

National Occupational Standards

Sector: Employees working as assistants in the installation lifts

Occupation: Assistant Lift Installer

MQF Level: MQF level 2

Units:

ASI1 - Health and Safety in the Lift Industry

ASI2 - Basic Theory – Maths & Physics for lifts installation

ASI3 - Electrical and Mechanical Principles for Lifts Installations including Engineering Drawings

ASI4 - Lift Installation

ASI1 Unit 1: Health and Safety in the Lift Industry

This unit lists the knowledge and skills needed by a person holding this position to carry out work in compliance with health and safety requirements. Upon completion of this unit, the person carrying out this work will possess the necessary knowledge and skills to follow health and safety procedures which ensure that their actions do not create health and safety risks to self or others.

Performance Criteria

The candidate must have the necessary knowledge and skills to:

1. Deal with hazard and risk in a lift installation and maintenance context
2. Deal with associated hazards while carrying out installations, maintenance and fault diagnosis on lifts
3. Be responsible for utilising personal protective equipment (PPE) that one needs to use for measuring and setting out activities and electrical installations
4. Ensure to take specific safety precautions that are to be taken before and during installation to reduce typical risk
5. Deal with hazards associated with the tools and equipment used, and how they can be minimised
6. Comply with the procedures that are to be carried out before starting work on the installation including any specific legislation, regulations or codes of practice for the activities, equipment or materials
7. Comply with health and safety regulations when manually handling heavy loads and carrying techniques
8. Collaborate with co-workers by using effective communication methods and skills that facilitate safety in lift installation
9. Collaborate with qualified personnel on tasks related to the safe isolation of electrical components
10. Deal with safety components of lifts correctly
11. Ensure that one handles *hazardous materials* on a work site correctly and disposes of such materials in accordance with health and safety procedures
12. Ensure that one implements safety precautionary measures that are required when one is working at heights and scaffold system

13. Collaborate with qualified personnel to safely isolate services during installation to provide safe access and working arrangements for the installation area
14. Ensure that the work area is safe and free from foreign objects and debris
15. Collaborate with qualified personnel to connect equipment to power supplies
16. Ensure that one immediately informs designated personnel of problems that cannot be resolved
17. Collaborate with qualified personnel during the isolation and lock-off procedure

Required Knowledge

The Assistant Lift Installer must know and explain:

1. Their responsibilities under the Occupational Health and Safety Act
2. What constitutes hazards and risks in a lift installation
3. The hazards associated whilst carrying out installations
4. The personal protective equipment (PPE) that one needs to use for measuring and setting out activities and electrical installations
5. The specific safety precautions that are to be taken before and during installation
6. The hazards associated with the tools and equipment used, and how they can be minimised
7. The procedures to be carried out before starting work on the installation including any specific legislation, regulations or codes of practice for the activities, equipment or materials
8. How to apply correct manual lifting and carrying techniques
9. And communication methods and skills that facilitate safety in lift installation
10. On how to identify and operate safely electrical isolating components under supervision
11. Safety components for lifts
12. How the various *hazardous materials* on a work site should be correctly handled and disposed of in accordance with health and safety procedures
13. The safety precautionary measures required when working at heights or on a scaffold system
14. On how to assist qualified personnel on how to safely isolate services during installation, in order to provide safe access and working arrangements for the installation area
15. On how to leave the work area in a safe condition and free from foreign objects and debris
16. On how to assist qualified personnel to connect equipment to power supplies
17. The isolation and lock-off procedure while assisting qualified personnel.

Required Skills

The Assistant Lift Installer must be able to:

1. List the associated hazards whilst carrying out installations and take the necessary precautions
2. Source personal protective equipment (PPE) that one needs to use
3. Apply specific safety precautions that are to be taken before and during installation
4. Select and safely use the tools and equipment required for the lift installation
5. Apply the correct procedures before starting work on the installation including any specific legislation, regulations or codes of practice for the activities, equipment or materials
6. Select and apply the correct manual lifting and carrying techniques
7. Apply effective communication methods and skills that facilitate safety in lift installation
8. Identify and operate safely electrical isolating components under supervision
9. Show how safety components for lifts work
10. Demonstrate how the various *hazardous materials* on a work site should be correctly handled and disposed of in accordance with health and safety procedures
11. Apply safety precautionary measures required when working at heights and on scaffold system
12. Practice safe isolation of services during installation to provide safe access and working arrangements for the installation area
13. Prepare the work area to create a safe working environment, that is free from foreign objects and debris
14. Demonstrate how to assist qualified personnel in connecting equipment to power supplies
15. Identify the isolation and lock-off procedures whilst assisting qualified personnel.
16. Discuss best practice that facilitates collaboration with team members in an installation
17. Identify various *hazardous materials* on a work site and how they can be correctly handled and disposed of in accordance to health and safety procedures

AS12 – Unit 2: Basic Theory – Maths & Physics for lifts installation

This unit lists the knowledge and skills needed by a person holding this position to carry out basic calculations in relation to the installation of a lift. Upon completion of this unit, the person carrying out this work will possess the necessary knowledge to understand the theory and carry out the necessary calculations for the completion of a lift installation.

Performance Criteria

The candidate must have the necessary knowledge and skills to:

1. Carry out basic arithmetic operations and functions and rounding off up to three decimal places
2. Carry out basic mathematical operations involving ratios, proportions and percentages
3. Carry out basic tasks in calculating the perimeter, circumference, area and volume of various simple two and three dimensional profiles
4. Deal with the interpretation of a plan and correctly transpose measurements onto a given site
5. Carry out exercises using the principles of mass, weight and density
6. Carry out measuring tasks using suitable measuring instruments, in order to determine various dimension ranges
7. Understand basic principles of electricity

Required Knowledge

The Assistant Lift Installer must know and explain:

1. Basic arithmetic operations and functions of fractions and decimals and rounding off up to three decimal places
2. Basic mathematical operations involving ratios, proportions and percentages
3. Formulae used to calculate the perimeter, circumference, area and volume
4. The principle differences between mass, weight and density
5. On how to Use appropriate instruments for measuring dimensions for various ranges
6. The basic principles of electricity
7. The principle difference between voltage, current, resistance and power

Required Skills

The Assistant Lift Installer must be able to:

1. Present the results of basic arithmetic operations and analyse basic arithmetic operations and functions

2. Present the results of basic mathematical operations involving ratios, proportions, and percentages
3. Select the correct formulae used to calculate the perimeter, circumference, area and volume of various simple profiles
4. Identify various instruments utilised for measuring dimensions for various ranges
5. Understand the relevant sections from basic principles of electricity that are relevant to lift installation tasks
6. Identify lift functions that require voltage, current, resistance and power in a lift installation context

AS13 – Unit 3: Electrical and Mechanical Principles for Lifts Installations / Engineering Drawings & Documents

This unit lists the knowledge and skills needed by a person holding this position to understand and assist in the installation of a lift. Upon completion of this unit, the person carrying out this work will possess the necessary knowledge to understand the principles for the completion of a lift installation. This will include the applicable of the relevant standards.

Performance Criteria

1. Collaborate with qualified personnel to install the lift's main mechanical, hydraulic and electrical components
2. Carry out lift installation tasks under supervision for traction lifts, gearless MRL traction lift and hydraulic lifts
3. Carry out tasks on the installation of the various components making up the safety circuit under qualified supervision
4. Collaborate assisting the qualified professional out the appropriate electrical checks
5. Comply with standards during lift installations assisting the qualified professional
6. Collaborate with qualified professional to connect electrical earthing systems utilised in lift installations
7. Collaborate with qualified professional when installing electrical hardware utilised in lift installations
8. Collaborate by assisting lift installer when installing conduits, cable trunking, ladder racking and cable trays installations
9. Collaborate by assisting lift installer when connecting various switches, sensors and other fittings
10. Collaborate by assisting lift installer in the installation of all parts marking up the mechanical system for a lift installation

Required Knowledge

The Assistant Lift Installer must know and explain:

1. Drawings and describe the sequence of work when installing lifts
2. The lift's main mechanical, hydraulic and electrical components
3. The principles of: gear traction lift, gearless MRL traction lift with VVVF motor and hydraulic lifts
4. The functions of: the various components making up the safety circuit

5. The function and installation of the various electrical components and switches used in lift installations
6. The electrical earthing systems utilised in lift installations
7. The electrical hardware utilised in installations
8. The typical features of the electrical installation for a lift
9. How to connect various switches, sensors and other fittings when assisting a qualified professional
10. The Mechanical Principles including safety gear & their Applications for lifts
11. The lift information such as drawings, manufactures' manuals and circuit diagrams, required as reference during installation tasks
12. Applicable lift standards in the installation of lifts such as distances and tolerances.

Required Skills

The Assistant Lift Installer must be able to:

1. Demonstrate how the lift's main mechanical, hydraulic and electrical components function
2. Show how to carry out lift installation tasks under supervision for traction lifts with machine room, gearless MRL traction lift with VVVF motor and indirect / direct hydraulic lifts
3. Demonstrate how to carry out the appropriate electrical safety checks according to instructions
4. Show how to carry out the assigned supervised tasks on the installation of various typical electrical equipment used in lift installations
5. Plan and carry out the assigned supervised tasks on electrical earthing systems utilised in lift installations
6. Demonstrate how to carry out the assigned supervised tasks on electrical hardware utilised in lift installations
7. Demonstrate how to undertake assigned supervised tasks on conduits, cable trunking, ladder racking and cable trays installations
8. Show how to carry out the assigned supervised tasks to connect various switches, sensors and other fittings
9. Assemble lift mechanical components complying with the Mechanical Principles & their applications for lifts
10. Assemble lift mechanical components including cabin structure, guide rails relating to lift installations

11. Use manufactures manuals, circuit diagrams, drawings and other relevant documents when planning a given installation task
12. Apply parts of the standards governing the lift industry

AS14 – Unit 4: Lift installation

This unit lists the knowledge and skills needed by a person holding this position to understand and assist in the installation of a lift. Upon completion of this unit, the person carrying out this work will possess the necessary knowledge to assist in the installation of a lift as per manufacturer's instruction and relevant applicable standards.

Performance Criteria

1. Collaborate using lift industry terminology when discussing a given lift installation
2. Carry out lift installation by assisting the qualified installer in the different layouts of Pit layouts; Machine room layouts; MRL layouts; etc.
3. Collaborate with a qualified installer following the principles of locking devices; electrical safety chain; progressive safety gear; safety rope; pressure relief valve, shut-off valve, pit ventilation
4. Comply with the manufacturers' specifications and standards governing the lift industry when assisting a qualified installers in typical lift installation set-ups
5. Collaborate with qualified installer/electrician on basic electrical installation circuits,
6. Carry out tasks to establish datum lines by correctly using plumb lines
7. Collaborate with a qualified installers to install Lift Ropes and Chains and Ancillary Components
8. Ensure to take measurements assisting qualified professional for Traction / MRL Lift Installation, Hydraulic Lift Installation and Ancillary Equipment in three planes front to back, side to side, and top to bottom when making sure the lift well will accommodate the lift

Required Knowledge

The Assistant Lift Installer must know and explain:

1. Lift industry terminology when discussing a given lift installation task
2. The different layouts of Pit layouts; Machine room layouts; MRL Shaft layouts
3. The method to be used for a typical installation
4. The principles of locking devices; electrical safety chain; progressive safety gear; safety rope; pressure relief valve, shut-off valve, shaft ventilation
5. On how to organise typical lift installation set-ups to comply with the manufacturers' specifications and standards governing the lift industry
6. Basic electrical installation circuits, electrical symbols, voltages and the various means of isolating electrical systems in lift installation

7. On how to set up and correctly use plumb lines to establish datum lines
8. On how to install Lift Ropes and Ancillary Components
9. On how to take measurements for Traction Lift Installation, Hydraulic Lift Installation and Ancillary Equipment in three planes front to back, side to side, and top to bottom when making sure the lift-well will accommodate the lift

Required Skills

The Assistant Lift Installer must be able to:

1. Demonstrate how to undertake a given lift installation and use lift industry terminology
2. Plan with qualified lift installers on how to carry out lift installation tasks in the different layouts of Pit layouts; Machine room layouts; MRL layouts
3. Select on the system to be used for the installation of the guide rails and MRL motors inside the lift shaft
4. Carry out assigned tasks as instructed by the qualified lift installer on locking devices; electrical safety chain; progressive safety gear; safety rope; pressure relief valve, shut-off valve, shaft ventilation
5. Demonstrate on the application of the standards governing the specific lift installation
6. Assist installer/electrician on basic electrical installation circuits, identifying electrical symbols, voltages and the various means of isolating electrical systems
7. Measure and set up correctly using plumb lines to establish datum lines
8. Install Lift Ropes and Chains and Ancillary Components when assisting the qualified installers
9. Take the necessary measurements for Traction Machine Room & MRL Lift Installation, Hydraulic Lift Installation and Ancillary Equipment in three planes front to back, side to side, and top to bottom whilst making sure the lift well will accommodate the lift.
10. Identify electrical symbols and voltages and the various means of isolating electrical on basic electrical installation circuits systems when assisting a qualified installer/electrician.