Lift & Escalator Electromechanic Apprenticeship Standard

1. Occupations

The occupations covered by this Standard are associated with the installation, servicing, repair and refurbishment of lifts and escalators to industry specific safety standards gaining skills and experience in each chosen pathway.

- **Lift Installation Electromechanic**: Installing passenger/goods carrying lift systems in new or existing buildings
- **Escalator Installation Electromechanic**: Installing escalator systems in new or existing buildings
- **Lift Service and Repair Electromechanic**: Diagnosis, service, repair and maintenance of passenger/goods carrying lifts
- **Escalator Service and Repair Electromechanic**: Diagnosis, service, repair and maintenance of escalators

2. Occupation Profile

Lift and Escalator Electromechanics carry out the Installation, Maintenance, Repair and the Modernisation of passenger/goods carrying lift units dependent upon the chosen pathway, always ensuring that the unit performs within established parameters in line with applicable codes/standards both historical and current for Lift regulations and machinery directive, and also operates so that the unit is safe for use and free from defects. The skills being employed when conducting the work are of a complex nature and draw upon knowledge and experience of mechanical, electrical/electronic and hydraulic systems and components.

The technology that is worked upon is varied, mainly comprising of traction or hydraulic drive types of varying complexity operating at low, medium and high speeds and rises controlled by microprocessor or analogue control technology. The primary drive systems can be geared, gearless or hydraulic with AC motor control or by direct on line, star/delta or VVVF inverter, and DC motor control by Ward Leonard or static drive. Operational knowledge and experience has to be gained in association with the differing drive types and traction mediums both electrical and mechanical. The correct assembly, adjustment, alignment, calibration and setting out of electrical, electronic and mechanical components interpreting wiring and layout diagrams specific to lifts and escalators, following safe systems of work.

Electronic and mechanical fault finding is an essential part of the skills and experience being gained in each chosen pathway using various diagnostic routines, equipment, mathematical and communication skills to perform these duties in an efficient and safe manner, safeguarding all who may be affected by their actions.

They are able to work on their own, proficiently, with minimum supervision in the most efficient and economical manner under their control escalating non-conformances for appropriate action.

3. Knowledge, Skills and Behaviours

Knowledge	
Core Knowledge	**Performance Outcome**
Health and Safety	Understanding of risk assessment and method statements in relation to specific activities and the importance of behaviours in safety-critical environments.
Mechanical Traction and Hydraulic Technology	Understanding of the principles and operation of complex components making up a lift or escalator system. Understanding the principles of use of tools, alignment equipment and measuring instrumentation. Understanding the principles of correct securing and fixing of components. Understanding the principles of installation of the full range of complex lift / escalator equipment. Understanding the principles of lifting and handling methods.
Electrical and Electronic Technology	Understanding of the principles and operation of electrical, electronic and computer based control systems. Understanding the principle of reading electrical wiring diagrams. Understanding principles of the use of tools, computer software tools, measuring instrumentation and systematic fault-finding processes. Understanding the principle of procedures and preparation for the installation and following of complex wiring systems.
Planning and Organising Work	Understanding of engineering drawings, documentation, regulations, standards and manuals. Understanding method statements and safe systems of working. Understanding the principle of planning, unloading and storage of materials.

Options Knowledge	Performance Outcome
Installation	Understanding of the specific principles, practices and legislation for the installation and testing of lift and escalator systems. Understanding general arrangement and builders work drawings. Understand the principle of measuring and setting out process for the whole lift or escalator installation.
Service and Repair	Understanding of the specific principles, practices and legislation for the servicing, repair and maintenance of lift and escalator systems. Understanding the principle of inspection of lift / escalator equipment. Understanding the use of lubricants, hydraulic fluids and cleaning materials. Understanding the principles of fault diagnosis, location and rectification.

Skills	
Core Skills	**Performance Outcome**
Health and Safety	Apply risk assessment and method statements in relation to specific work activities and the importance of behaviours in safety-critical environments.
Mechanical and Hydraulic Technology	Apply the principles, practices and operation of complex components making a lift or escalator system. Apply the use of tools, alignment equipment, measuring instrumentation. Apply the correct securing and fixing of components. Apply correct installation of ropes, belts, chains and with the designed termination methods. Apply principle and practices of correct lifting and handling methods.
Electrical and Electronic Technology	Apply the principles, practices and operation of complex electrical and electronic control systems. Apply the use of tools, computer software and measuring instrumentation. Apply the principles and practices of reading electrical wiring diagrams. Apply the principles and practices of the use of tools, measuring instrumentation and fault-finding processes.
Planning and Organising Work	Apply the principles and practices of using of engineering drawings, documentation to meet current, regulations, standards and operating manuals. Apply the principles and practices of method statements and safe systems of working. Apply the principle and practices of planning, unloading and storage of materials.

Behaviours	Performance Outcome
Health and Safety	Ability to work safely and awareness of their actions and the effects of their acts or omissions on others
Judgement	Able to make decisions concerning problem-solving within their own level of competence and to know when to seek advice
Team Working	Ability to work with others; clients, colleagues, suppliers and members of the public
Self-motivation	A strong work ethic and commitment to self-development. Able to make independent decisions concerning their work practice
Communication	Effective communication with managers and clients, and able to contribute to team meetings
Environment	Maintenance of tidy working areas
Ethics	Work to industry Codes of Practice for safe working

4. <u>Duration</u>

The duration of this Apprenticeship, due to the complexity of the chosen lift or escalator pathway and in order to gain the required skills, knowledge and experience for this apprenticeship would typically be 48 months. This may be reduced or extended by previous relevant experience or part qualification to enable inclusive opportunities however, no apprentice would be able to complete less than 24 months.

5. Entry Requirements

Three GCSEs or Level 2 equivalent including Math's, English and a Science, Technology, Engineering and Mathematics (STEM) based subject would be typical entry requirements however individual employers will identify any relevant entry requirements in terms of previous qualifications, industry suitability tests, or other criteria. Most candidates will have English and Mathematics at level 2 on entry, but all learners must have achieved Level 2 in both Mathematics and English, prior to completion of the Apprenticeship. Consideration will be given to previous experience and to enable inclusive opportunities for all.

6. Qualification

The apprentice will achieve foundation skills in engineering if not already held upon entry, industry recognized qualifications in safety and the relevant engineering discipline they will follow at level 3 and complete an industry relevant technical element aimed at the chosen apprenticeship pathway within this standard.

7. Level

This is a Level 3 Apprenticeship.

8. Review Date

This Standard will be reviewed in 3 years.