

Regulated Qualification Framework (RQF)

Qualification Specification for LCL Awards Level 3 Award in the Installation, Commissioning and Maintenance of Heat Interface Units (<70kW Output)

1.0 Qualification Objective(s)

The objective(s) of the qualification are to:

- Prepare learners to progress to a qualification in the same subject area but at a higher level or requiring more specific knowledge, skills and understanding
- Support a role in the workplace

This qualification has been developed in conjunction with industry stakeholders to enable learners to demonstrate the knowledge and practical skills required for the installation, commissioning and maintenance of Heat Interface Units enabling learners to demonstrate they are competent in accordance with legislation, regulations and industry standards.

2.0 Prior qualifications, knowledge, skill or understanding which learners are required to have achieved before taking the qualification.

- N/SVQ Level 2/3 in Plumbing or equivalent earlier certification that provides evidence of competence; or
- N/SVQ Level 2/3 in Heating and Ventilating (Domestic Installation) or equivalent earlier certification that provides evidence of competence; or
- N/SVQ Level 2/3 in Heating and Ventilating (Industrial and Commercial Installation) or equivalent earlier certification that provides evidence of competence; or
- N/SVQ Level 2/3 in Oil-Fired Technical Services or equivalent earlier certification that provides evidence of competence; or
- N/SVQ Level 2/3 in Gas Installation and Maintenance or equivalent earlier certification that provides evidence of competence; or
- Heating installers with minimum 1 year of experience of HIU systems, or OFTEC registration (Wet Heating) or Gas Safe Registration (CENWAT/CIGA1)

3.0 Other requirements which a learner must have satisfied before the learner will be assessed or before the qualification will be awarded.

None

4.0 Qualification Framework

The qualification comprises of 1 mandatory Unit which must be satisfactorily completed by learners.

Unit Title	Unit Reference Number	Type of Unit	Level	Credit Value
Installation, Commissioning and Maintenance of Heat Interface Units	LCL-R3004	Knowledge and Performance	3	2

4.1 Qualification Time and Credit Value

- Total Qualification Time (TQT) is 18 hours
- The Guided Learning Hours (GLH) are 15 hours
- The total credit value of the qualification is 2

4.2 Qualification level

The qualification has been assigned at level 3.

4.3 Grading Structure

The grading structure for the Qualification is that learners are required to achieve a result of **Pass** to be awarded.

This qualification will be achieved when learners have successfully completed:

- The LCL Awards set and marked multiple choice knowledge examination.
- The LCL Awards set and Centre marked performance assessments.

4.4 Assessment Method

The assessment methods within the qualification include an on-screen multiple choice knowledge examination and Centre marked performance assessment.

The assessment methods have been designed to assess the knowledge, understanding and skills of learners.

The on-screen multiple-choice examination is set and marked by LCL Awards.

The performance assessment is set by LCL Awards and marked by an LCL Awards approved assessor at the Centre.

5.0 The criteria against which learners' level of attainment will be measured

The Learning Outcomes and Assessment Criteria against which learners' level of attainment will be measured are detailed in the examination and assessment specification for each unit below.

Unit Learning Outcomes and Assessment Criteria

LCL-R3004: Installation, Commissioning and Maintenance of Heat Interface Units (HIU)

Learning Outcome 01. The learner will know the regulations and standards that underpin the installation of HIU, and how a heat network functions

The learner will demonstrate knowledge of:

- 1.1 Regulations covering heat networks.
- 1.2 Standards and guidance documents for HIU installation.
- 1.3 How heat networks operate.
- 1.4 Elements of a heat network.
- 1.5 Generations of heat networks historically.
- 1.6 The BESA HIU Test Regime.
- 1.7 Types of HIU.
- 1.8 The Method Statement requirement when multiple HIU are to be installed at a specific project site.
- 1.9 Handling and storage of HIU.
- 1.10 Emergency and service isolation arrangements.
- 1.11 Training/competency requirements to undertake work on HIU.

Learning Outcome 02. The learner will know the operating functions of HIUs and how HIU should be installed.

The learner will demonstrate knowledge of:

- 2.1 Component parts of an HIU.
- 2.2 Operating modes of an HIU.
- 2.3 HIU settings.
- 2.4 Planning the installation taking into account the:
 - Operating maximum temperature (primary flow)
 - Design primary return temperature
 - Design operating differential pressure (kPa)
 - Design DHW temperature
 - Design DHW flow rate (Instantaneous HIU)
 - Design space heating flow temperature
 - Design space heating return temperature

Learning Outcome 03. The learner will know the installation requirements of HIU

The learner will demonstrate knowledge of:

- 3.1 How to plan the installation of an HIU.
- 3.2 Confirming that a HIU is compliant with the Heat Network Technical Assurance Scheme (HNTAS) requirements.
- 3.3 Installation locations for HIU.
- 3.4 How to run pipework that allows the correct level of insulation to be achieved.
- 3.5 Arrangements for flushing bypasses.
- 3.6 Domestic Hot Water (DHW) pipework arrangements for Thermostatic Mixing Valve (TMVs).
- 3.7 How radiators should be piped and controlled to ensure design return temperatures are achieved.
- 3.8 Pressure testing, flushing and venting arrangements.

- 3.9 Pressure Relief Valve (PRV) discharge termination.
- 3.10 How room, time and temperature controls connect to the HIU.
- 3.11 Electrical supply and connections requirements.
- 3.12 System filling arrangements.
- 3.13 Safety discharge vessels.
- 3.14 The purpose and design of heat meters.
- 3.15 Pre-payment connections.
- 3.16 Meter-Bus (Mbus) cables as a method of exporting heat meter data.

Learning Outcome 04. The learner will be able to perform safe electrical isolation

The learner will be able to:

- 4.1 Perform safe electrical isolation of a HIU.

Learning Outcome 05. The learner will be able to install, commission and maintain a HIU.

The learner will be able to:

- 5.1 Undertake pre-commissioning checks by.
 - Identification of existing installation defects
 - Determining the information is needed prior to starting the commissioning procedure.
 - Confirming that commissioning of the energy centre and distribution network has been completed, including flushing and water treatment.
 - Confirming that a method statement has been developed with the input from the responsible system designer and heat network operator.
 - Prior to carrying out any tests, check the length of the primary pipe run within the dwelling to ensure it is fully insulated to the specified thickness and that all valves, flanges and fittings are covered.
- 5.2 Fill and vent the HIU and consumer heat system
- 5.3 Carry out a pressure differential test.
- 5.4 Set the required temperatures for the space heating and hot water in accordance with the design.
- 5.5 Make any other set point adjustments following the HIU manufacturer's instructions including:
 - Keep warm activation
 - Keep warm temperature
 - Return temperature limiter activation
 - Return temperature limiter temperature
 - Pump settings
- 5.6 Check the operation of the heat meter.
- 5.7 Carry out a keep warm function test.
- 5.8 Carry out DHW, space heating and heat meter operational tests, including the identification of common defects present on an HIU.
- 5.9 Carry out water treatment checks, confirming water treatment of the consumer heat system has been undertaken.

Learning Outcome 06. The learner will know how and when to perform maintenance on an HIU

The learner will demonstrate knowledge of:

- 6.1 The maximum intervals for the maintenance of direct and indirect HIU types.
- 6.2 The requirements prior to carrying out any work on the HIU, noting the HIU settings and comparing them against the design intent.
- 6.3 Establishing a table of the intended design operating criteria for the specific site, with acceptable tolerances to check against during the maintenance visit.
- 6.4 Assessing the condition of the HIU installation.
- 6.5 Checking the condition of the pipework insulation and any signs of tampering with the HIU.
- 6.6 Checking with the consumer if there have been any reported issues in operation since the last maintenance visit.
- 6.7 Checking the condition of all flex cables and terminals to the HIU.
- 6.8 The reasons for the cleaning of strainers.
- 6.9 The requirement to inspect and remedy all joints for signs of leaks.
- 6.10 The requirement to record the set points for DHW and Space heating temperature.
- 6.11 The requirement to observe the room temperature controller and space heating programmer to check they are functioning and set correctly.
- 6.12 The importance of record keeping and photographic evidence.
- 6.13 How to carry out performance checks
- 6.14 How to carry out water treatment testing.
- 6.15 Checking the calibration date of the heat meter.
- 6.16 Recording meter reading.
- 6.17 Recording of findings.

Learning Outcome 07. The learner will know fault-finding techniques on an HIU

The learner will demonstrate knowledge of:

- 7.1 The tools and equipment needed for fault-finding.
- 7.2 The approach to successful fault finding
- 7.3 Using the heat meter as a diagnostic tool
- 7.4 Measurement conversions
- 7.5 Checking temperature sensors using a multi-meter
- 7.6 Fault-finding hot water performance
- 7.7 Fault-finding space heating performance

6.0 Other information

Qualification Regulator Numbers:

- Ofqual 610/7779/3

Sector Skills Area: SSAs: 5.2 Building and Construction.

Suitable for age 18+.

This qualification does not include any work activity on the Heat Network to which the HIU is connected.

The qualification has a five-year validity for the purposes of Heat Network Technical Assurance Scheme (HNTAS) compliance requirements.

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Next Qualification Review Date: July 2029