



ESCALATOR MAINTENANCE OUTCOME GUIDEBOOK

Version 1.0
October 2025

INTRODUCTION

The goal of this guidebook is to provide the reader with a clearer understanding of the escalator maintenance requirements specified in Part 1 of the Fourth Schedule of the Building Control (Fixed Installations) Regulation 2025.

For the Escalator Maintenance Outcome Guidebook, BCA would like to thank the Singapore Lift & Escalator Contractors & Manufacturers Association (SLECMA) for their contributions.

DISCLAIMER

This guide has been prepared by the Building and Construction Authority (BCA) to provide practical information on the various maintenance outcomes expected from proper escalator maintenance only.

This guidebook is **not intended to be**:

- a legal interpretation of provisions in the Acts or Regulations; and/or
- a substitute for independent legal and technical advice.

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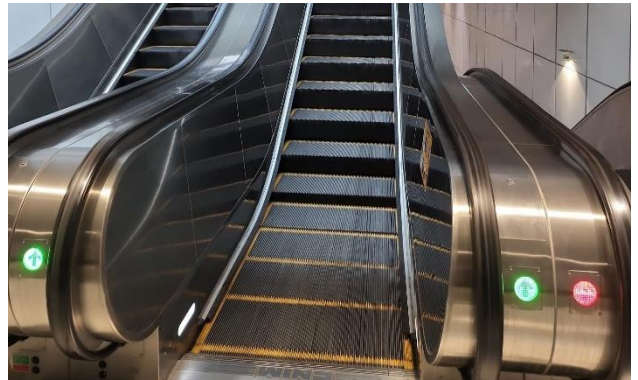
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1. Signage and indicator

Check

Ensure that **safety signages** and **direction indicators** are clearly displayed.



Signages and Permit
To Operate are
clearly displayed

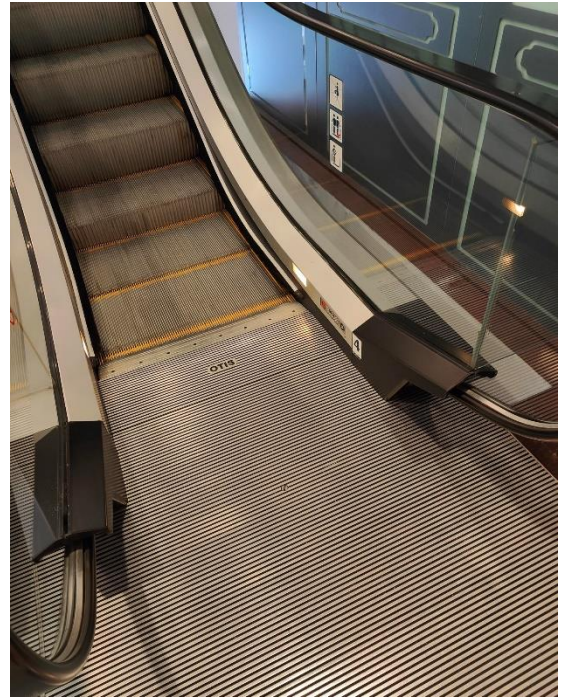
Directional indicators are prominent

Check

Ensure that escalator step edge is clearly demarcated with **yellow lines** and there is **sufficient lighting** near the comb area (if provided).



Escalator step edges are clearly marked with yellow lines



Escalator comb area is well-lit

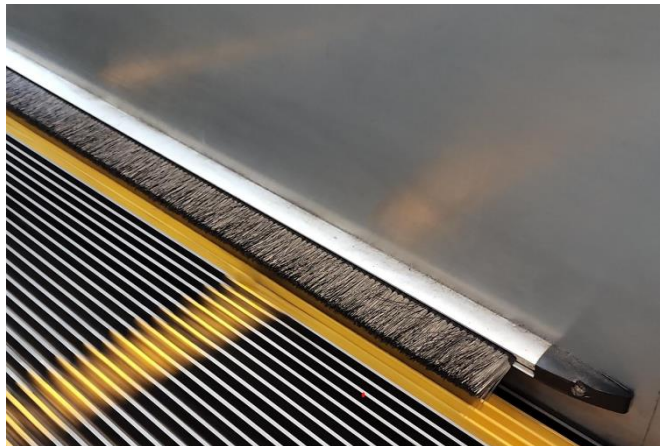
Check

Ensure that escalator skirt brushes are clean and in good condition.



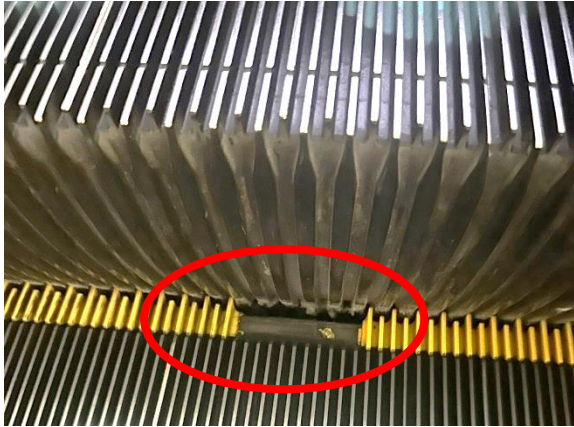
No sharp edges and properly secured

No excessive wear on the brushes



Prevent

Broken comb teeth or presence of gaps can cause entrapment of body parts, resulting in potential injuries to users.



Missing demarcation plates
on escalator step



Consecutive broken teeth on
escalator comb



Damaged step (riser)

2. Access restriction and deflecting device

Check

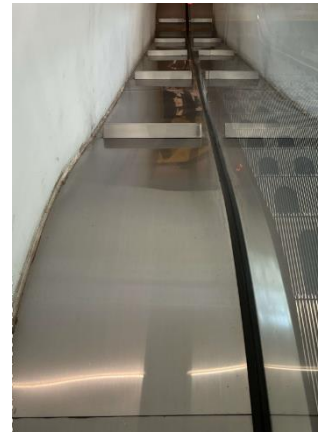
Ensure that any anti-climbing, anti-sliding, access restriction or deflecting device for the escalator is in place and mechanically secured.



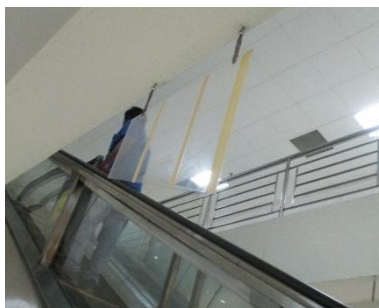
Anti-climb panel



Restriction bollard



Anti-sliding bumps



Vertical Deflector

Prevent

Damaged or loose devices may allow users to access high risk areas, resulting in potential injuries.



Missing anti-sliding
bump



Loose anti-climb
panel

3. Emergency Stop Switch

Check

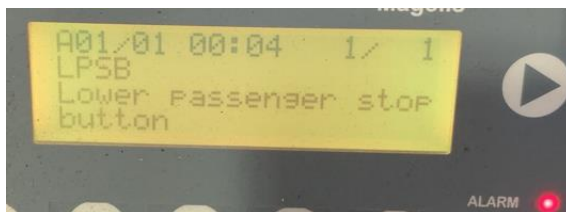
Ensure that the escalator stops when any emergency stop switch is activated.



Clear signs indicating location of emergency stop button



Clear signs indicating location of emergency stop button



Escalator stops upon activation of e-stop button

4. Handrail system

Check

Verify that handrail moves in the same direction and at the same speed (or within 2% faster) as the escalator step.



Speed measurement via a Tachometer

Check

Verify handrail speed monitor device is functional by simulating speed deviation, if provided.



Handrail speed monitoring device

Check

Check that the connections from the main drive shaft to the handrail driving sheave are not loose, broken or elongated.



No abnormal noise generated during operations



Ensure transmission chains are not loose, broken or elongated

Prevent

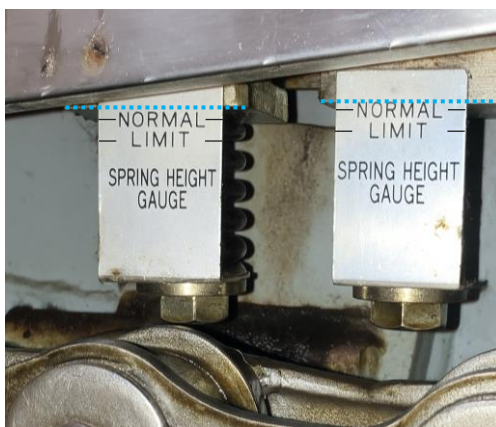
Improperly driven or unsynchronized handrails with the steps may cause handrail slippages and potentially cause user to lose balance and fall.



Loosen tensioning rollers



Rollers not in contact with the handrail belt



Datum

Elongated handrail tensioning spring

Check

Conduct visual check on the handrail for any surface defects such as cracks, cuts, tears, excessive wear, or deformation.



Handrail underside contact surface should also be inspected for wear and tear



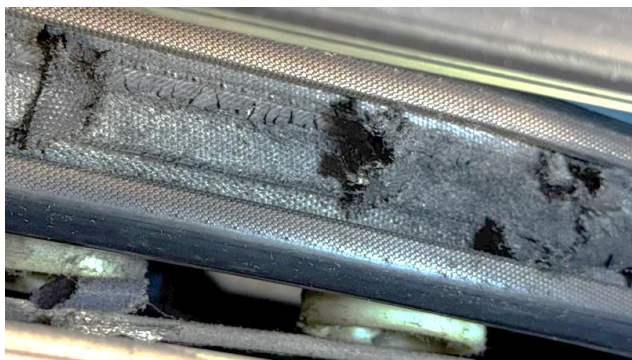
Conduct handrail pull test to check for any slippages

Prevent

Worn or damaged handrail components may cause slippages and potentially cause user to lose balance and fall.



Worn-off handrail pressure roller



Worn-off contact surfaces on handrail underside



Broken handrail drive chain

Check

Verify that the handrail inlet safety switch stops escalator when foreign object enters.



Test safety switch function with an appropriate tool



Inspect handrail inlet guard for integrity to minimise foreign object entry risk

5. Housekeeping

Check

Ensure that machinery and spaces in driving station, return station, and truss area are used solely for escalator operation or maintenance.



Maintain good housekeeping and free of dust or debris

Prevent

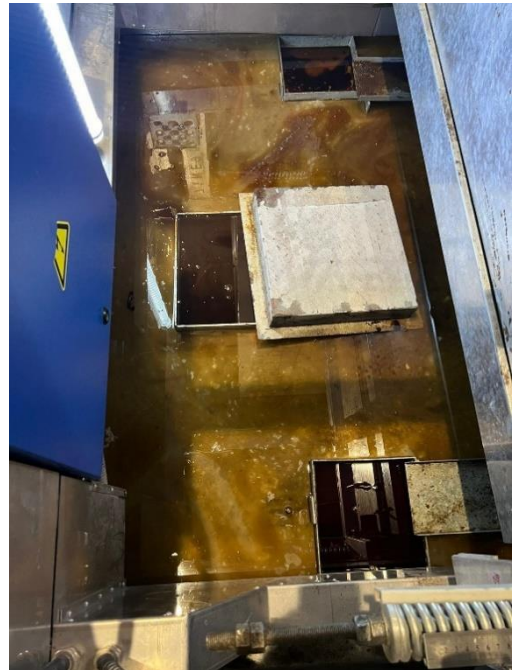
Do not store unwanted or irrelevant material in machinery spaces



Poor housekeeping of machinery spaces

Prevent

Do not let fluid accumulate in the machinery spaces as it could lead to electrical short circuits, corrosion and deterioration of mechanical parts.



Water ingress in machinery spaces

6. Driving Machine

Check

Ensure that the driving machine and its parts are clean, lubricated, and free from corrosion or leakages.



No abnormal noise from the motor and driving transmission



Area is kept clean and no accumulation of fluids and dust

Check

Ensure that the driving machine is secure; couplings aligned and tensioned properly.



Drive motor is securely fastened
with visible torque markings

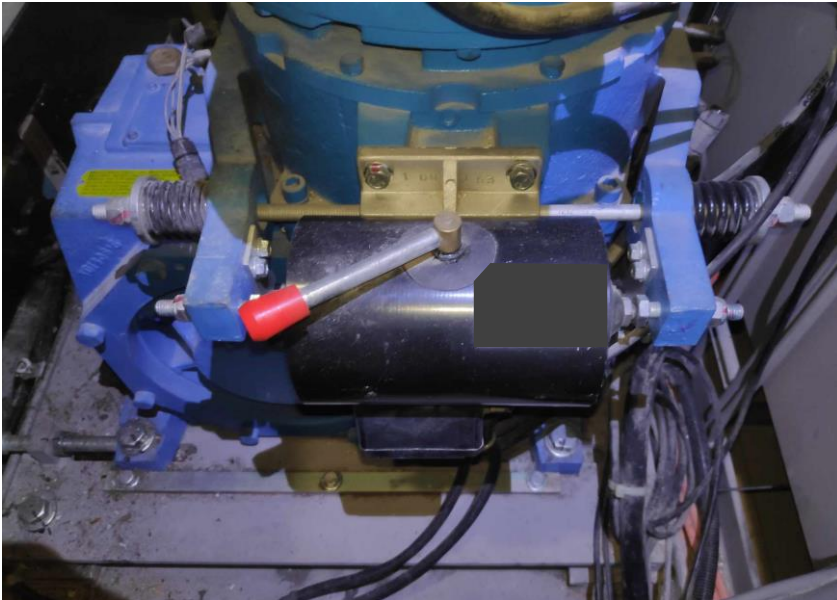


Check that there is no abnormal
noise or vibration generated
during operation

7. Brakes and auxiliary brakes

Check

Ensure that brake parts are lubricated and not restricted. Check that all mechanical connections between brake and step band are tight and properly secured.



Verify brake arms movements are not restricted, and manual release lever is working

Prevent

Oil or grease contamination on brake surfaces can reduce braking effectiveness, compromising escalator safety.



Oil contamination on auxiliary braking surface

Check

Ensure that the brakes stop the escalator within specified distance when activated.



Simultaneously drop a weighted object on escalator step and press e-stop button



Measure the travel distance of the tool after the escalator comes to a complete stop

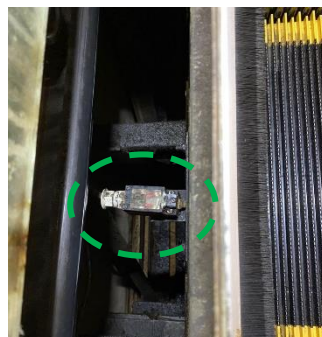
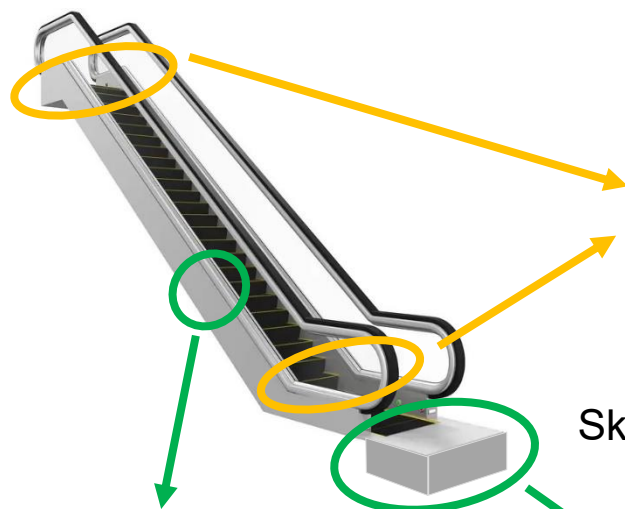
Escalator Rated Speed (m/s)	Stopping Distance (m)
0.5	0.2 to 1
0.65	0.3 to 1.3
0.75	0.4 to 1.5

Table extracted from SS626:2017

8. Safety switches

Check

Ensure that the escalator stops upon activation of any safety switches.



Skirt panel switches (Upper and lower transition)



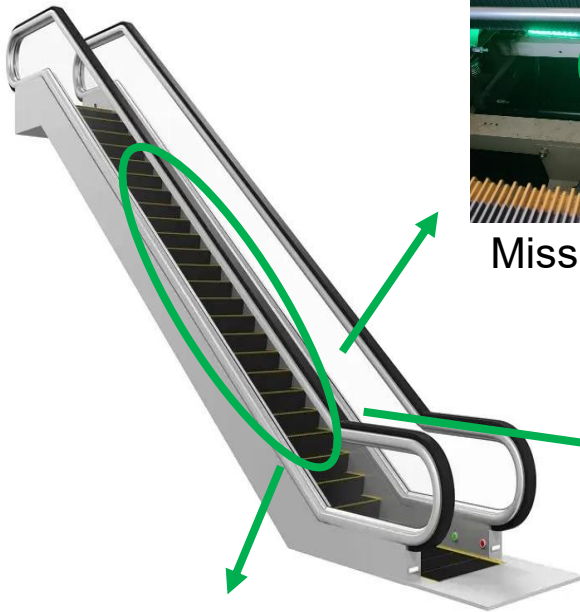
Handrail breakage switch



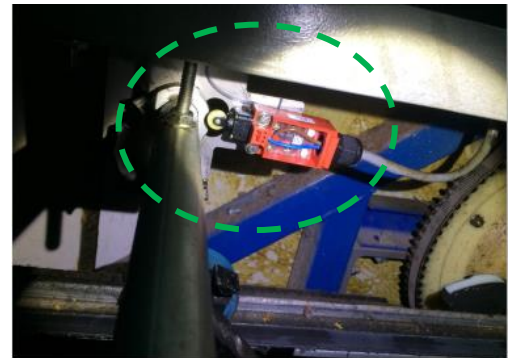
Floor plate access switch

Check

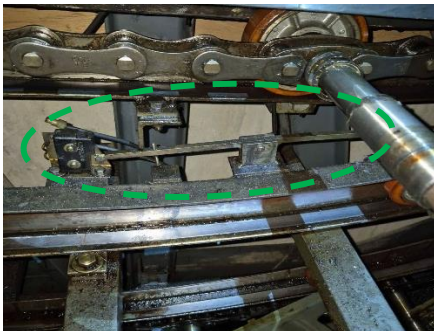
Ensure that safety switches are properly positioned with adequate clearance for reliable activation when required.



Missing step detection device



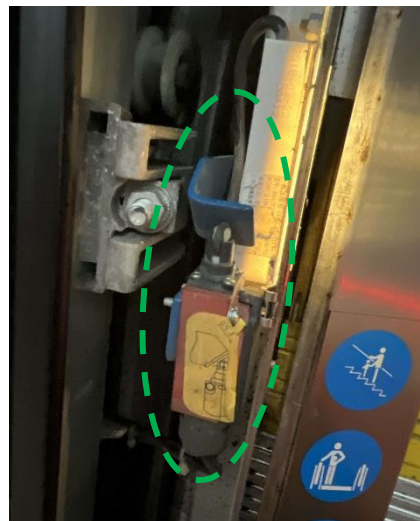
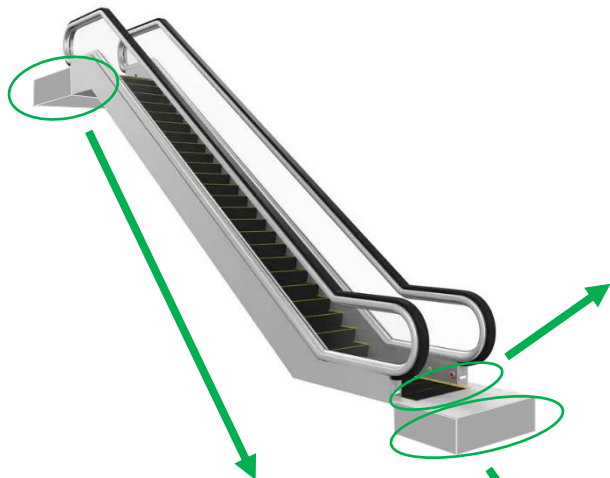
Step sag switch (Upper & lower inclined)



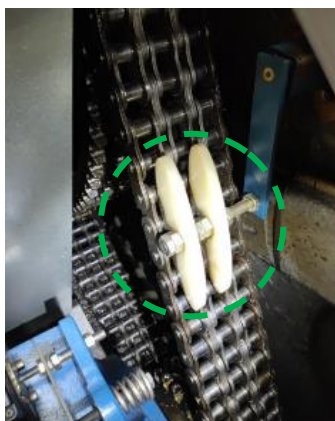
Step upthrust switch
(Upper & lower inclined)

Check

Ensure safety switch contacts are clean and free from corrosion or damage.



Comb plate switch



Verify main drive chain monitoring device is adjusted correctly and functional



Step chain tensioning switch

9. Excessive speed and unintentional reversal protection

Check

Ensure that the escalator stops if the actual speed exceeds its rated speed by 20%.



Speed monitoring switch activates at 20% above rated speed to stop escalator

Check

Ensure that the escalator stops during any unintentional reversal of the step.



Auxiliary Brake Position 1 - Release Position



Auxiliary Brake Position 1 - Lock Position

Conduct auxiliary brake test to stop escalator automatically during step reversal

**Note: Auxiliary brake is required for rise exceeding 6m or public service escalator*

10. Operational clearance

Check

Ensure that the **clearance distance** between **escalator step** and **escalator skirt panel** does not exceeds **4mm**.

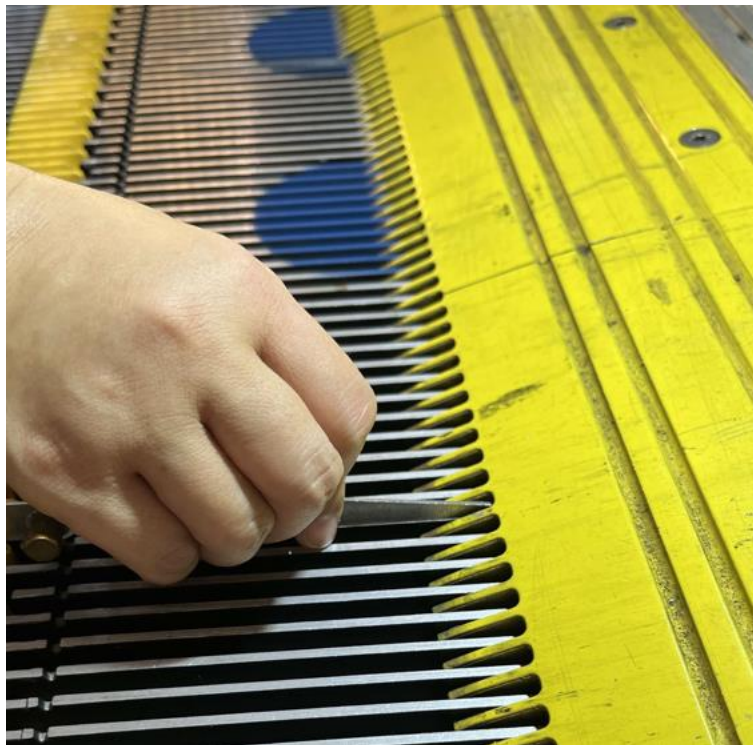


clearance
 $\leq 4\text{mm}$

Summation of clearance distance on both sides of the same step shall not exceed 7mm

Check

Ensure that the **clearance distance** between **escalator step** and **escalator comb** does not exceeds **4mm**.



clearance \leq 4mm

Check

Ensure that the **clearance distance** between **two consecutive escalator steps** does not exceeds **6mm**.

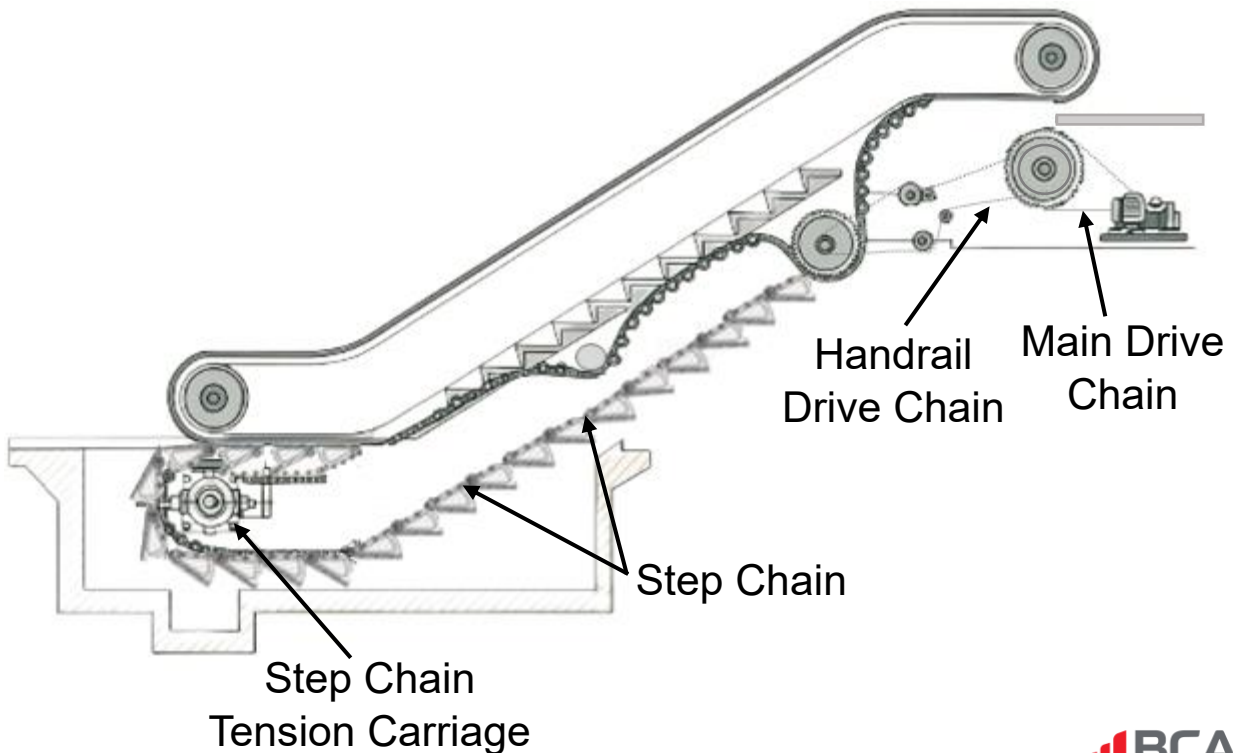


clearance \leq 6mm

11. Any escalator parts

Check

Ensure that escalator parts such as main drive chain, handrail drive chain are not broken or elongated.



Check

Ensure that escalator parts such as main drive chain and handrail drive chain are not broken or elongated.



Main drive chain properly tension and maintained



Handrail drive belt properly tension and maintained

Prevent

Corroded or worn parts can compromise escalator safety and lead to mechanical failures, potentially causing accidents or injuries to users.



Sharp edges on skirt panel



Sharp Protrusion



Broken handrail drive belt

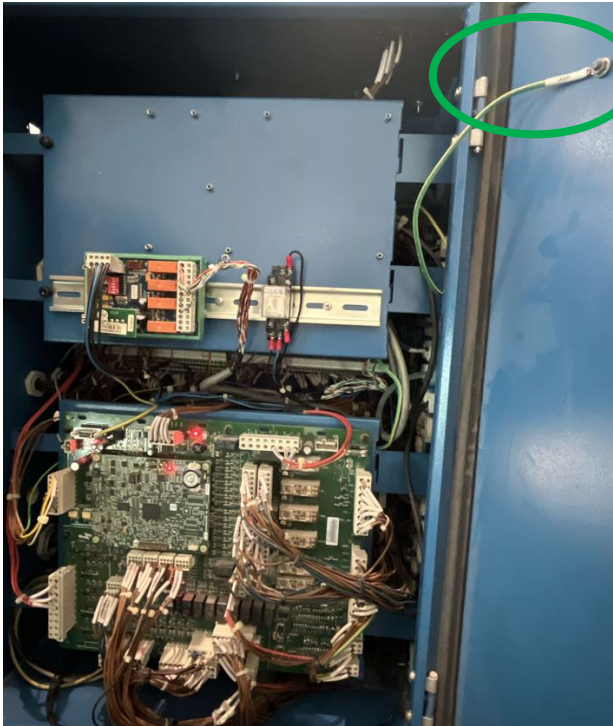


Worn out / Broken guide roller

12. Controller and electrical system

Check

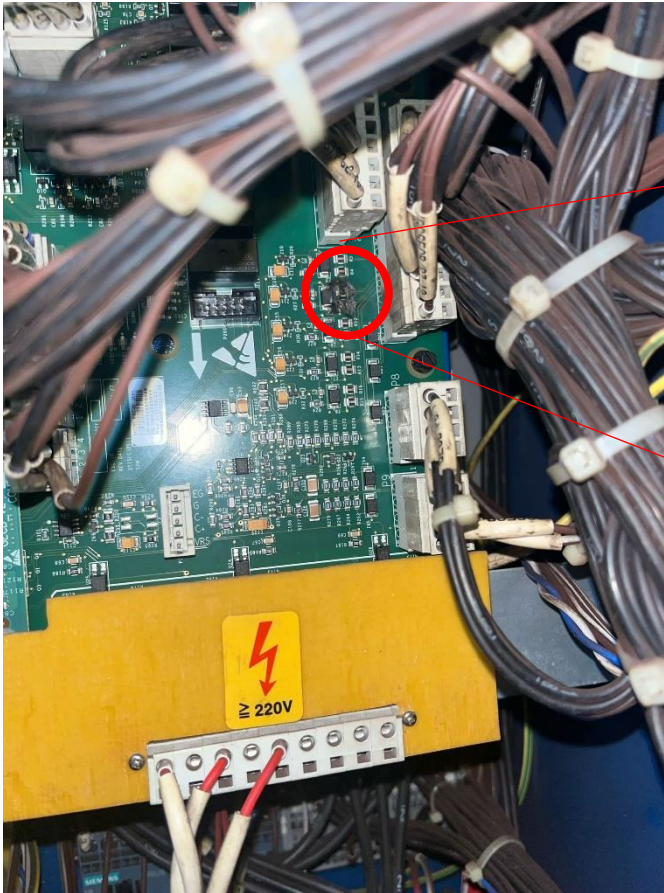
Ensure that all controllers and electrical systems are properly grounded and earthed.



Well secured electrical system with earth

Prevent

Controller and electrical system must not show heat marks and poor wiring such as loose wires.



Burnt mark on PCB