified in NZS 8635:2018.

- Maximum speeds.
- Minimum spacing between carriers.
- Emergency drives.
- Acceleration and speed control.
- Brakes and backstops.
- Stops.
- Drive and return sheaves. (Bull wheels).
- Sheaves and bearings.
- Loading and unloading areas.
- Line structures. (Towers).
- Rope and connections.
- Service and inspection platforms.
- Passenger carriers.
- Rope grips.
- Carriage wheels.
- Communication.
- Operational wind limits.

A.9 Operation and Maintenance

- Competence of personnel.
- Minimum operating personnel.
- Control and safety of passengers.
- Signs.
- Control of ropeway operations.
- Communications.
- Inspections.
- Lighting.
- Engine fuel supply.
- Operating under wind conditions.
- Earthing.
- Fire Protection.
- Maintenance.

- Routine procedures.
- Wire ropes.
- Records.

A.10 Evacuation Equipment

A.11 Responsibility

- Owner
- Passenger Ropeway Inspector
- Regulating Authority.

A.12 Documentation

- Health and Safety at Work Act 2015.
- PECPR Regulations.

A.13 Technical information and manufacturer's technical specification

- Commissioning date
- Number of intermediate stations
- Number of chairs/gondolas
- Number of passengers per chair/gondola.
- Up hill/down hill load limitations.
- Speed limitations. Skiers/foot passengers.
- Fault log/ Outstanding fault log.
- Maintenance log.
- Operation log.
- Component certificates.
- General arrangement drawings.
- Circuit drawings (Mechanical and electrical.)
- Manufacturer's maintenance manuals.
- Accidents/incidents.
- Inspection dates.
- Inspection organisation.
- Operation manual.
- Staff training manual.