Guidelines on Application for Permit-to-Operate (PTO) for new Fixed Installations (including Fixed Installations undergoing Major Alteration or Replacement)

[V3.0_Oct_2025]

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Change Log

Version	Date Updated	Remarks
1.0	16 June 2025	First Version
2.0	16 September 2025	- Updated to reflect implementation date - Edits made in 4.3 and 4.5
3.0	1st October 2025	- Update EITC Inspection Report requirement in 4.3 and 4.5

Contents

1. Introduction

1.1 With effect from 1st October 2025, new fixed installations[1] (henceforth referred to as "FI") (including existing fixed installations undergoing major alteration or replacement) shall be subject to the Building Control (Fixed Installations) Regulations 2025 (henceforth referred to as "FI Regs"). The Building Maintenance and Strata Management (Lift, Escalator and Building Maintenance) Regulations 2016 (henceforth referred to as "LEBM Regs") will be revoked.

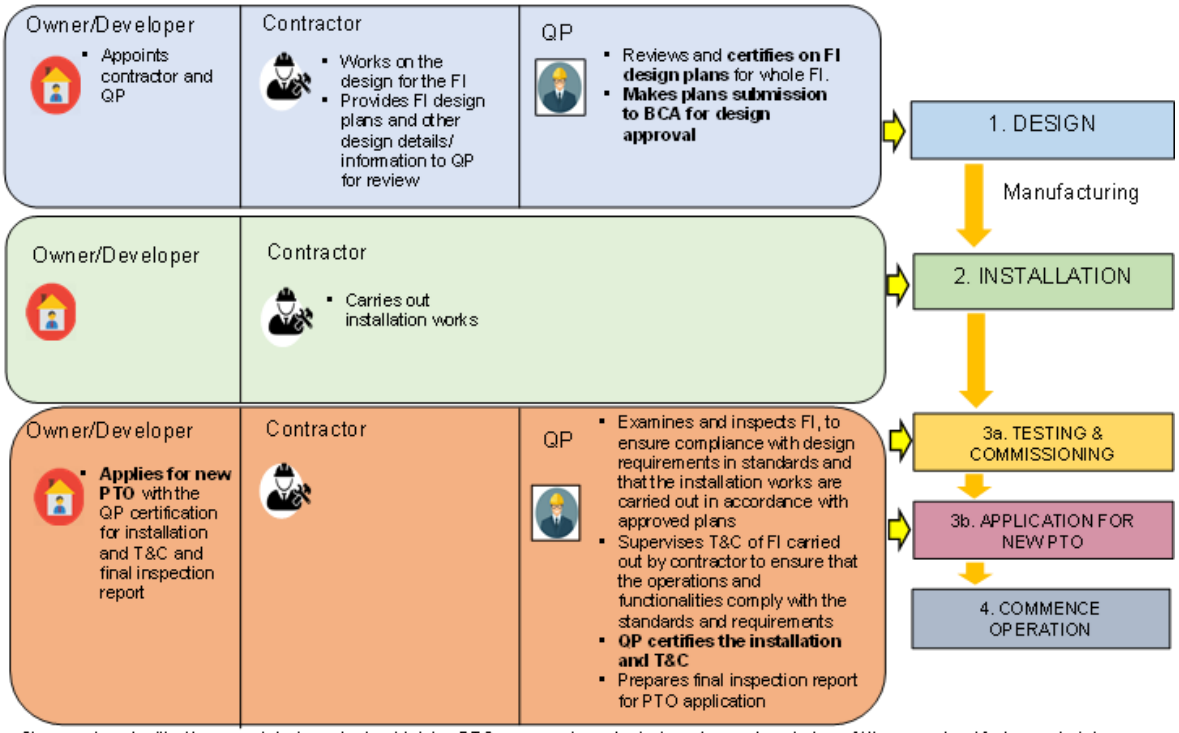
1.2 Prior to the commencement of works, approval of plans for the new FI (including existing FI undergoing major alteration or replacement (henceforth referred to as "major A/R")) must be obtained. Upon completion of the works, the developer (or the owner of the existing FI) is required to appoint a Qualified Person (henceforth referred to as "QP") to supervise the conduct of examinations, inspections, and testing and commissioning (henceforth referred to as "EITC") on the FI by a registered FI contractor under the respective regulatory workhead (RW02A, RW03A or RW04A) before applying for the Permit-to-Operate (PTO). No person shall operate the FI without a valid PTO granted by the Commissioner of Building Control (henceforth referred to as "CBC").

1.3 This guide aims to provide the relevant stakeholders with the necessary information on the conduct of EITC leading to the application for the first PTO for the new FI or existing FI undergoing major A/R.

2. Overview of Fixed Installation Regulatory Regime

2.1 Below provides an overview of the FI regulatory regime which consists of four stages.

[1] Fixed installation, as defined in the revised Building Control Act (effected since 1 January 2022), means a machined-powered installation like an escalator, a lift or a mechanised car parking system and includes any supporting structure, machinery, equipment, apparatus and enclosure used or designed for use for operating a fixed installation.



Changes to submitted/approved design prior to obtaining PTO may require submission of amendment plans (if they are classified as material changes) or as-built plans (if they are classified as immaterial changes).

3. Examination, Inspection, Testing and Commissioning (EITC) Phase

3.1 Upon the completion of the FI works, the developer (or the owner of the existing FI) must appoint a QP[2] to supervise of the conduct of EITC by the relevant FI contractor in accordance with the Building Control Act (henceforth referred to as "BC Act"), the FI Regs, approved plans, and any terms and conditions imposed by the CBC.

3.2 During an EITC, the appointed QP must i) ensure that the FI installed (including the major A/R) complies with the applicable Code or Standard and is in accordance with the approved plans and ii) verify the outcomes of the tests. The lift contractor must be able to provide the testing procedure for the QP to verify the outcomes and ensure that the features provided for the FI perform their function in a matter that is required in the standards. Please refer to **Annex A** for the list of, but not limited to, inspection and testing outcomes as a reference.

3.3 On completion of the above actions, QP is required to certify that:

i. the FI works have been carried out in accordance with the Building Control (BC) Act, and as specified in the Building Control(FI) Regulations 29(2), approved

[2] The developer/owner may appoint the same or different QP(s) for each phase.

plans, and any terms and conditions imposed by the Commissioner of Building Control (CBC); and

ii. he has examined and inspected the FI in accordance with the BC Act and as specified in the Building Control(FI) Regulations 29(2), approved plans and any terms and conditions imposed by the CBC.

iii. the FI had been tested in accordance with the BC Act and as specified in the Building Control(FI) Regulations 29(2) and any terms and conditions imposed by the CBC.

Deviations from Submitted/Approved Plans

3.4 If changes are made to the installation after the QP has certified (as per 3.6 part (i) and (ii)) on the installation works and/or EITC inspection, the QP will need to re-certify on the installation works by submitting one of the following:

i. Amendment Plans[3] (for any changes amounting to material changes)

ii. As-Built Plans[4] (for any changes amounting to immaterial changes)

3.5 EITC inspection can only be conducted after the completion of the related works.

3.6 Please refer to **Fixed Installations Submission Regime Guide** for the lists of material changes and immaterial changes.

4. Application for New/Recomm PTO

4.1 Upon the completion of the EITC inspection and the QP is satisfied that the FI had been examined, inspected and tested in accordance with the BC Act, Regulations, and any terms and conditions imposed by the CBC, he may proceed to submit an application for New/Recomm PTO. The estimated response time is 7 working days.

4.2 For every New/Recomm PTO applications, BCA may choose to conduct a PTO inspection of the FI before issuing the 1st PTO. The processes from submission for PTO to obtaining of approval are as explained below

[3] Any works related to any deviations from the submitted/approved plans amounting to material changes can only commence after the Amendment Plans are approved.
[4] Any works related to any deviations from the submitted/approved plans amounting to immaterial changes can proceed without the need for prior design approval. As-Built Plans can be submitted after the completion of the relevant works, just before the application for new PTO.

For New/Recomm PTO application not selected for PTO Inspection:

Step 1: Apply for PTO in LEAP

4.3 QP may proceed to apply for the PTO by logging in to LEAP at the website link: https://www2.bca.gov.sg/leap/LandingPage/Index.

For New PTO application, QP will have to submit:

1) Component type test certificates and lift location plan, if FI plans are not submitted

2) Certificate of Supervision of EITC (Refer to form template on website)

3) EITC Inspection Report for FI (Refer to report template on website) for applications from 1 January 2026

4) Mill Test certificates for ropes

5) Waiver /Alternative Solution approval for FI if the design does not meet the standards required in the Approved Document.

6) Accessibility Declaration form (for full lift replacement or new lift in existing shaft)

For Recomm PTO application, QP will have to submit:

1) EITC Inspection Report for FI (Refer to report template on website) for applications from 1 January 2026

2) Lift Location Plan when there are changes to the lift number.

3) Mill Test certificates for ropes when the A/R work includes main suspension ropes replacement

4) Accessibility Declaration form, if the major alteration works involves changes to (i) lift car door; or (ii) car mass by ≥5%

Step 2: Post Application Review and Issuance of PTO

4.4 BCA will review the submitted document and request for clarification/information for incomplete applications via the LEAP system. Upon addressing all clarifications and submitting all required document, BCA will then approve the application and issue the PTO for the new FI.

For New/Recomm PTO application selected for PTO Inspection:

Step 1: Apply for PTO in LEAP

4.5 QP may proceed to apply for the PTO by logging in to LEAP at the website link: https://www2.bca.gov.sg/leap/LandingPage/Index.

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Step 2: Post Application Review

4.6 BCA will review the submitted document and request for clarification/information for incomplete applications via the LEAP system.

Step 3: Arrangement of the PTO Inspection

4.7 BCA will contact the QP, via email, to schedule a PTO inspection. The items required for a PTO inspection for the FI are, but not limited to, listed below:

- Test weights equalling to 125% of the rated load in the case of lifts
- All tools and testing instructions for all functional test as specified by the standards and Building Control(FI) Regulations for the FI
- Measuring device (calibrated)
- Door force gauge (calibrated)
- Vernier caliper (calibrated)

Step 4: Actual Day of PTO Inspection

4.8 Contractor is required to produce the following items on-site before the start of the PTO inspection:

i. A valid Permit To Work (PTW) for work at height;
ii. All the necessary tools and equipment for the testing and commissioning inspection

If any of the above items are not available, BCA will abort the PTO inspection and re-schedule it on another day. This will also delay the approval of the PTO application.

4.9 BCA will only conduct the PTO inspection in accordance with the type of FI works when all are in order.

Step 5: Completion of PTO Inspection

4.10 If there are non-compliances found during the PTO Inspection, BCA will issue a Written Advice compiling all the non-compliances and send it to the QP via an email. The QP is expected to rectify the non-compliances within 3 months from the date of EITC inspection and updates BCA after the rectification works are completed in writing and with photographs. A second PTO inspection may be required.

Step 6: Issuance of PTO

4.11 Upon i) addressing all clarifications and submitting all required document in LEAP and ii) rectifying all the non-compliance findings from the PTO Inspection to the satisfaction of BCA, BCA will process the PTO application and issue the PTO for the new FI.

Annex A – Inspection and Testing Procedures

Procedures listed here are not exhaustive and to be used as a guide. All procedures should refer to Building Control(BC) Act and as specified in the Building Control(FI) Regulations 29(2), approved plans and any terms and conditions imposed by the CBC

Part 1: Lifts

Inspection Procedures for Lifts

1) Passageway access to machine room:
    a. Access to machine room shall be a sheltered with at least 1.0m clear in width and 2.0m clear in height. Floor shall be treated such that it is not slippery and safety railings provided along the passageway if it is less than 1.5m from edge of roof/building.
    b. In exceptional case where a conventional staircase cannot be provided, ladders satisfying the following requirements shall be used:
        i. the access to the machinery spaces and pulley rooms shall not be situated more than 4 m above the level accessible by stairs;
        ii. For access over 3 m in height by ladder fall protection shall be provided;
            1. ladders shall be fastened to the access permanently or at least by rope or chain in such a way that they cannot be removed;
            2. ladders exceeding 1,50 m in height shall, when in position for access, form an angle between 65° and 75° to the horizontal and shall not be liable to slip or turn over;
            3. the clear width of the ladder shall be at least 0,35 m, the depth of the steps shall not be less than 25 mm and in the case of vertical ladders the distance between the steps and the wall behind the ladder shall not be less than 0,15 m. The steps shall be designed for a load not less than 1500 N;
            4. adjacent to the top end of the ladder there shall be at least one hand hold within easy reach;
            5. around a ladder, within a horizontal distance of 1,50 m, the risk of falling by more than the height of the ladder shall be prevented.

2) The requirement of the Lift well equipment inspection and examination are:
    a. Measure the car top clearance and all other specified clearances to ensure compliance with the requirements of this Code.
    b. Measure maximum guide rail bracket span and examine all bracket fixings.
    c. Check to ensure all rail joints are smoothly filed and fitted with suitable backing plates.
    d. Check both car and counterweight guide rail sizes.
    e. Examine lift well wiring.

f. Check that the flexible travelling cable hanger is securely installed.
g. Check to ensure that the travelling cables do not hit any projection in the lift well when the lift is in motion.
h. Check that all sliding guide shoes are fitted with suitable lubricators.
i. Check that all lift car wiring is done in accordance with this lift Code.
j. Test with a spring balance or other suitable equipment to determine whether hoisting and governor ropes are properly and equally tensioned.
k. Check to ensure that the counterweight and car clearances are in accordance with the requirements of this Code.
l. Check the distance between the inner surface of the lift well and the car-platform sill are in accordance to this Code.
m. Inspect the counterweight and sub-weights to ensure that they are securely fixed and all locknuts and cotter pins are in position.
n. Check all landing doors, landing door sills and door hangers to ensure that they have been properly installed.
o. Check to ensure pit light and pit ladder are provided.
p. Check the mechanical lock at all landing entrances for positive locking.
q. Check to ensure that a counterweight screen is provided in the pit.
r. Check buffers are correctly installed.
s. Check oil level of oil buffer.
t. Check compensating ropes, sheave, and chain if provided.
u. Check governor rope tensioning device.
v. Measure the car and counterweight runbys and car bottom clearance.
w. Check the safety gear to ensure that it has been properly installed.
x. Check alarm bell and intercom.
y. Check door re-opening device.
z. Check piping and joints.
aa. Check rupture valve.
bb. Check cylinder/jack.

Testing Procedures and Outcomes for Lifts

1) Ascending Car Overspeed Test (ACOP)
To set the lift car to run in the upwards direction at speed higher than the rated speed and to verify that the triggering speed is the same as indicated at the data plate of the overspeed governor.

Outcome: Electrical switch at the governor should be activated when the lift car overspeed and the lift car should stop as intended.

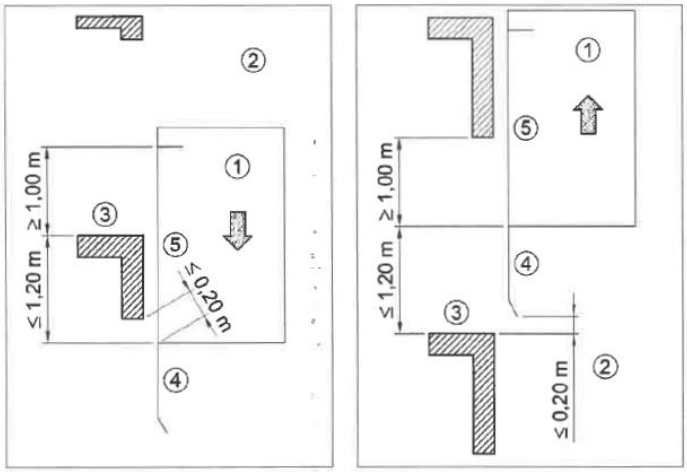
2) Unintended Controlled Movement Protection Test (UCMP)

The test shall consist of verifying that the stopping element of the means is triggered as required by type examination and by moving the empty car in up direction in the upper part of the well (e.g. from one floor

from top terminal) and fully loaded car in down direction in the lower part of the well (e.g. from one floor from bottom terminal) with a 'pre-set' speed, e.g. as defined during type testing, (inspection speed etc.).

If the means requires self-monitoring (5.6.7.3), its function shall be checked.

Outcome: The stopping distance shall not exceed 1.20 m from the landing where the unintended car movement has been detected, the vertical distance between the landing sill and the lowest part of the car apron shall not exceed 200 mm. In case of enclosures according to 5.2.5.2.3 the distance between the car sill and the lowest part of the well wall facing the car entrance shall not exceed 200 mm and the vertical distance from car sill to landing door lintel, or from landing sill to car door lintel shall not be less than 1,0 m.



Key
① car
② well
③ landing
④ car apron
⑤ car entrance

3) <u>Traction Test</u>

The counterweight shall be brought into contact with the buffer(s) and the machine shall continue.

Outcome: It shall not be possible to raise the empty car to a dangerous position if the car is stalled. The ropes shall observed to be slipping on the traction sheave, or the car is not raised.

4) <u>Dynamic Single Brake Test with 100% load</u>
To test each brake of the traction machine by setting the lift car to run in the down direction at rated speed with 100% load and then switch off the power.

Outcome: The lift car shall come to a complete stop as intended.

5) Checking of the traction
The test shall be carried out –
a) ascending, with the car empty, in the upper part of the travel;
b) descending, with the car loaded with rated load plus 25% of the rated load, in the lower part of the travel;

Outcome: The lift car shall come to a complete stop for both tests above.

6) Safety Gear Test
The test shall be conducted when the car is descending, with rated load @ rated speed.

Outcome: The lift shall stop as intended and the stopping distance shall be within the limits of Annex H indicated in SS550:2020. it shall be ascertained that no deterioration, which could adversely affect the normal use of the lift has occurred. If necessary, friction components may be replaced. Visual check is considered to be sufficient.

7) Buffer Strike test
Testing of Buffer Strike Test with rated load at rated speed.

Outcome: Buffer shall be intact and still operable. There shall be no oil leakage from the hydraulic buffer.

8) Balance Point Check
   a. Starting with no load, increase the load in steps of 25% and record the speed and motor current in both the up and down directions.
   b. The motor current should not exceed (after the starting surge) the rated value. Plot the "up" and "down" currents and speeds to obtain the balance points.
   c. Alternative ways of obtaining the balance point check can also be used.

Outcome: The balance point should be close to the designed value.

Part 2: Escalators/Moving Walks

Inspection Procedures for Escalators/Moving Walks

a. Check truss and supporting structures' integrity and exterior panels
b. Check and measure the angle of inclination, rises and nominal speed of the escalator

c. Check that exterior panels which are designed to be opened, inspection covers and floor plates are securely fastened by mechanical means and are provided with an electric safety device
d. Check step/pallet/belt's dimensions, surface grooves and step risers
e. Ensure compliance in the structural design, static tests and dynamics tests of the step/pallet/belt
f. Check lateral displacement of the steps or pallets
g. Check clearance between steps or pallets
h. Check for missing step or pallet device
i. Check escalator drive unit and braking system
j. Check and ensure that auxiliary brake is provided, if necessary
k. Check for protection against risks of excessive speed and unintentional reversal of travel direction
l. Check step chains or belts
m. Check dimensions of balustrade
n. Check skirt deflectors
o. Check dimension of newel
p. Check handrail system and handrail speed monitoring system
q. Check landing surface properties
r. Check interfacing between steps and landing
s. Check radius of curvature
t. Check design of comb and comb installation
u. Check machinery space, driving space and return space. Ensure effective protections and necessary requirements are in place
v. Check for anti-climbing device, anti-sliding device and/or access restriction device in place, if required
w. Check and ensure protections against electrical hazards, electrostatic loading and/or electrical faults are provided in accordance with the code
x. Check that all safety switches are provided in accordance with code. Ensure that the operation and actuation of the safety switches are in accordance with the code.
y. Check and ensure Programmable Electronic Systems in a Safety Related Applications (PESSRAE) is in accordance with the code if PESSRAE is incorporated in the design of the escalator

Testing Procedures and Outcomes for Escalators/Moving Walks

Functional testing shall be conducted for the following

1) Full load & no-load functional tests and stopping distances for operational brakes

For Escalator:

Please refer to Table 2 of SS626:2017 for the determination of the brake load for escalator.

Table 2 — Determination of brake load for escalators

Nominal width z_1	Brake load per step
up to 0,60 m	60 kg
more than 0,60 m up to 0,80 m	90 kg
more than 0,80 m up to 1,10 m	120 kg

For the purpose of the test, the total brake load is permitted to be distributed over two-thirds of the number of steps thus obtained.

The stopping distances for unloaded and downward moving loaded escalators shall be as given in Table 3.

Table 3 — Stopping distances for escalators

Nominal speed *v*	Stopping distance between
0,50 m/s	0,20 m and 1,00 m
0,65 m/s	0,30 m and 1,30 m
0,75 m/s	0,40 m and 1,50 m

For intermediate speeds, the stopping distances shall be interpolated. The stopping distances shall be measured from the time the electric stopping device is actuated. The deceleration, measured on a downward moving escalator, in the direction of travel shall not exceed 1m/s2 during the operation of the braking system.

For Moving Walks:

Please refer to Table 4 of SS626:2017 for the determination of the brake load for the moving walks.

Table 4 — Determination of brake load for moving walks

Nominal width z_1	Brake load per 0,4 m length
up to 0,60 m	50 kg
more than 0,60 m up to 0,80 m	75 kg
more than 0,80 m up to 1,10 m	100 kg
more than 1,10 m up to 1,40 m	125 kg
more than 1,40 m up to 1,65 m	150 kg

To determine the brake load for moving walks which in length overcome several inclinations (differences in level), only the downward running sections shall be considered.

The stopping distances for unloaded and horizontally or downward moving loaded moving walks shall be as given in Table 5.

Table 5 — Stopping distances for moving walks

Nominal speed v	Stopping distance between
0,50 m/s	0,20 m and 1,00 m
0,65 m/s	0,30 m and 1,30 m
0,75 m/s	0,40 m and 1,50 m
0,90 m/s	0,55 m and 1,70 m

For intermediate speeds, the stopping distances shall be interpolated. The stopping distances shall be measured from the time the electric stopping device is actuated. The deceleration, measured on a downward moving or horizontally moving walk, in the direction, in the direction of travel shall not exceed $1m/s^2$ during the operation of the braking system.

For moving walks, a brake load test under no load will be sufficient. The manufacturer shall prove the by calculation of the stopping distances for loaded moving walks together with adjustment data

2) Functional test for auxiliary brakes

Functional test shall be carried out to ascertain the performance of the auxiliary braking system of the escalator and/or moving walks travelling with brake load are brought to rest by effective retardation and maintained stationary. The deceleration of $1m/s^2$ shall not be exceeded.

3) Functional tests for safety switches

The following monitoring and electric safety devices shall be inspected and tested in accordance with the requirements in Table 6 of SS626:2017:

Table 6 — Requirements for monitoring and electric safety devices/functions

	Event to be detected	Requirement
a)	Overload (by means of automatic circuit breakers). Starting shall be prevented (see also 5.12.2.4.1)	5.11.3.2
b)	Overload (operated on basis of temperature increase)	5.11.3.3
c)	Excessive speed or unintentional reversal of the direction of travel (according to 5.4.2.3). Starting shall be prevented (see also 5.12.2.4.1)	5.12.1.2.2 or 5.12.1.2.3 or 5.12.1.2.6 (SIL 2)
d)	Closing of the auxiliary brake (according to 5.4.2.2.4)	5.12.1.2.2 or 5.12.1.2.3 or 5.12.1.2.6 (SIL 1)
e)	Breakage or undue elongation of parts immediately driving the steps, pallets or the belt, e.g. chains or racks. Starting shall be prevented (see also 5.12.2.4.1)	5.12.1.2.2 or 5.12.1.2.3 or 5.12.1.2.6 (SIL 1)
f)	(Unintended) extension or reduction of the distance between the driving and return devices	5.12.1.2.2 or 5.12.1.2.3 or 5.12.1.2.6 (SIL 1)
g)	Foreign bodies being trapped at the point where the steps, pallets or the belt enter the comb (according to 5.7.3.2.6)	5.12.1.2.2 or 5.12.1.2.3 or 5.12.1.2.6 (SIL 1)
h)	Stopping of a succeeding escalator or moving walk where an intermediate exit does not exist (see A.2.6) or the exit of the escalator or moving walk by structural measures is blocked (e.g. shutters, fire protection gates). See Annex I for additional stop switch for emergency situation	5.12.1.2.2 or 5.12.1.2.3 or 5.12.1.2.6 (SIL 2)
i)	Foreign bodies being trapped in the handrail entry (see 5.6.4.3)	5.12.1.2.2 or 5.12.1.2.3 or 5.12.1.2.6 (SIL 1)
j)	Sagging of step or pallet (see 5.7.2.5). Starting shall be prevented (see also 5.12.2.4.1); Paragraph j) does not apply to belt moving walks (see 5.7.2.5)	5.12.1.2.2 or 5.12.1.2.3 or 5.12.1.2.6 (SIL 2)
k)	Missing step/pallet (see 5.3.6). Starting shall be prevented (see also 5.12.2.4.1)	5.12.1.2.2 or 5.12.1.2.3 or 5.12.1.2.6 (SIL 2)
l)	Non-lifting of the braking system after starting the escalator or moving walk (see 5.4.2.1.1). Starting shall be prevented (see also 5.12.2.4.1)	5.12.1.2.2 or 5.12.1.2.3 or 5.12.1.2.6 (SIL 1)
m)	Hand rail speed deviation of more than -15 % to the actual speed for more than 15 s (see 5.6.1)	5.12.1.2.2 or 5.12.1.2.3 or 5.12.1.2.6 (SIL 1)
n)	Opened inspection cover in the area of the truss and/or removed or opened floor plate (see 5.2.4)	5.12.1.2.2 or 5.12.1.2.3 or5.12.1.2.6 (SIL 1)
o)	Exceeding the maximum permitted stopping distances by more than 20 % (see 5.4.2.1.1). Starting shall be prevented	5.12.2.4.1
p)	Fault to earth of a circuit in which there is an electric safety device. Starting shall be prevented (see also 5.12.1.1.4)	5.12.2.4.1
q)	Installation of a removable hand winding device (see 5.4.1.4)	5.12.1.2.2 or 5.12.1.2.3 or 5.12.1.2.6 (SIL 1)

4) Testing of insulation resistance

This test is conducted by taking measurement of the insulation resistance of the different circuits between the conductors and earth. For this measurement, the electronic components shall be disconnected. The test also needs to include a test of the electric continuity of the connection between the earth terminal(s) in the driving station and the different parts of the escalator or moving walk liable to be live