National Occupational Standards

Sector: Employees working as Lift Installers

Occupation: Lift Installation Specialist

MQF Level: MQF level 4

Units:

LINS1 - Unit 1 Health and Safety in the Lift Industry

LINS2 - Unit 2 Lift Equipment and Components

LINS3 - Unit 3 Electrical Wiring & Equipment

LINS4 - Unit 4 Pit Equipment, Guide Rails, Hydraulic Theory & Installation

LINS5 – Unit 5 Traction Lift Installation

LINS6 – Unit 6 Hydraulic Lift Installation

Note: Candidate must have already qualified at MQF Level 2 as an assistant lift installer in order to occupy this position and have successfully assisted in the installation of 50 traction and hydraulic lifts (with testimonial certificates).

LINS1 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 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. Carry out lift isolation and lock-off procedure

Required Knowledge

The Lift Installation Specialist 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.

Required Skills
The Lift installation Specialist 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

LINS2 - Unit 2 Lift Equipment & Components

This unit lists the knowledge and skills needed by a person holding this position to carry out work in the installation of lifts.

Performance Criteria

The candidate must have the necessary knowledge and skills to:

1. Assemble “machine room” equipment
2. Collaborate to install lift machinery according to instructions and guidelines
3. Assemble machine room accessories & installation
4. Extract information from drawings and specifications to prepare the installation
5. Carry out and delegate tasks in the lift installation according to drawings and specifications
6. Assemble hoist way equipment according to drawings, specifications, lift standards and instructions
7. Install car & counterweight assemblies
8. Install car & counterweight assemblies
9. Install wire ropes & roping
10. Install top of car equipment
11. Install operating fixtures
12. Install doors & door equipment
13. Understand and explain how the lift installation requirements conform to applicable lift standards
14. Check the operations of the lift doors
15. Resolve installation problems.
16. Carry out isolation and lock-off procedures
17. Carry out the commissioning of a lift
18. Assist the Notified Body during the final examination of a lift
19. Carry out handover requirements for the placing into service of a lift

Required Knowledge

The Lift installation Specialist must know and explain:

1. The methodology used in the process of assembly when installing lifts
2. On how to install the lift machinery according to manufacturer’s instructions and guidelines
3. The lift accessories, their properties according to the process of assembly when installing lifts

4. What is the required information to be extracted from installation drawings and specifications in order to prepare for the installation
5. The process of assembling the lift hoist way equipment such as guide rails, buffers, limit switches and sills according to the drawings and specifications
6. The procedure of how the car & counterweight are assembled and installed
7. The procedure of how the wire ropes & roping are installed
8. The steps of how to wire the lift control system
9. The prescribed order of how doors & door equipment are installed
10. On how to obtain the correct measurements in preparation to ensure shafts have the correct clearances
11. On how to verify the operation of the lift with manufacturer's instructions and carry out commissioning procedures
12. The work / procedures required by the Notified Body during final examination
13. The handover procedures

Required Skills

The Lift installation Specialist must be able to:

a. Assemble "machine room" equipment for MRL and hydraulic lift installations
b. Install lift machinery according to manufacturer's instructions
c. Assemble all the lift hoist way equipment such as guide rails, buffers, limit switches and sills according to the drawings and specifications
d. Extract information from installation drawings and take correct measurements in preparation, to ensure shafts have the correct clearances
e. Install car & counterweight assemblies
f. Install wire ropes & roping
g. Install top of car equipment
h. Install operating fixtures
i. Install doors & door equipment
j. Understand and ascertain the lift installation requirements conforms to applicable lift standards
k. Discuss with co-workers in a lift installation context
l. Propose ways of how to assemble the type of lift to be installed
m. Carry out the commissioning of the lift

n. Prepare lift for the final examination by a Notified Body

o. Explain and provide all the information to the end user of the lift – handover procedures.

LINS3 - Unit 3 Electric Wiring & Equipment

This unit lists the knowledge and skills needed by a person holding this position to carry out the electrical wiring and installation of the various electrical components required for 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 electrical work for the completion of a lift installation.

Performance Criteria

The candidate must have the necessary knowledge and skills to:

1. Comply with the relevant electrical concepts in lift installation
2. Collaborate on the planning & installation of electrical wiring and components when installing lifts
3. Collaborate to run and connect motor room & hoist way wiring as instructed
4. Collaborate to set up for conduit connections & conductor installation as instructed
5. Collaborate by using the appropriate methods of installing the travelling cable
6. Collaborate when installing piping & wiring of car enclosure
7. Comply with the set procedures and follow instructions when powering up equipment

Required Knowledge

The Lift Installation Specialist must know and explain:

1. The electrical concepts relevant to a lift installation
2. The process and procedures when planning & installing electrical wiring and components for a lift installation
3. The steps one takes to run and connect MRL traction motor assemblies & hoist way wiring
4. On how to set up conduit connections & conductor installation including the planning, preparing and installing the travelling cable
5. The steps required to install wiring of car enclosure
6. The sequence and the process of powering up equipment.

Required Skills

The Lift installation Specialist must be able to:

1. Apply the relevant electrical concepts in lift installation
2. Plan & install the electrical wiring of the lift components
3. Run and connect motors
4. Set up conduit connections & conductor installation as instructed

5. Plan and install the travelling cable
6. Apply the correct methods and install the piping & wiring of car enclosure
7. Carry out the set-up procedures and provide instructions when powering up equipment.

LINS4 - Unit 4 Pit Equipment, Guide rails, Hydraulic Theory & Installation

This unit lists the knowledge and skills needed by a person holding this position to understand the various functions of the mechanical parts required for the installation of a lift. Upon completion of this unit, the person carrying out this work will possess the necessary knowledge to understand the function and the installation of various mechanical components.

Performance Criteria

1. Full detailed working knowledge of the applicable lift standards for the installation of lifts
2. Full working knowledge of test carried out on lifts
3. Assemble all pit equipment according to technical drawings
4. Collaborate to ensure that the pit construction is level and corresponding to technical drawings
5. Carry out tasks for the installation of the buffers with according to technical drawings
6. Collaborate to install governor rope tension pulleys
7. Collaborate for the installation of compensating equipment
8. Collaborate to install deflector pulleys
9. Collaborate to install limit switches
10. Comply with the instructions to install safety switches
11. Carry out tasks of installing guide rails following technical drawings
12. Collaborate to install guide rail construction
13. Collaborate to plumb the hoist way
14. Collaborate to install guide rail-brackets, fastenings & settings
15. Comply by using the appropriate tools and follow approved methods when guide rail gauging, aligning & filing
16. Collaborate when installing hydraulic components in machine room and hoist way
17. Collaborate when installing the hydraulic ram
18. Collaborate when installing & piping the power unit.

Required Knowledge

The Lift Installation Specialist must know and explain:

1. How to assemble all pit equipment according to technical drawings and in conformity to applicable standards
2. How to ensure that the pit construction is level and corresponding to technical drawings and in conformity to applicable standards

3. How to Sequence the steps in order to install the buffers according to technical drawings and in conformity to applicable standards
4. How to install governor rope tension pulleys as per technical drawings and in conformity to applicable standards
5. How to install compensating equipment as per technical drawings and in conformity to applicable standards
6. How to install deflector pulleys as per technical drawings and in conformity to applicable standards
7. The sequence the steps of how to install limit switches
8. The sequence the steps of how to install safety switches
9. How to install the guide rails following technical drawings
10. How to install plumbing in the hoist way, guide rail-brackets and fastenings & settings
11. How to use the appropriate tools and how to follow the approved methods when guide rail gauging, aligning & filing
12. The hydraulic installation that one follows when installing hydraulic components in machine room and the hoist way
13. How to install the hydraulic ram
14. The steps when installing & piping the power unit.
15. How to test installed safety components as per applicable standards

Required Skills

The Lift Installation Specialist must be able to:

1. Demonstrate on how to assemble all pit equipment as per technical drawings and in conformity to applicable standards
2. Plan according to technical drawings and in conformity to applicable standards to ensure that the pit construction is level
3. Prepare all equipment required to install buffers as per technical drawings and in conformity to applicable standards
4. Plan according to as per technical drawings and in conformity to applicable standards to install governor rope pulleys
5. Prepare all equipment required to install compensating equipment as per technical drawings and in conformity to applicable standards
6. Demonstrate how to install deflector pulleys
7. Show how to install limit switches
8. Show how to install safety switches

9. Plan one's work from technical drawings to install guide rails
10. Plan on how to install guide rail construction
11. Plan on how to plumb the hoist way
12. Plan to install the guide rail-brackets, fastenings & settings
13. Show how to use appropriate tools and follow approved methods when guide rail gauging, aligning & filing
14. Plan to install hydraulic components in machine room and hoist way as per technical drawings and in conformity to applicable standards
15. Plan to install the hydraulic ram
16. Plan to install hydraulic piping and the power unit
17. Carry out commissioning procedures including testing of each safety component

LINS5 - Unit 5 Traction Lift Installation
This unit lists the knowledge and skills needed by a person holding this position to understand, lead and install a traction type lift. Upon completion of this unit, the person carrying out this work will possess the necessary knowledge to lead, install, commission and handover a traction lift as per manufacturer's instructions and relevant applicable standards. **Performance Criteria** 1. Carry out tasks in measuring and setting out lift installations 2. Deal with installing lift well and ancillary equipment 3. Carry out tasks for the installation of lift ropes and chains 4. Carry out tasks to install lift doors, frames and ancillary components 5. Carry out tasks for the checking and setting of lift installations 6. Carry out tasks in the installation of Traction lift equipment 7. Carry out the commissioning of a lift 8. Assist the Notified Body during the final lift inspection 9. Carry out the handover for the placing on the market of the lift.
Required Knowledge
The Lift installation Specialist must know and explain: 1. The main components required for Traction Lift Installation 2. How and what to measure when setting out Traction Lift Installation 3. How to install *lift well* and ancillary equipment for Traction Lift Installation 4. How to install lift ropes and compensation chains / ropes for Traction Lift Installation 5. How to install lift doors, frames and ancillary components for Traction Lift Installation 6. How to check and set lift installations for Traction Lift Installation 7. How to install Traction Lift Equipment 8. How to commission a traction lift (all types) 9. How to test safety components and check final refuge space measurements 10. Knowledge on handover procedures.

Required Skills

The Lift installation Specialist must be able to:

1. Discuss the function and proper use of tools, equipment and materials for Traction Lift Installation
2. Use appropriate and correct terminology when interacting with co-workers and clients
3. Discuss how one interprets instructions and refers to drawings to locate with accuracy the positioning and specifications required for the Traction lift installation tasks
4. Demonstrate how to measure and set out Traction Lift Installations
5. Demonstrate how to install lift ropes and chains
6. Demonstrate how to install lift doors, frames and ancillary components
7. Demonstrate how to check and set lift installations
8. Demonstrate how to install Traction lift equipment
9. Demonstrate how to commission a traction lift (all types)
10. Demonstrate the testing procedures / requirements of safety components and refuge space measurements
11. Demonstrate handover procedures.

LINS6- Unit 6 Hydraulic Lift Installation

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

Performance Criteria

1. Carry out tasks for measuring and setting out Hydraulic Lift Installations
2. Carry out tasks for the installation of lift well and ancillary equipment
3. Carry out tasks for installing lift ropes
4. Carry out tasks for installing lift doors, frames and ancillary components
5. Carry out tasks checking and setting lift installations
6. Carry out tasks for installing hydraulic lift equipment
7. Carry out the commissioning of a hydraulic lift
8. Assist the Notified Body during the final lift inspection
9. Carry out the handover for the placing on the market of the lift.

Required Knowledge

The Lift Installation Specialist must know and explain:

1. The main components required for Hydraulic Lift Installation
2. How and what to measure when setting out Hydraulic Lift Installation
3. How to install lift well and ancillary equipment for Hydraulic Lift Installation
4. How to install lift ropes for Hydraulic Lift Installation
5. How to install lift doors, frames and ancillary components for Hydraulic Lift Installation
6. How to check and set lift installations for Hydraulic Lift Installation
7. How to install Hydraulic Lift Equipment
8. How to commission an indirect and direct acting hydraulic lift
9. How to test safety components and check final refuge space measurements
10. Knowledge on handover procedures.

Required Skills

The Lift Installation Specialist must be able to:

1. Describe the function and proper use of tools, equipment and materials for one's work
2. Use appropriate and correct terminology when interacting with co-workers and clients
3. Select the required measurements from plans to set out Hydraulic lift installations
4. Demonstrate how to measure and set out Hydraulic Lift Installations
5. Demonstrate how to install lift well and ancillary equipment
6. Demonstrate how to install lift ropes and chains
7. Demonstrate how to install lift doors, frames and ancillary components
8. Demonstrate how to check and set lift installations
9. Demonstrate how to install hydraulic lift equipment
10. Demonstrate how to commission an indirect and direct acting hydraulic lift
11. Demonstrate the testing procedures / requirements of safety components and refuge space measurements
12. Demonstrate handover procedures.