

**T Level Technical Qualification in
Maintenance, Installation and
Repair for Engineering and
Manufacturing**

**Employer-Set Project
(8730-033)**

**Project Brief
Summer 2024**

Contents

The employer	3
The project	3
Specification	4

Version	Date	Change detail	Section/Page
v1-0	26/02/24	New document	N/A
v1-1	05/03/24	Amendment to Inner height (h) from 1.06 $\pm$ 0.8 mm to 10.6 $\pm$ 0.8 mm	Page 4 table, under dimensions of existing handrail

The employer

Up – Down Escalator Services provides escalator maintenance and service plans bespoke to customers with escalators. This is important as different types of escalators, with varying weights and amounts of use, need different frequencies and types of service.

Services provided:

- planned preventative maintenance (PPM)
- reactive maintenance
- feedback and recommendations after all maintenance.

The project

You are a service engineer at Up – Down Escalator Services. A train station operator has approached your company with a request for planned maintenance for an escalator. They have also reported an issue with this escalator.

The issue with the escalator is noisy operation due to a loose handrail, which will need to be replaced. The company wish this to be carried out at the same time as the planned maintenance. The budget is £10,000, which needs to include:

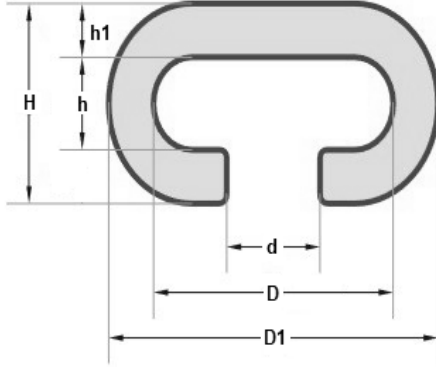
- time to complete the planned maintenance
- replacement of both the handrails (so the handrails are matching)
- labour
- tools and equipment
- feedback and recommendations.

Specification

Introduction

The requirement is to cost and plan the replacement of the handrail and planned maintenance activities, which will be presented to the customer for consideration.

Specification and technology requirements

System element	Specification Requirement
Dimensions of the existing handrails	Mouth Width (d): 39 ± 1 mm Inner Width (D): 62 ± 1 mm Total width (D1): 80 ± 1 mm Inner height (h): 10.6 ± 0.8 mm Top thickness (h1): 9.5 ± 1 mm Total height (H): 28.5 ± 1 mm Total length: 26 m  The diagram shows a cross-section of a handrail with a U-shaped profile. Dimension lines indicate the following measurements: 'd' is the mouth width at the bottom; 'D' is the inner width; 'D1' is the total width including the side flanges; 'h' is the inner height; 'h1' is the top thickness; and 'H' is the total height from the base to the top of the flange. Figure 1 – Cross sectional view of handrail (Not to scale)
Installation checks	Check that the general recommendations from section “Installation checks” are followed. • Carry out checks (oil, grease, power supply). • Carry out free rotational checks of bearing/roller and drive systems. • Ensure that the system is correctly earthed. • Ensure that the electrical connections are sound and fit for purpose. • Ensure that the mechanical connections have been torqued correctly. • Ensure locking features are securely fastened. • Ensure safety covers/guards are securely fastened.

Checks after starting the escalator	• Carry out the mechanical checks (temperature, absence of excessive noise, vibration etc.). • Carry out the electrical checks (voltage, current, frequency, rotary field, etc.). • Carry out bearing temperature and unit vibration checks. • Carry out the safety checks (emergency shutdown, etc.). • Carry out the check on Normal/Emergency Inverter switching or coupling (if fitted).
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Budget

Up - Down Escalator Services £10,000 – to allow for new components, consumables and labour.

Timescale For Installation

Maximum 15 hours.

Installation can take place within the working day, or at night provided prior arrangement is made and does not affect the transportation services operation or disruption to the service.

Plant site considerations

- Busy public transport location, with 24/7 operation.
- Site issues, accessibility.
- Ideally limited disruption, as there could be financial penalties from the regulator if service is not running as expected.
- This work can be carried out during the quieter times of use, in the evenings.
- Other worn components due to excessive wear on handrail.

Additional information:

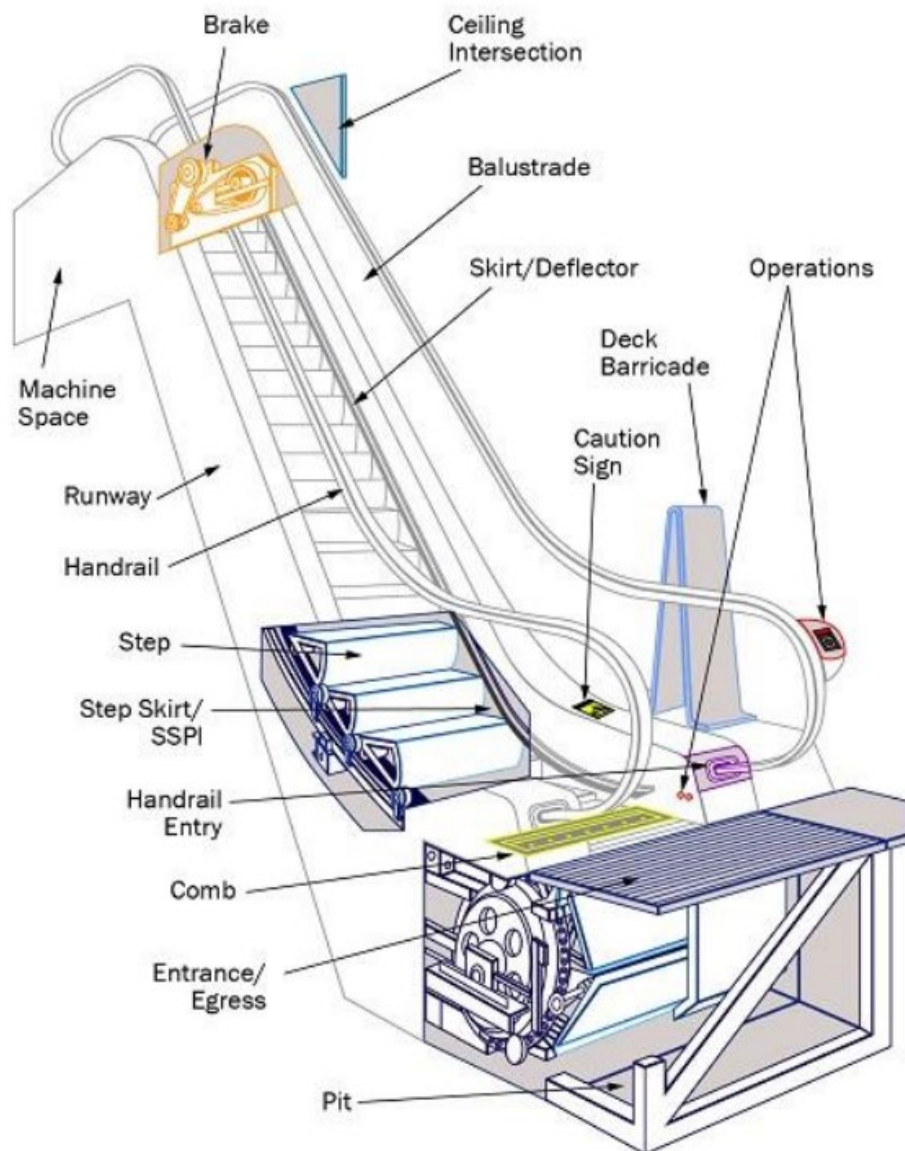


Figure 2: General arrangement of an escalator

Source: <https://www.tssa.org/en/elevatingdevices/compliance-standard-escalator-contractors.aspx>

Get in touch

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