

## Chapter 14:08 Factories and Works (Elevator and Escalator) Regulations, 1976

1 (1) These regulations may be cited as the Factories and Works (Elevator and Escalator) Regulations, 1976.

(2) These regulations shall come into operation on the **1st May, 1976**.

2 In these regulations—

**"authorized maximum load"** means the maximum number of persons or maximum load fixed by an inspector in terms of section *twelve*;

**"Chief Inspector"** means the Chief Inspector of Factories appointed in terms of section 4 of the Act;

**"competent person"** means a person who has served an apprenticeship in an appropriate trade or who has not less than 5 years' practical experience in working with machinery, and who has a thorough knowledge of the machinery or class of vessel of which he is in charge or which he may be required to examine;

**"elevator"** means any elevator, hoist or other appliance used in a building for the raising and lowering of persons by means of a car, cage, cradle or other conveyance in a hatchway on fixed guides;

**"escalator"** means a power-driven inclined continuous stairway, incorporating moving steps and handrails intended for the conveyance of persons from one level to another;

**"fixed date"** means the date of commencement of these regulations;

**"form"** means the appropriate form set out in the *First Schedule*;

**"goods elevator"** means an elevator used solely for the transport of goods and such attendants or operators as are necessary and authorized to travel thereby, but does not include hoists worked by hand-power or hoists in which attendants, operators or other persons never travel;

**"hatchway"** means any vertical or inclined way in which an elevator or goods elevator is operated;

**"inspector"** means an inspector appointed in terms of section 4 of the Act;

**"landing"** means any floor platform which is an authorized stopping place for the elevator;

**"user"** means an occupier or builder or the person or persons owning or leasing the machinery.

3 No user shall use an elevator or cause or permit an elevator to be used—

(a) unless it complies with the provisions of these regulations;

and

(b) otherwise than in accordance with the provisional certificate of permission or certificate of permission as the case may be issued in respect thereof by an inspector.

4 (1) Any person who wishes to erect or operate an elevator shall, whether or not a provisional certificate of permission or certificate of permission has been granted to any previous user thereof, make written application to an inspector on **Form F.E.I** and submit with such application the fee prescribed by section *seven*.

(2) In the case of the erection of an elevator, the application form shall be accompanied by— .

(a) drawings of the machine-room and hatchway in plan and elevation to a scale of at least 1:50, indicating clearly all dimensions, including doors, windows and other openings; and

(b) dimensioned drawings showing the position of the installation in plan and elevation; and

(c) a diagram showing the complete electrical wiring installation; and

(d) details of the number and size of the hoisting ropes, together with the maker's specification and test certificate.

5 (1) On receipt of an application to erect or operate an elevator and the appropriate fee, an inspector may grant written permission to erect the elevator and may, after such inspection of the elevator as he may consider necessary for the purposes of the regulations—

(a) issue a provisional certificate of permission on **Form No. F.E.2**, subject to such conditions and valid for such period as he may determine; or

(b) if he is satisfied that—

i) the elevator may safely be used; and

(ii) the provisions of these regulations have been complied with, issue a certificate of permission on **Form No. F.E.3**, subject to such conditions as he may specify therein.

6 (1) The user of an elevator shall be supplied by an inspector with a register on **Form No. F.E.4**, free of charge.

(2) The register shall be kept in a safe place by the user and it shall be available to an inspector at all reasonable times.

(3) If the register is lost, defaced or destroyed, the user shall make application, in writing, to an inspector for the issue of a duplicate register. The application shall be accompanied by the fee prescribed in section *seven*.

(4) The user shall supply a book, to be known as an elevator record book, in which shall be entered—

(a) the name of the competent person, or the name of the firm employing such competent person, nominated by him to carry out the examination prescribed by section *nine*; and

(b) the particulars specified in the *Second Schedule* in respect of the rope used in operating the elevator; and

(c) a report of every examination referred to in section *nine*, including any repairs or alterations carried out, which shall be signed by the person who made the examination or who carried out the repairs or alterations.

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7 (1) The following fees shall be paid to an inspector—

(a) by a user for each Provisional certificate or each Certificate of Registration issued in respect of an application to use an elevator: the higher of \$2 000,000,000,000,00 (two trillion dollars) or US\$200,00 or Zimbabwean dollar equivalent and in addition, the higher of \$200,000,000,000,00 (two hundred billion dollars) or US\$20,00 or Zimbabwean dollar equivalent -per landing;

[Amended by SI 28/09 with effect from 20<sup>th</sup> March, 2009.]

Provided that where a provisional certificate is issued to permit an elevator to be used, no further fee shall be payable for the subsequent issue of the registration certificate;

(b) by a user who proposes to extend the number of landings served by an elevator; the higher of \$2 000,000,000,000,00 (two hundred billion dollars) or US\$20,00 or Zimbabwean dollar equivalent for each additional landing to be served;

[Amended by SI 28/09 with effect from 20<sup>th</sup> March, 2009]]

Provided that where an inspection is carried out in connexion with such extension the fee prescribed, in paragraph (c) of this section shall be payable in respect of the original installation;

(c) by the user of an elevator in respect of each general inspection of an elevator conducted by an inspector or subsequent to the issue of a certificate of registration; the higher of \$1 000 000 000 000,00 (one trillion dollars) or US\$100,00 or Zimbabwean dollar equivalent, and in addition the higher of \$200 000 000 000,00 (two hundred billion dollars) or US\$20,00 or Zimbabwean dollar equivalent per landing;

[Amended by SI 28/09 with effect from 20<sup>th</sup> March, 2009]]

by a user for the issue of a duplicate permit, certificate or inspection register; the higher of \$100,000,000,000,00 (one hundred billion dollars) or US\$10,00 or Zimbabwean dollar equivalent.

[Amended by SI 28/09 with effect from 20<sup>th</sup> March, 2009]]

(2) if a user fails to comply with the provision of subsections (3) and (4) of section *ten*, he shall, nevertheless be liable to payment of fees prescribed in subsection (1) of this section.

8 (1) A user of an elevator shall forthwith notify an inspector, in writing, when—

- (a) he ceases permanently to use an elevator; or
- (b) he transfers the ownership of an elevator to any other person, in which case he shall advise the inspector of the name and address of such person; or
- (c) he proposes to effect a change or alteration to an elevator.

(2) In the circumstances referred to in paragraphs (a) and (b) of subsection (1), the notification shall be accompanied by the provisional certificate of permission or certificate of permission and the register issued to the user in terms of section *five* and *six* respectively.

9 (1) A user shall nominate a competent person or persons or a firm which employs such a competent person to examine—

- (a) at least once a week, the guides and ropes, the engine or motor, all drums and sheaves and all safety appliances; and
- (b) at least once in each month, the entire elevator plant and all fittings and appliances thereof.

(2) At the examination referred to in paragraph (b) of subsection (1), the ropes supporting the elevator car and the counterpoises shall be thoroughly cleaned for the purpose of ascertaining the amount of deterioration therein and the number of broken wires per lay, and the estimated amount of wear on the outer wires shall be recorded in the elevator record book.

(3) A report of the result of every examination and of any repair or alteration carried out, shall be recorded without delay in the elevator record book, and shall be signed by the person who made the examination or carried out the repair or alteration.

(4) If as a result of any examination any weakness or defect is discovered which is liable to cause danger to any person using the elevator, the person making the examination shall forthwith report the matter to the user, who shall take steps to prevent any person from using the elevator until the weakness or defect has been rectified.

(5) All reasonable precautions shall be taken by the competent person or persons referred to in subsection (1) to prevent anyone from using the elevator while it is being operated from the machine-room, and while any examination, service or repair is being carried out, or while work is being done in the hatchway.

(6) When it is necessary for a landing door or gate to be open while work is in progress on the elevator or in the hatchway, the person performing the work shall ensure that a suitable barrier is placed across the opening of the hatchway.

10 (1) Elevators shall be inspected periodically by an inspector, and the result of such inspection shall be entered by him in the elevator inspection register.

(2) Whenever an inspector proposes to conduct an inspection of an elevator, he shall, after consultation with the user, determine the date and time of the inspection and notify the user, in writing.

(3) Upon receipt of such notification the user shall cause all ropes and machinery to be thoroughly cleaned and prepared for inspection.

(4) On the date and at the time notified in terms of subsection (2), the user of an elevator shall place at the disposal of an inspector, free of charge, workmen, lights, tools, instruments and such equipment as may be required by an inspector for the purpose of making an inspection.

(5) Where an inspector has, through failure of the user to comply with the provisions of subsections (3) and (4), been unable to inspect an elevator on the day or at the time notified in terms of subsection (2), the user shall within 7 days after that date make a written application for a new date and time to be fixed for such inspection and shall forward with such application the fee prescribed in section *seven*.

11 (1) The user of an elevator shall—

- (a) take all reasonable precautions to ensure the safety of any person using the elevator;
- (b) cause all safety devices to be maintained in good working condition and properly used;
- (c) stop the working of the elevator if it is in any way defective or if its use appears to have become or is likely to become dangerous;
- (d) cause all landings and stair approaches to elevators to be adequately lighted at all times while the elevator is available for use.

(2) In the case of elevators used for the conveyance of persons, the user or the person nominated by the user in terms of section nine shall report, in writing, to an inspector any—

- (a) fracture or the failure to work efficiently of any essential part of the elevator, including suspension ropes or the attachment to the conveyance, counterpoise or drum, sheaves, shafts, axles or bearings, brakes, safety catches or over-winding prevention devices;
- (b) jamming of the conveyance in the hatchway or any occurrence which may have over-strained a suspension rope;
- (c) operation of safety catches or over-winding prevention devices in circumstances when this should not have occurred.

12 (1) The maximum number of persons which may be carried at one time by an elevator, and the maximum load which may be carried by a goods elevator shall be fixed by the inspector and recorded on the provisional certificate of permission or certificate of permission.

(2) A user shall not cause or permit the maximum authorized load of persons or goods to be exceeded.

13 A user shall cause an elevator to be marked in a conspicuous place inside the elevator car (hereinafter referred to as "**the car**") with—

- (a) the name of the maker;
- (b) the maximum load in kilograms;
- (c) the maximum number of persons which the elevator may carry at anyone time.

14 (1) Every elevator, other than an automatic elevator controlled by push-buttons, shall be in charge of, or operated by, a reliable person of not less than 17 years of age who has received no less than 1 week's training from a competent operator and has been suitably instructed in the dangers attached to the operation of elevators.

(2) No person other than the operator shall operate an elevator.

(3) No operator shall absent himself from the elevator during the period he is in charge thereof unless he has ensured that the elevator cannot be operated by unauthorized persons.

(4) An operator shall be responsible for the locking of all doors or gates at landings before the elevator is moved from the landings.

(5) An operator shall cease to use the elevator when any defects are found whereby danger to life or injury may be caused.

(6) When an inspector is satisfied that an operator is incompetent or unable for any reason to continue to operate an elevator efficiently, he shall, by notice in writing, call upon the user to relieve such operator from duty, and such operator shall forthwith cease to operate such elevator.

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15 (1) Where a hatchway of an elevator is not enclosed by walls—

(a) access to the hatchway by means of adjacent stairways, platforms or floors which are not authorized landings shall be prevented by means of adequate bratticing or grille-work to a height of at least 2,1 mtrs. ; and

(b) the entire space of each hatchway landing door shall be closed by similar bratticing or grille-work.

(2) The bratticing or grille-work mentioned in subsection (1) shall be so constructed that the space between any 2 members thereof measures not more than 40 mm.

(3) All bratticing and grille-work installed in accordance with the requirements of this section shall be maintained in good order and repair by the user.

16 (1) The entrance to hatchways at all landings shall be fitted with substantial doors or gates at least 1,8 mtrs. in height.

(2) In the case of an elevator erected after the fixed date, such entrances shall be fitted with substantial doors or shutter-type gates, the inner surfaces of which, when closed, are as nearly as practicable, flush with the inside of the hatchway.

(3) When it has become necessary, through wear or any other cause to replace the landing doors or gates of an elevator erected prior to the fixed date, they shall where practicable, be replaced by doors or shutter-type gates, the inner surfaces of which, when closed, are, as nearly as practicable, flush with the inside of the hatchway.

(4) Vertical sliding doors shall not be permitted.

(5) No person shall fit any door to a hatchway, except at an authorized landing, unless—

(a) permitted or required to do so, in writing, by an inspector; or

(b) authorized in terms of section *twenty-four*.

(6) Where a landing door is mechanically coupled with a car door or gate for opening or closing purposes, a device shall be fitted that automatically retracts the door if it is obstructed in any way during closing, and the door shall be so adjusted that the force with which it closes shall not be such as to cause injury to persons.

(7) All lattice-type gates shall be fitted with full-length mid bars or pickets so spaced that the opening between any 2 vertical members does not exceed 50 mm.

17 (1) Subject to the provisions of this section, every hatchway landing entrance to an automatic elevator shall be fitted with the following devices, so constructed, situated or screened as to be inaccessible to unauthorized persons—

(a) a mechanical lock which operates in conjunction with an electrical circuit-breaker, so arranged that—

(i) the car cannot be moved by power unless all landing doors are closed and locked; and

(ii) no landing door can be opened unless the car is at rest at that landing; and

(b) a circuit-breaker so arranged that the car cannot be moved by power unless all landing doors or gates are closed.

(2) The circuit-breakers referred to in paragraphs (a) and (b) of subsection (1) shall be in separate control circuits.

(3) Where the car door or gate is mechanically coupled with the landing door or gate, for opening and closing purposes, the provisions of paragraph (b) of subsection (1) shall not apply.

(4) Every hatchway landing entrance to an elevator controlled by an operator shall be fitted with the following devices, so constructed, situated or screened as to be inaccessible to unauthorized persons—

(a) a substantial mechanical lock which cannot be opened from outside unless the car is at rest at that landing;

(b) a circuit-breaker so arranged that the car cannot be moved by power unless all the doors and gates are closed.

(5) Notwithstanding the provisions of subsections (1),(2),(3) and (4), an installation may, subject to the provisions of subsection (3) of section twenty-seven, open the landing doors of an elevator before the car comes to rest at a landing.

(6) All doors or gates opening to an elevator hatchway shall be kept locked when not in use.

18 (1) All projections in hatchways including door lintels where doors are not flush with the hatchway, shall be rendered safe by a bevelled approach on the hatchway side opposite to the opening of the car.

(2) Bevels shall not be less than 70° to the horizontal, and the surface shall be covered by smooth sheet metal.

(3) No user shall require or permit any piping, ducting, wiring, or any other equipment which does not form part of the elevator installation to be placed in the hatchway, or require or permit the hatchway to be used for any purpose other than the operation of the elevator.

19 (1) Cars and counter-weights shall be guided throughout their travel by rigid guides of substantial construction, which shall be securely fastened in the hatchway.

(2) The hatchway construction, guide-rails and guide-rail fixings shall be such as to withstand safely the application of the car safety catches with the maximum authorized load, as well as any other force resulting from the normal operation of the elevator.

(3) The bottom ends of the guide-rails shall rest on a sure foundation and shall be firmly fixed in that position.

(4) The guide-rails shall not be fixed in the ceiling of the hatchway, and a clear space shall be left between the top end of the guide-rails and the ceiling.

(5) No wooden guide-rails shall be used where the speed of the car exceeds 30 mtrs. per minute.

(6) No cast-iron or hollow guide-rails shall be installed.

(7) Counterpoise runways shall be enclosed by bratticing from a point 300 mm. above the floor of the hatchway to a point at least 2,1 mtrs. above the floor of the hatchway, except where compensating chains or ropes attached to the counterpoise prevent such bratticing.

20 Elevators operating at speeds of—

(a) up to and including 1,75 mtrs. per second shall be provided with spring, air or hydraulic buffers;

[Amended by SI 290/82 with effect from 14<sup>th</sup> May, 1982]]

(b) more than 1,75 mtrs. per second shall be provided with hydraulic buffers;

[Amended by SI 290/82 with effect from 14<sup>th</sup> May, 1982]]

placed at the bottom of the hatchway and arranged symmetrically with reference to the centres of the car and the counterpoise:

Provided that if such buffers are attached to the car or counterpoise the provisions of this subsection shall be deemed to have been complied with.

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21 (1) Where a door is fitted for access to the bottom of a hatchway, such door shall operate the circuit-breaker which will prevent the elevator from working while the door is open.

(2) Where no access door is fitted to give access to the bottom of a hatchway, and where the floor of the hatchway is more than 1,5 mtrs. below the bottom landing, a permanently fixed metal ladder shall be installed to give access thereto from the bottom landing.

(3) A manually operated switch or switches which shall immobilize the elevator shall be fitted within reach of the bottom of the hatchway and the bottom landing.

22 Where 2 or more elevators operate in 1 hatchway, that portion of the bottom of the hatchway situated beneath an elevator shall be separated from any other portion of the bottom of the hatchway situated beneath another elevator by a wall or bratticing to a height of at least 2,1 mtrs. above the floor of the hatchway.

23 (1) There shall be a clear space of not less than 600 mm. between the bottom of the hatchway and the lowest point for projection on the underside of the car when the car rests on its fully compressed buffer:

Provided that guide-shoes or rollers, safety catch assemblies, aprons and guards shall not be taken into consideration for determining the lowest point of the car.

(2) When the car rests on its fully compressed buffer, no part of the car or any equipment attached thereto shall strike any part of the floor of the hatchway or any part of the equipment therein.

(3) When the car is at rest at the lowest landing there shall be a clear space of not less than 300 mm. between the buffer striking plate and the face of the fully extended buffer.

(4) There shall be a clear space above the car cross-head when the car is at the top landing, which shall be such as to permit the car to travel a distance of at least 900 mm. beyond the top landing without the car or any of its attachments striking any part of the hatchway or any equipment located therein.

(5) When the car rests on the fully compressed buffers, a clear space shall be provided above the counterpoise so that the counterpoise or any of its attachments will not strike any part of the hatchway or any equipment located therein.

(6) The clearance between the car and the hatchway enclosure or any portion of the hatchway enclosure shall in no case be less than 25 mm. except on the entrance side of the car, where the clearance between the car sill and the landing sill shall not be less than 12 mm. and not more than 30 mm.

(7) The clearance between—

(a) the car and the counterpoise shall be not less than 50 mm:

Provided, that, where a counterpoise screen is installed, the clearance between the screen and-

(i) the car shall not be less than 25 mm.; and

(ii) the counterpoise and the hatchway, enclosure shall be not less than 20 mm.;

(b) the counterpoise and the hatchway enclosure shall be not less than 20 mm.

(8) When the car, of an automatic elevator is at rest at a landing, the distance between the leading edge of the car door or gate during closure and the landing door or gate shall not be more than 100 mm:

Provided that, in the case of elevators which were installed prior to the fixed date, the provisions of this subsection shall be deemed to have been complied with if, the landing doors or gates are fitted with devices to prevent persons from standing in tile space between the doors or gates, when both are closed.

24 (1) Every elevator shall be provided with automatic devices at the top and bottom of the travel of the car in the hatchway, so arranged that the circuit controlling the power-supply to the elevator shall be cut off before the car has travelled 300 mm. above the top landing or, 300 mm. below the bottom landing.

(2) In electric elevators, such devices shall be so arranged that all current shall be cut off independently of any other operating device, so as to prevent any movement of the car, under power, in the direction of opposite travel.

25 (1) All counterpoises shall—

- (a) have the sections bolted together securely or otherwise secured against becoming detached; and
- (b) be so situated that they cannot fall upon any part of the elevator or machinery; and
- (c) be suspended in the guides in such a manner that they will travel freely without danger of becoming detached.

(2) In the case of an elevator wherein the hatchway does not extend to the lowest floor of the building and where the space under the hatchway is accessible to persons at any time, the counterpoise shall be fitted with—

(a) safety catches; and

- (b) a circuit-breaker so arranged as automatically to break the circuit controlling the power-supply to the elevator when the safety catches, come into operation.

26 Every car shall be of substantial construction, enclosed on all sides which are not entrances, and the top shall be covered by a substantial roof.

27 (1) Subject to the provisions of subsection (3), every car shall be fitted with a door or gate which operates an electrical circuit-breaker, so arranged that the car cannot be moved by power when such door or gate is open:

Provided that—

- (i) no car of an elevator erected after the fixed date shall be fitted with a lattice-type gate; and
- (ii) where it has become necessary, through wear or any other cause, to replace a lattice gate such gate shall, where practicable, be replaced by a door.

(2) The door or gate of the car of an automatic elevator shall—

- (a) open and close automatically; and
- (b) unless mechanically coupled to a landing door, not start to close until the landing door or gate is closed:

Provided that, in the case of an automatic elevator erected before the 1st March, 1951, the provisions of this subsection shall be deemed to have been complied with if the door or gate of the car closes automatically.

(3) Notwithstanding the provisions of subsection (1), an installation may open the car door of an elevator before the car comes to rest at a landing if the car is fitted with an automatic levelling device which is automatically operated in conjunction with devices which cause the doors to commence to open when the car enters the levelling zone:

Provided that—

- (i) the levelling zone shall not exceed 400 mm. above or below a landing; and
- (ii) the speed of the car within the levelling zone shall not exceed 0,2 mtrs. per second; and

[Amended by SI 290/82 with effect from 14<sup>th</sup> May, 1982]]

- (iii) a car apron plate of not less than 450 mm. is fitted; and



(iv) where there is a bevelled approach in accordance with the provisions of section 18, the bevelling shall not be less than 450 mm.

(4) All lattice-type gates shall be fitted with full-length mid bars or pickets so spaced that the opening between any 2 vertical members does not exceed 50 mm.

(5) Where 2 or more elevators operate in one hatchway and escape-doors are fitted in the cars, such escape-doors shall be fitted with circuit-breakers so arranged as to render inoperative the control of the driving motor of the elevator in which the door has been opened.

28 The car of an automatic elevator which serves more than 2 floors shall be fitted with a retiring cam so arranged that the manually operated landing door or gate cannot be opened unless the car is at rest at a landing.

29 (1) Cars shall be fitted with—

- (a) a button inside the car, marked "ALARM", whereby a bell may be sounded;
- (b) an emergency stop-switch fitted on top of the car as near to the point of suspension as practicable, for use during service or inspection;
- (c) electric lighting inside the car, consisting of at least 2 bulbs or tubes wired in parallel, which shall be kept alight at all times when the elevator is available for use or is being serviced;
- (d) a suitable fitting at the top and bottom of the car for a light to be affixed thereto when repairs, examination or inspections are being carried out:

Provided that a watertight light fitting may be fixed in the hatchway below the lowest landing instead of at the bottom of the car.

(2) The size and type of the bell referred to in paragraph (a) of subsection (1) and the place of which it is installed shall be subject to approval by an inspector and, if the bell is electrically operated, it shall be supplied with electricity from a circuit other than that of the power supply of the elevator driving machinery.

30 (1) Every car shall be fitted with efficient safety catches which, on test under static conditions, shall be capable of holding the car, together with twice the maximum load, in any position in the hatchway.

(2) An inspector may require a running test of safety catches with no load.

(3) In estimating the maximum load for passenger elevators, 70 kgs. shall be allowed for each person.

(4) In cases where the safety catches are operated through shafts, all the levers and safety catches shall be keyed to the shafts.

(5) No elevator which has a speed in excess of 70 mtrs. per minute shall be fitted with the cam or instantaneous grip-type of safety catch.

(6) An accessible switch, in a position approved by an inspector, shall be fitted on the elevator car, so arranged as automatically to break the circuit controlling the power-supply to the elevator when the safety catches come into operation.

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31 (1) No rope shall be used for supporting a car or counterpoise unless it is of good quality and manufacture, free from any defect and of adequate strength.

(2) A car or counterweight operated by ropes shall be suspended by at least 2 ropes of equal size and strength.

(3) The diameter of the wires used in the construction of the rope shall be suited to the diameter of the sheave or drum over which the rope works, and the diameter of the sheave or drum shall not be less than 40 times the diameter of the rope.

(4) No rope shall be used for supporting a car or counterweight when the estimated aggregate breaking load of all the ropes supporting such car or counterweight has become reduced to less than 10 times the maximum static load.

(5) Before a rope of any elevator is renewed, full particulars of the construction of the new rope, as required by subsection (4) of section *six*, shall be supplied to an inspector.

(6) All ropes used for supporting a car or counterpoise shall be renewed after 10 years service.

32 (1) The connexions between all ropes and the drums, counterpoise and cars shall be so designed as to prevent accidental disconnexion from taking place and shall have a strength at least equal to the breaking load of the ropes to which they are attached.

(2) The ends of each rope shall be attached by means of independent connexions, and appliances shall be fitted which shall automatically equalize the load between the ropes.

(3) When hoisting ropes are secured to the structure, they shall be anchored to the machine-carrying beams or to suitable rolled-steel sections specially supplied for that purpose.

(4) All rope connexions shall be renewed whenever the ropes are renewed:

Provided that no connexions need be renewed at intervals of less than 5 years.

33 In the case of elevators, where no part of the rope is rigidly fixed to the drum, the construction shall be such that there can be no dangerous slipping of the ropes on the drum under any possible working conditions.

34 (1) All overhead machinery shall be erected—

(a) on reinforced-concrete platforms of satisfactory design and adequate strength to support the loads; or

(b) on rolled-steel joists having sufficient strength to carry the total maximum loading and with ends resting upon walls or pillows of adequate strength.

(2) Elevator driving machinery shall be secured in position and shall be of sufficient power to raise 115% of the authorised maximum load in the car, cradle or other receptacle.

35 (1) In the case of elevators operated by motors or engines, the elevator driving machine shall be fitted with an efficient brake so designed as to hold the car at rest in any position in the hatchway when loaded with at least 1,5 times its authorised maximum load.

(2) Electrically operated elevators shall be so arranged that, during normal operation, the brake is not released before power has been applied to the driving motor.

(3) The brake shall be so constructed that it is applied automatically when the elevator driving machinery is not in operation or when any floor-stopping or electrical protective device operates.

36 (1) Every car suspended by ropes shall be equipped with a speed governor to operate the safety catches:

Provided that broken-rope safety devices may continue to be used if installed prior to the fixed date.

(2) Where the counterpoise is also fitted with safety catches, a separate speed governor or broken-rope safety device to operate the safety catches shall be provided for the counterpoise

(3) Speed governors shall be set to trip at speeds of not less than 115% and not more than 140% of the rated speed of the elevator.

(4) Where speed governors for counterpoises are installed, they shall be set to trip at speeds greater than, but not more than 10% above, that at which the car governor is set to trip.

(5) In the case of hydraulic, steam or electric elevators in which the driving machinery is not governed effectively, a reliable speed safety device, approved by an inspector, shall be fitted to control the motion of the driving machinery within safe limits.

37 Such moving parts of elevator machinery, as an inspector may require shall be fitted with efficient guards.

38 (1) A user of an elevator shall comply with the provisions of this section in respect of the machinery used.

(2) A machinery room shall be of a size adequate for the proper maintenance of the machinery installed therein and there shall be a clear space of not less than 600 mm. on at least 3 sides of each machine.

(3) The height of the machinery room shall be at least 2,1 mtrs., measured from the floor to the underside of the lowest portion of the building structure.

(4) Means of obtaining natural light to be supplied in a machinery room shall be not less than 10% of the floor space of such room, and such light shall be supplemented by artificial lighting of not less than 160 lux, which shall be connected to a circuit other than that of the power-supply to the elevator.

(5) A machinery room shall be ventilated by means of airbricks, louvres or other means, in addition to windows which can be opened and closed.

(6) No underground machinery room shall be used without the authority, in writing, of the Chief Inspector.

(7) Access to machinery rooms shall be by stairs constructed of non-flammable material:

Provided that, in the case of elevators in use prior to the fixed date and where it is impracticable to construct stairs, authority may be granted for the use of metal cat-ladders, not exceeding 2,5 mtrs. in length.

(8) Approaches to machinery rooms shall be unobstructed and adequately lighted.

(9) Machinery rooms shall be kept locked unless inspections are being made or work in connexion with the operation of the elevator is in progress, and a key shall be kept available on the premises and in the possession of an authorized person.

(10) The motor of each elevator shall be distinctly marked so as to indicate the upward and downward movements of the car.

(11) In every machinery room in which the machinery of more than 1 elevator is installed, all the machinery of each elevator shall be distinctly marked with the same distinguishing mark which shall differ from the mark allotted to the machinery of any other elevator in that room.

(12) No machinery room shall be used as a store-room for any goods or materials other than oil, grease, tools and such materials as are required for the maintenance of the elevator.

39 (1) The electrical wiring of all elevators, except for the car trailing cables, shall be in screwed conduits or ducting approved by an inspector:

Provided that an inspector may authorize the use of suitably sheathed cables.

(2) The electrical installation of every elevator, except for the lighting circuit, shall be fitted with a main switch in the elevator machinery room, which shall be placed in an easily accessible position as close to the entrance to the machinery room as practicable.

(3) Electric motors of elevators operated by polyphase alternating electric current shall be fitted with a reverse phase relay or other equivalent protection to prevent the reversal of the driving motor through the inadvertent reversal of the phases.

(4) All accessible exposed metallic portions of the elevator installation which, though normally not forming part of an electrical circuit, may accidentally become electrically charged shall be bonded to earth.

40 (1) All goods elevators operated in a hatchway within the same enclosure as an elevator shall comply with all the provisions of these regulations governing the construction and use of elevators.

(2) Notwithstanding the provisions of subsection (1), the provisions of sections *thirteen*, *sixteen* and *seventeen* and subsection (2) of sections *twenty-seven* and *twenty-eight* shall not apply to goods elevators.

(3) Goods elevators shall comply with the following requirements, that is to say—

- (a) a goods elevator shall be marked in a conspicuous place with—
  - (i) the name of the maker; and
  - (ii) the maximum mass of goods which may be carried at one time; and
  - (iii) the maximum number of attendants who may be carried at any one time;
- (b) the car shall be of substantial construction and fitted with a strong roof over that portion of the car occupied by the operator when operating the goods elevator;
- (c) the car shall be fitted with efficient safety catches and, in addition with a reliable speed-controlling device when the speed of the driving machinery is not governed;
- (d) the car shall be fitted with gates or doors:

Provided that in the case of cars used to carry motor vehicles or other bulky goods, the use of bars instead of gates may be authorized;

- (e) all gates, doors or bars shall be fitted with circuit-breakers approved by the inspector;
- (f) every hatchway, door or gate of an automatic goods elevator shall be fitted with a circuit-breaker so arranged that the car cannot be moved by power when any landing door or gate is unlocked, and that no door or gate can be opened or remain open unless the car is at the landing;
- (g) any rails fitted to the floor of the car shall be flush with the floor.

## PART II

### ESCALATORS

#### Chapter 14:08 Factories and Works (Elevator and Escalator) Regulations, 1976

41 (1) No user shall commence the erection of an escalator until he has received the written permission of an inspector to do so.

(2) No user shall use an escalator or cause or permit an escalator to be used unless he is in possession of—

- (a) a valid provisional certificate of permission, in his name, issued by an inspector on **Form No. F.W.E.5**; or
- (b) a valid certificate of permission, in his name, issued by an inspector in **Form No. F.W.E.6**;

in respect of the escalator.

(3) No user shall use an escalator or cause or permit an escalator to be used—

- (a) unless it complies with the provisions of these regulations:
- (b) otherwise than in accordance with the provisional certificate of permission or certificate of permission, as the case may be, issued in respect thereof by an inspector.

42 (1) Any person who wishes to erect and use, an escalator shall, whether or not a provisional certificate of permission or certificate of permission has been issued to any previous user thereof, make application to an inspector in **Form No. F.E. 7**, and submit with such application the fee prescribed under section *forty-five*.

(2) The application shall be accompanied by specifications and legible dimensioned drawings showing the position of the installation in plan and elevations, and a diagram showing the complete electrical wiring of the installation.

43 (1) On receipt of an application to erect or operate an escalator and the appropriate fee, an inspector may grant written permission to erect or operate the escalator and may, after such inspection of the escalator as he may consider necessary-

(a) issue a provisional certificate of permission in **Form No. F.E.5**, subject to such conditions and valid for such period as he may determine:

(b) if he is satisfied that—

(i) the escalator may safely be used; and

(ii) the provisions of these regulations have been complied with;

issue a certificate of permission in **Form No. F.E.6**, subject to such conditions as he may specify therein.

(2) A user shall cause to be fixed in a conspicuous place, or in such place as an inspector may direct, a suitable glazed, locked frame in which the provisional certificate of permission or certificate of permission shall be exhibited.

(3) If the provisional certificate of permission or certificate of permission is lost, defaced, or destroyed, the user shall, not later than 7 days after the discovery of such occurrence, apply, in writing, to an inspector for the issue of a duplicate certificate.

(4) The application mentioned in subsection (3) shall be accompanied by the fee prescribed in section *forty-five*.

44 (1) A user of an escalator shall be supplied by an inspector with a register on Form No. F.E.4, free of charge.

(2) The register shall be kept in a safe place by the user and shall be available to an inspector at all reasonable times,

(3) If the register is lost, defaced or destroyed, the user shall make application, in writing, to an inspector for the issue of a duplicate register and pay the fee prescribed in section *forty-five*.

(4) A user shall provide a book, to be known as the escalator record book in which he shall enter or cause to be entered—

(a) the name of the competent person, or the name of the firm employing such competent person, nominated by him to carry out the examinations prescribed under section *twenty-seven*; and

(b) a true report of every examination referred to in section *forty-seven* including any repairs or alterations carried out, which shall be signed by the person who made the examination or carried out the repairs or alterations.

45 The following fees shall be paid to an inspector—

(a) by a user for each Certificate, or Registration or Provisional certificate of registration: the higher of \$2 000,000,000,000,00 (two trillion dollars) or US\$200,00 or Zimbabwean dollar equivalent:

[Amended by SI 28/09 with effect from 20<sup>th</sup> March, 2009]

Provided that where a provisional certificate is issued to permit an escalator to be used, no further fees shall be payable for the subsequent issue of the registration certificate:

(b) by the user of an escalator in respect of each general inspection of an escalator conducted by an inspector subsequent to the issue of the certificate of registration: the higher of \$1 000,000,000,000,00 (one trillion dollars) or US\$100,00 or Zimbabwean dollar equivalent: and

[Amended by SI 28/09 with effect from 20<sup>th</sup> March, 2009]]

(c) by a user for the issue of a duplicate certificate or inspection register: the higher of \$100,000,000,000,00 (one one hundred billion dollars) or US\$10,00 or Zimbabwean dollar equivalent.

[Amended by SI 28/09 with effect from 20<sup>th</sup> March, 2009]]

(2) Where a user fails to comply with the provision of subsections (5) and (6) of section *forty-seven*, he shall, nevertheless, be liable to payment of the fee prescribed in subsection (1) of this section.

46 (1) A user of an escalator shall forthwith notify an inspector in writing, when—

(a) he ceases permanently to use the escalator for which he is the holder of a certificate of permission or a provisional certificate of permission; or

(b) transfers the ownership of the said escalator to any other person, in which case he shall advise the inspector of the name and address of such person; or

(c) he proposes to effect a change or alteration to the said escalator.

(2) In the cases referred to in paragraph (a) and (b) of subsection (1) the notification shall be accompanied by the provisional certificate of permission or certificate of permission and the register issued to the user in terms of section *forty-three* and *forty-four*.

47 (1) A user shall nominate a competent person or persons, or a firm which employs such a competent person, who shall examine carefully at least once in each week the entire escalator plant, including all safety devices.

(2) If, as a result of any such examination any weakness or defect is discovered which is liable to cause danger to persons using the escalator, the person making the examination shall forthwith report the matter to the user, who shall take steps to prevent any person from using the escalator until the weakness or defect has been rectified.

(3) No user shall require or permit any person to use, and adequate precautions shall be taken by him and by the competent person to prevent persons from using the escalator whilst any examination, service, or repair is being carried out; during this period all pits, trap-holes and openings in doors shall be barricaded.

(4) Whenever an inspector proposes to conduct an inspection of an escalator he shall, after consultation with the user, determine the date and time of such inspection and notify the user thereof, in writing.

(5) Upon receipt of such notification the user shall cause the machinery to be thoroughly cleaned and prepared for inspection on the date and at a time so notified.

(6) On the date and at the time notified in terms of subsection (5), the user of an escalator shall place free of charge, at the disposal of an inspector, workmen, lights, tools, instruments and such equipment as may be required by an inspector for the purpose of making the inspection.

(7) Where an inspector has, through failure of the user to comply with the provisions of subsection (5) or (6), been unable to inspect an escalator on the date or at the time notified in terms of subsection (4), the user shall, within 7 days after that date, make written application for a new date to be fixed for such inspection and shall forward with such application the fee prescribed in section *forty-five*.

48 A user of an escalator shall—

(a) take all reasonable precautions to ensure the safety of persons conveyed by the escalator;

(b) maintain all safety devices in good condition;

(c) stop the working of an escalator if its use appears to have become, or is likely to be, dangerous.

49 (1) Every escalator shall be fitted with—

(a) a speed governor which shall be so arranged as to intercept the power-supply in the event of the escalator exceeding its rated speed by more than 20%;

(b) an emergency stop-button, distinctly marked and in a readily accessible position, at the top and bottom landings;

(c) a device which will automatically isolate the main power-supply in the event of a step-chain breaking and, where no automatic chain-tensioning is provided, if excessive sag occurs in the step-chain;

(d) where the driving motor is operated by polyphase alternating electric current, a reverse phase relay, or equivalent protective device, which shall prevent the reversal of the driving motor through inadvertent reversal of the phases.

(2) Where the drive from the main driving machine to the main driving shaft is by means of a chain, a brake shall be provided on the main driving shaft, and a device shall be fitted to the main driving chain which shall bring the brake into operation in the event of the drive-chain breaking.

50 The driving machine of every escalator shall—

(a) be fitted with an efficient brake which shall be capable of stopping and holding the fully loaded escalator; and

(b) operate when any safety, device comes into operation.

### Chapter 14:08 Factories and Works (Elevator and Escalator) Regulations, 1976

51 The angle of inclination of an escalator shall not be more than 35° to the horizontal.

52 No person shall permit an escalator to operate at a speed greater than 50 mtrs. per minute.

53 (1) Substantial balustrades, free from projections on the step side, shall be provided on both sides of the steps of an escalator.

(2) Every such balustrade shall be equipped with a handrail which shall—

(a) move in the same direction, and at the same speed as the escalator steps; and

(b) be so constructed as to prevent injury to persons between the moving handrails and steps and the balustrading.

54 Every approach to and exit from an escalator shall be provided with easily removable and adjustable comb plates which shall be kept correctly adjusted.

55 Every approach to and exit from and the steps of an escalator shall be adequately illuminated while the escalator is working.

56 (1) The electrical installation of every escalator shall be fitted with a suitably placed main switch which shall be inaccessible to unauthorized persons.

(2) The wiring of all escalators shall be in screwed conduit or ducting approved by an inspector:

Provided that an inspector may authorize the use of suitably sheathed cables,

(3) All accessible exposed metallic portions of an escalator installation shall be electrically bonded to earth.

### PART III

#### MISCELLANEOUS

57 A provisional certificate of permission or certificate of permission issued in respect of an elevator under the Factories and Works Regulations, 1951, or the Factories and Works Regulations, 1963, or the Factories and Works (Elevator and Escalator) Regulations, 1969, which was still in force immediately before, the fixed date shall be deemed to be a provisional certificate of permission or certificate of permission, as the case may be, issued in terms of these regulations.

58 The Factories and Works (Elevator and Escalator) Regulations, 1969, published in Rhodesia Government Notice No. 217 of 1969, are repealed.

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**FIRST SCHEDULE**

**FORMS**

- F.E. 1 Application to Erect or Use Elevator.
- F.E.2 Provisional Certificate of Permission to Use Elevator.
- F.E.3 Certificate of Permission to Use Elevator.
- F.E.4 Elevator/Escalator Inspection Register.
- F.E.5 Provisional Certificate of Permission to Use Escalator.
- F.E.6 Certificate of Permission to Use Escalator.
- F.E.7 Application to Erect or Use Escalator.

[Forms have been omitted - Editor]

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