



**CERTIFICATION BOARD FOR INSPECTION PERSONNEL**

**DOCUMENT No CBIP – LIFT – 1 – 2000**

**Standard of Proficiency for the  
Qualification and Certification of Power  
Lift Inspectors**

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Issued under the Authority of the Certification Board for Inspection Personnel  
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# **STANDARD OF PROFICIENCY FOR THE QUALIFICATION AND CERTIFICATION OF POWER LIFT INSPECTORS**

## **FOREWORD**

This Standard of Proficiency presents a comprehensive scheme for the qualification and certification of inspectors performing inspections on power lifts, escalators and moving walks within the scope of the Building Act 1991, associated amendments and requirements in New Zealand. Inspector certification under this standard may be a pre-requisite of the Regulatory Authority for authorised inspector registration by them. Administration of this standard is the responsibility of the Certification Body for Inspection Personnel (CBIP). This standard will also provide reliable evidence of the experience, technical ability and general competence of personnel performing power lift inspections.

## **1. SCOPE**

### **1.1 Scope**

This Standard of Proficiency establishes a system for the qualification and certification by a recognised Certification Body for personnel who perform inspection of power lifts, escalators and moving walks in New Zealand.

### **1.2 Objectives**

The objectives of this Standard of Proficiency are to:

- (a) Establish the general competency, knowledge and skill of Power Lift Inspectors to recognised standards and regulatory requirements.
- (b) Provide evidence of Power Lift Inspector proficiency in the form of a certificate and wallet card.
- (c) Provide Power Lift Inspector certification that will be recognised and respected by certification bodies, industry, inspection bodies and authorities in New Zealand and internationally.
- (d) Provide a certification system for Power Lift Inspectors that is transparent, uniform and equitable.
- (e) To address and satisfy the requirements of both authorities and industry.

### **1.3 Types of Certificates**

The types of certificates that are granted are:

Power Lift Inspector Level 1

**Or**

Power Lift Inspector Level 2

The above certificates are intended to embrace the interests and requirements of the Regulatory Authority and Building Act 1991.

**1.4** The certificates covered by this Standard of Proficiency shall be examined and certified such that the authorised inspector eligibility requirements of the Regulatory Authority systems are maintained and met.

**1.5** Certification under this Standard of Proficiency does not make the certified inspector an Authorised Inspector.

## **1.6 DEFINITIONS**

**1.6.1 Authorised Inspector** - a person who has passed the CBIP requirements for certification as a power lift inspector and who meets the criteria specified by the Regulatory Authority as being applicable and who has been approved and registered by them.

**1.6.2 Certification Body** - Certification Board for Inspection Personnel (CBIP).

**1.6.3 Candidate** - the individual seeking certification in accordance with this standard.

**1.6.4 Experience** - the period of time spent in performing work that contributes to a candidate's eligibility for examination and subsequent certification. It includes experience gained during training.

**1.6.5 Escalator** - power driven installation with endless moving stairway for the conveyance of passengers in the upward or downward direction.

**1.6.6 Moving Walk** - power driven installation with endless moving walkway (e.g. pallets, belt) for the conveyance of passengers, either on the same or between different traffic levels

**1.6.7 Power Lift Rules** - NZS 4332 and BSEN 115

**1.6.8 Power Lift** - a lift in which the motion of the car is obtained through the application of any form of energy other than manual energy and/or gravitational force.

**1.6.8 Power Lift Inspector Level 1** – a person certificated to perform and direct inspection and testing of installed power lifts, escalators and moving walks in accordance with accredited or recognised procedures that are within the scope of their certification, experience and knowledge as determined by their employer.

**1.6.9 Power Lift Inspector Level 2** – a person certificated to perform and direct inspection and testing on new and installed power lifts, escalators and moving walks in accordance with accredited or recognised procedures that are within the scope of their certification, experience and knowledge as determined by their employer

**1.6.10 Regulatory Authority** - the Building Industry Authority - Territorial Authority or any department as appointed by the New Zealand Government for the purpose of power lift, escalator and moving walks safety.

## **2.0 QUALIFICATION AND ELIGIBILITY FOR CERTIFICATION**

All candidates applying for examination and certification shall meet the following requirements.

### **2.1 Power Lift Inspectors Level 1 and Level 2**

- (i) Meet the eligibility requirements given in Clause 3 for the level in which certification is sought.
- (ii) Have experience in power lift operation or experience acceptable to the Certification Body (refer requirements for authorised inspector).
- (iii) Understand the operations of power lifts, escalators and moving walks.
- (iv) Understand the inspection methods for power lifts, escalators and moving walks.
- (v) Understand (a) fabrication materials used in power lifts (b) the type and cause of defects in power lifts, escalators and moving walks.
- (vi) Meet the statutory requirements necessary to ensure safety of persons during inspection of power lifts, escalators and moving walks.
- (vii) Ability to plan and maintain documentation and records.
- (viii) Be capable of assessing and raising inspection reports.
- (ix) Have an appreciation of QA/QC procedures outlined in the ISO 9000 series, and an appreciation of the Building Act regulations for owner accreditation for power lift operation, escalators and moving walks.
- (x) Be capable of assessing operational data of power lifts, escalators and moving walks.
- (xi) Demonstrate that the technical knowledge requirements given in Appendix A are understood.
- (xii) Understand the methods of fabrication and inspection used during the construction of power lifts, escalators and moving walks.
- (xiii) Have knowledge of welding methods and be able to carry out flaw assessment of welds using visual inspection.
- (xiv) Be capable of determining that the lift is safe for continued use.
- (xv) Be capable of preparing and implementing procedures to deal with contingencies following the identification of equipment in an unsafe condition.

### **2.2 Power Lift Inspector Level 2**

- (i) Meet the requirements given in Clause 3.0.
- (ii) Carry out initial inspections and operation of new installations.

## 2.3 EXEMPTIONS FROM EXAMINATION

**2.3.1** Exemptions may be given on application to the Certification Body for power lift categories for qualifications obtained from other recognised certification bodies. At present holders of the following commissions may apply:

(i) INTERNATIONAL

ASME/ANSI QEI-I-1987 Certified Inspection Supervisor (See note below)

Note: Candidates seeking certification on the basis of certificates held from other recognised certification bodies are required to sit a paper on current New Zealand Power Lift, escalators and moving walks rules or standards.

**2.3.2** The Certification Body shall reserve the right to reduce the examination and qualification requirements required if the candidates presented qualifications are acceptable to the Certification Body in part only.

## 3.0 PRE-EXAMINATION REQUIREMENTS

A candidate shall meet the following requirements:

### 3.1 Physical and Visual Attributes

- (a) have the physical and mental ability to be able physically to reach all possible parts of the lift under examination. Heights or confined spaces should not present a mental barrier to access
- (b) an eyesight examination, uncorrected or corrected, within six months from date of application to prove near vision acuity or Snellen N5 or equivalent, at 380mm and far vision acuity of 20/40, or better in at least one eye, and also a colour perception test for red/green and blue/yellow differentiation
- (c) be able to demonstrate that their hearing is satisfactory to carry out the designated tasks

**3.1.1 Eyesight** – A statement from an optometrist, nurse or medical doctor regarding the eyesight of the candidate shall be dated not more than six months before the evidence is submitted.

### 3.2 Communication Skills

- (a) be able to read, to write legibly and to communicate orally in the English language, so as to be able to carry out the designated tasks. Independent verification of oral and written English may be required.

### **3.3 Experience and Qualifications**

#### **3.3.1 Power Lift Inspector Level 1**

- (a) Hold a minimum of Electrical Service Technicians Level B or equivalent with the Electrical Workers Registration Board. Be mature and have several years of experience in a position of responsibility in a combination of maintenance, installation and inspection of lifts, escalators and moving walks.
- (b) Have a basic knowledge of welding, welding flaws and welding inspection methods

#### **3.3.2 Power Lift Inspector Level 2**

- (a) Hold a level 1 certificate.
- (b) Hold a relevant NZCE or equivalent or Electrical or Engineering degree or hold a certificate in Engineering from a technical college e.g. NZCE Stage 3.
- (c) Have 5 years current experience in a position of responsibility in a combination of maintenance, installation or / and inspection of lifts, escalators and moving walks.
- (d) Have a basic knowledge of welding, welding flaws and welding inspection methods

**Or**

- (e) Been employed in a position of responsibility in a combination of maintenance, installation and inspection of lifts, escalators and moving walks for the last 15 years and meet Clause 3.3.2, Level 2 Sub clause (d).

## **4.0 EXAMINATION AND ASSESSMENT PROCEDURES**

### **4.1 Application for Examination**

- 4.1.1** A candidate shall apply to the Certification Body on the approved form (refer Appendix C) attaching documentary evidence proving they have met the pre-examination requirements which are relevant to the certificate for which the examination is sought.  
No application shall be confirmed until receipt of accurate and fully completed application forms and attachments including examination fee, eye test certificate qualifying work experience, passport photographs.
- 4.1.2** The Certification Body shall initiate, maintain and have in place the necessary application forms and procedures as noted in Clause 4.1.1.

## 4.2 Examination Procedures

### 4.2.1 Examinations will be by way of a three part exam consisting of a written examination an oral/practical examination.

The written examination for Level 1 and Level 2 shall cover both the theory requirements and the inspection skill required regards knowledge and recognition of operating and maintenance problems.

The written examination for Level 2 will include questions on new installations and initial inspections.

The oral/practical examination will be carried out by a panel of examiners appointed by the Certification Body and is intended to examine the candidate's experience and knowledge.

Note:

The oral/practical examination may be waived with the approval of the Lift Inspector Examination Panel Chairman, CBIP Technical Manager and the CBIP Secretary

## 4.3 Examinations

### 4.3.1 **Written Examination:** The written examination will be by a series of papers with questions covering the subject matter outlined in Appendix A and may include questions on calculations, reports, photographs or samples of operating and maintenance problems and questions on power lifts, escalators and moving walks.

Some questions of the examination concerned with the interpretation of the power lift rules may be the open book type and **candidates must bring clean unmarked copies of NZS 4332 and BSEN 115 with them.**

### 4.3.2 **Oral/Practical Examination:** The oral/practical examination will consist of questions and criteria covering powers lifts, escalators and moving walks and the experience of the candidate.

### 4.3.3 **Date and Venue:** Examinations shall be held at times, dates and venues specified and approved by the Certification Body.

### 4.3.4 **Fees:** The Certification Body shall set the examination fees for the certificate sought.

## 4.4 Examination time(s) and requirements:

### 4.4.1 The written examination time(s) shall allow an examination time plus reading time per paper set. Candidates seeking certification shall sit a general and a specific paper. The written examination time shall not exceed four hours plus the reading time. Any break taken by the candidate during the examination time shall be taken in the presence of the examiner.

**4.4.2** The oral/practical examination shall be carried out on a day specified by the Certification Body following the successful completion of the written examination by the candidate.

**4.4.3** All examination material shall remain the property of/and under the control of the Certification Body.

#### **4.5 Pass mark and result**

**4.5.1** A 70% or better pass mark is required in the written examination. The oral examination shall be carried out by a panel of examining members appointed by the Certification Body who shall agree unanimously on the competence of the candidate. Failure to agree on the competence of the candidate following the oral examination by any examining member shall result in the candidate failing the examination.

**4.5.2** Candidates who fail the oral/practical examination may appeal to the Certification Body who shall decide the appropriate action. The candidate may appear at his or her expense in person or submit a written submission stating the reasons for the appeal. The decision of the Certification Body on appeal is final.

#### **4.5.3 Results of Examinations**

All candidates whether successful or unsuccessful shall be notified in writing within one calendar month from the examinations.

#### **4.5.4 Successful Candidates**

A Certificate of Proficiency and Pocket Card shall be awarded to the candidate stating the category in which qualification has been achieved. The Certificate and Pocket Card shall remain the property of the Certification Body.

#### **4.6 Failure to pass Examination – Conditions of Retest**

**4.6.1** A candidate who fails the written section of the examination shall not proceed to the oral/practical examination.

**4.6.2** Failure of the oral/practical examination shall not be permitted more than once without a retraining period of three months before any re-interview is carried out.

**4.6.3** Where the examinee fails the oral/practical examination, the examinee shall resit the oral examination at the next specified examination date.

**4.6.4** On failing the oral/practical examination for a second consecutive time the candidate may apply to resit the examination again after a lapse of three months but shall be required to resit the full examination.

## **5.0 CERTIFICATION**

### **5.1 Issue of Certificates and Wallet Cards**

Certificates and wallet cards shall only be issued by the Certification Body.

The certificate and/or corresponding wallet card shall at least:

- (a) Identify the name of the issuing Certification Body.
- (b) Identify the name of the person to whom the certificate applies.
- (c) State the date of issue and the expiry date.
- (d) Contain information necessary to identify the title and unique number of certificate.
- (e) Identify conditions under which it is issued and conditions or schedules that may apply.
- (f) Contain the signature and name of the person authoring issue of that certificate.
- (g) Identify, title and number of this standard of proficiency.
- (h) Have a photograph on the wallet card of the person certified.
- (i) Contain the signature of the certified inspector

### **5.2 Period of Certification**

Certification will be valid for a period of five years from the award of the certificate after successful completion of the examination.

### **5.3 Renewal of Certification and Non-renewal**

**5.3.1** Inspectors whose certification expires at the end of five years shall meet the requirements of Clause 3.1 and demonstrate to the Certification Body by work history and where requested oral interview that they are competent for re-certification in the category requiring renewal. The candidate shall demonstrate that the eligibility requirements of Clause 1.4 have been met and maintained. The onus for the renewal shall be with the inspector.

**5.3.2** The inspector shall maintain a current address with the Certification Body for the mailing of correspondence regarding certification and re-certification.

**5.3.3** Inspectors seeking certification renewal shall apply for renewal within 21 days before the expiry date given on their Certificate of Proficiency or Pocket Card and meet the following:

- (i) provide a written summary of work history and employment covering the five year certification period.

- (ii) include representative samples of reports embracing lift, escalator and moving walks inspection.

**5.3.4** Where a person does not seek renewal or re-certification, their certification will automatically lapse or be withdrawn and be noted on the register.

### **5.3.5 Non-Renewal**

Where a person is not granted renewal of certification in accordance with clause 5.3, the Certification Body shall give the reason for non-renewal. To attempt to satisfy the Certification Body in terms of the reasons for non-renewal the candidate shall have the option of:

- Submit further evidence to the Certification Body
- Or
- Re-sit the appropriate examination or examinations.

Alternatively the person may make a formal submission to the Certification Body for resolution under Clause 6.5, Complaints and Appeals.

## **5.4 Withdrawal or Suspension of Certificates**

### **Withdrawal:**

- (a) The Certification Body may withdraw an inspector's certificate where an authenticated complaint of an inspector's proficiency and/or competence has been received and substantiated following a fully documented and detailed investigation.

When the Certification Body substantiates a complaint the certificate shall not be renewed without further examination(s). Such examination(s) shall be held at a time and venue specified by the Certification Body.

- (b) Failure to renew current inspector certification such certification shall lapse.
- (c) Following a request by the Certification Body the inspector shall surrender and return his/her Certificate of Proficiency and Pocket Card to the Certification Body.

### **Suspension:**

- (a) If there is any break, suspension or interruption of the named inspector exceeding 24 months from practical work in the category qualified, the inspectors certification shall be suspended until the Certification Body are satisfied by oral interview that the inspector is competent for re-certification.

## **5.5 Complaints and Appeals**

Appeals against withdrawn or suspended certificates may be made to the CBIP Board in accordance with the appeals procedure as per this clause.

CBIP maintains a documented procedure for the resolution of complaints and appeals. All complaints and appeals shall be conducted in accordance with this procedure. (QPM 19 in the CBIP Quality Manual)

When the Certification Body substantiates a complaint, and the Certificate is withdrawn or suspended by the CBIP Board, a new certificate shall not be issued without further written and oral/practical examinations.

## **5.6 Code of Ethics**

A certified inspector shall be familiar with and recognise that precepts of personal integrity are fundamental, and shall meet the Code of Ethics (refer Appendix D) of the Certification Body at all times. The inspector shall at the time of application for the examination sign to the effect that he/she accepts the CBIP Code of Ethics.

## **6.0 REGISTER or RECORDS**

The Certification Body maintains a register of persons holding current certification that is available for public review.

## APPENDIX A

### POWER LIFTS, ESCALATORS AND MOVING WALKS REQUIREMENTS OF TECHNICAL KNOWLEDGE

#### PT1: ASPECTS OF INSPECTION

##### 1.1 Objectives of Inspection

- To comply with rules and legislation.
- To verify fabrication and testing complies with design.
- To ascertain when repairs, replacements, overhauls or modifications are required.
- To assess condition of lift and associated equipment.
- To verify the ability of lifts, escalators and moving walks perform reliable under normal operating conditions between inspections.

##### 1.2 Ingredients of Inspection

- 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.
- To ensure the extent, level and frequency of inspections is adequate to ensure equipment reliability.
- To use fabrication and inspection history.
- To communicate openly and efficiently on all safety related matters promptly, clearly and effectively.
- Relationships with others.
- To verify specific manufacturers operational/maintenance requirements are being met.

##### 1.3 Stages of inspection

- Fabrication, verification of code requirements.
- Installation
- Commissioning, registration
- Operation
  - correct
  - within operational design
- Servicing
  - maintenance
  - modifications
  - checks and assessments
  - repairs

**PT2: POWER LIFT INSPECTION EQUIPMENT****2.1 Installation and Initial Inspection**

- Safety devices, fitting and operation
- Construction
- Lift well
- Machine and sheave room
- Doors
- Car
- Guides
- Buffers
- Governors
- Speed
- Runaway
- Ropes and chains
- Lift machines
- Braking and locking
- Electric installation
- Electro-hydraulic installation
- Switches (safety)
- Control features
- Notices-operating instructions, labels and seals
- Test certificates
- Machine room log
- Register
- Leveling specification
- Load test

**2.2 Period Inspection and Tests**

- General
- Governors
- Runaway
- Brake and lock
- Safety devices
- Frequency of maintenance and records
- Ropes or chains
- Buffers
- Doors
- Functional

**2.3 Special Inspections**

- Modifications
- Accidents
- Major component failure

## **INSPECTION OF ESCALATORS AND MOVING WALKS**

### **2.4 Installation and initial inspection of escalators and moving walks**

- Safety devices, fitting and operation.
- Construction.
- Surrounding environment.
- Access hatches.
- Machine spaces, top and bottom.
- Steps / pallets.
- Step clearances.
- Handrails.
- Skirts.
- Combplates.
- Balustrades.
- Brake operation.
- Speed governor.
- Chains.
- Electrical installation.
- Switches (Safety).
- Safety notices / markings.
- Machine space log / compliance schedule.

### **2.5 Period inspection and tests of escalators and moving walks.**

- General
- Governor.
- Brake Operation.
- Safety devices.
- Frequency of maintenance records.
- Chains.
- Handrails.
- Steps/pallets.
- Combplates.
- Skirts.
- Step clearances.
- Balustrades.
- Access hatches.
- Safety notices/markings.

## **PT3: ASSESSMENT OF POWER LIFTS, ESCALATORS AND MOVING WALKS INTEGRITY**

### **3.1 Responsibility**

- Owner
- Inspector
- Regulating Authority

### **3.2 Documentation**

- Power lift rules
- Records

### 3.3 Investigation of Faults - Lifts

#### Ropes

- types
- failures
- internal degradation
- corrosion
- damage
- malformation
- fatigue
- overheating
- rope rotation
- termination
- clamps
- design
- construction
- lubrication
- hooks and shackles
- pulleys
- classification
- maintenance

#### Alarms

#### Doors

#### Counterweights

#### Guides

#### Governors

#### Lighting

#### Overspeed

#### Switches

#### Well

### 3.4 Investigation of faults - escalators and moving walks

#### Handrails

- Wear
- Integrity
- Drive
- Newels

#### Combplates

- Broken teeth
- Adjustment
- Fixings

#### Steps/Pallets

- Damage
- Demarcation lines
- Clearance
- Up-thrust
- Rollers

**Skirts**

- Fixings
- Damage
- Deflection safety devices
- Joints

**Balustrades**

- Damage

**Chains**

- Wear
- Lubrication
- Tension devices
- Sprockets

**Tracks**

- Wear

**Truss**

- Corrosion
- Integrity

**PT4: DOCUMENTATION AND RECORDS, LIFTS, ESCALATORS AND MOVING WALKS****4.1 General**

- objectives

**4.2 Contents**

## Technical information

- commissioning date
- no. of stops
- load
- speed
- pressure tests
- ropes and chains
- component test certificate
- layout drawing, circuit diagrams

## Accidents

## Inspection dates

Names of persons and organisations performing inspections

**PT5: INSPECTION AND EXAMINATION OF POWER LIFTS****5.1 General**

- Objectives

**5.2 First Inspections as Power Lift Rules**

## Re-inspections and Examinations

## Static

- suspension and ropes

- safety gear
- buffers
- brake
- overspeed governor
- doors
- electrical
- insulation visual examination
- earthing

#### Dynamic

- safety circuits
- car top control station
- buffer clearances
- doors
- anti creep

#### Governor

- car
- counterweight

#### Traction sheave wear

#### General

- information plate in car
- date of expiry of certificate
- number of person/load
- emergency communication
- Installation environment
- shaft
- machine room

## **PT6: ISOLATE A LIFT FOR INSPECTION**

### **6.1 General**

Objective: To ensure that an inspector has the necessary practical ability to carry out the inspection and examination of power lifts as detailed in previous sections of Appendix A in a safe manner.

### **6.2 Practical Examinations**

- Isolate a lift for inspection with regard to public and inspector safety.
- Reinststate a lift to normal service with regard to public and inspector safety.
- Access a lift shaft in a safe manner.
- Access the top of a lift car in a safe manner.
- Operate a lift from the "top of car" control station.
- Carry out a runaway safety test.
- Check operation of speed governor.
- Re-set speed governor.
- Re-set safety gear.
- Check lift speed.
- Pressure test hydraulic system.

**PT 7: INSPECTION AND EXAMINATION OF ESCALATORS AND MOVING WALKS****7.1 General**

- Objectives

**7.2 First inspection as European Standard BSEN115 Section 16**

Re-inspections and examinations as European Standard BSEN115 Section 16, Clause 16.2.3 - 'Periodic Inspection and Test'

**PT8: ISOLATE AN ESCALATOR OR MOVING WALK****8.1 General**

Objective

To ensure that an inspector has the necessary practical ability to carry out the inspection and examination of escalators/moving walks as detailed in previous sections of Appendix A in a safe manner.

**8.2 Practical Examinations**

- Isolate a unit for inspection with regard to public and inspector safety.
- Reinststate a unit to normal use with regard to public and inspector safety.
- Access machine spaces in a safe manner.
- Remove and replace steps.
- Operate unit safety with step removed.
- Safety inspect components with steps removed.
- Check brake operation.
- Check governor operation.
- Locate and operate safety devices.

## APPENDIX B – SAMPLE EXAMINATION QUESTIONS

### Examination Format, Theory Papers:

All examination papers are closed book unless the use of specified reference material is stated on the examination paper. Open book and closed book questions on NZS 4332 and BS EN 115 will be given and candidates required to bring an unmarked copy of these Standards with them.

### Written Examinations

The written examination includes questions in a combination of multi-choice, short and long (essay) type questions on the subject matter given in Clause 2.0 and Appendix A. The pass mark is 70% in each paper.

A good knowledge of NZS 4332 and BS 115 is required for the written examinations.

### Oral/Practical Examination

The oral/practical examination will examine the candidates experience and job knowledge and will be carried out by a panel of examiners. The oral/practical examination will be carried out on a day specified by the Certification Body (CBIP). Candidates must pass the written papers in order to proceed to the oral/practical.

### Sample – Multi-Choice Questions

Q1 All welding used in the construction of lift installations shall comply with:

- (a) AS/NZS 1554.5
- (b) AS/NZS 1554.4
- (c) AS/NZS 1554.1
- (d) AS/NZS 1554.6

(Question from NZS 4332)

Q2 On outdoor escalators or moving walks the intensity of illumination on the landing shall be not less than:

- (a) 50 lx
- (b) 60lx
- (c) 40lx
- (d) 15lx

(Question from EN 115)

### Sample Short Answer Questions

Q1 What is a car leveling device?

Q2 What type of fit is required for a shaft in a rotating member?

- Q3 State the purpose of an up-thrust switch on an escalator?
- Q4 What protection is provided to avoid a passengers limb traveling into an escalator at the handrail entry point?
- Q5 Under what circumstances is a passenger lift allowed to operate with its doors open?

### **Sample Long Answer Question**

- Q1 Discuss what inspections you would carry out on an escalator during periodic maintenance.
- Q2 State the requirements for the operating devices on the roof of a car for inspection service as given NZS 4332.
- Q3 (a) List the electrical faults envisaged for an escalator as given in EN 115.
- (b) State ten (10) of the mechanical hazards for an escalator or moving walk as listed in EN 115.

**APPENDIX C – APPLICATION FORM**

**APPENDIX D – CODE OF ETHICS**