
REGULATED QUALIFICATION FRAMEWORK (RQF)

QUALIFICATION SPECIFICATION

- **LCL Awards Level 3 Award in the Energy Efficiency for Gas Fired and Oil-Fired Domestic Heating and Hot Water Systems**

1. Objective:

The qualification allows learners to continue to learn, develop and practise the skills required for employment within the renewable and heating sector. This qualification is designed to enable learners to understand, and be competent when carrying out the design of heating systems in accordance with Part L of the Building Regulations and incorporates Boiler Plus energy efficiency measures.

Learners achieving the outcomes of this unit will have demonstrated that they have appropriate knowledge and skills.

The target groups for the qualification are those learners who are;

1. Preparing for further learning or training and/or developing knowledge and or skills in a subject area who are existing workers in the occupation seeking to extend their range of work

2. Qualification Framework:

The qualification comprises of 1 mandatory Units;

Unit Title	Unit Reference Number	Type of Unit	Level	Credit Rating
Energy efficiency for gas fired and oil-fired domestic heating and hot water systems K/504/4092	LCL-P3001	Knowledge	3	1

Qualification Structure:

- **LCL Awards Level 3 Award in the Energy Efficiency for Gas Fired and Oil-Fired Domestic Heating and Hot Water Systems.**
- **QAN – 601/3942/0**
- **QW - C00/0649/8**
- The Guided Learning Hours (GLH) are **9 hours**
- The Total Qualification Time (TQT) is **10 hours**
- The total credit required to achieve the qualification is **1**

3. Unit Grading Structure:

The learner is required to successfully achieve a pass for this qualification to be awarded.

4. Unit specification:

LCL-P3001: Energy efficiency for gas fired and oil-fired domestic heating and hot water systems
Assessment Method {MC/OL/SR}

Learning Outcome 01: The learner will Know the regulatory requirements and sources of guidance for energy efficiency standards for gas-fired and oil-fired heating appliances connected to 'wet' heating circuits

The learner can:

1.1 Identify which regulations apply in:

- England
- Wales
- Scotland
- Northern Ireland

1.2 Identify the industry recommended sources of guidance for:

- minimum regulatory compliance
- best practice

Learning Outcome 02: The learner will Know the requirement of minimum boiler efficiency standards for gas-fired and oil-fired heating appliances connected to 'wet' heating circuits

The learner can:

2.1 Confirm the requirements for gas-fired heating appliances connected to 'wet' heating circuits in relation to:

- new systems – new dwellings
- new systems – existing dwellings
- new systems – existing dwellings where a non-condensing appliance is assessed as being acceptable
 - Natural gas
 - LPG
- new systems – where the heating boiler is combined with a range cooker.
- replacement systems - not involving a fuel or energy switch
- replacement systems - involving a fuel or energy switch

2.2 Confirm the requirements for oil-fired heating appliances connected to 'wet' heating circuits in relation to:

- new systems – new dwellings, conventional boilers
- new systems – new dwellings, combination boilers
- new systems – existing dwellings
- new systems – existing dwellings where a non-condensing appliance is assessed as being acceptable
- new systems – where the heating boiler is combined with a range cooker.
- replacement systems - not involving a fuel or energy switch
- replacement systems - involving a fuel or energy switch

Learning Outcome 03: The learner will Be able to determine if a non-condensing boiler installation would be acceptable.

The learner can:

3.1 Use the 'Guide to condensing boiler installation assessment procedure for dwellings' to determine if a non-condensing boiler installation would be acceptable

Learning Outcome 04: The learner will Know the requirement relating to space heating primary circuits type and design for gas-fired and oil-fired 'wet' heating systems.

The learner can:

4.1 Confirm the requirements in relation to:

- new systems
- full replacement systems
- boiler replacements to systems with existing semi-gravity circulation
- provision of a bypass valve

Learning Outcome 05: The learner will Know the requirement relating to space heating primary circuits type and design for gas-fired and oil-fired 'wet' heating systems.

The learner can:

5.1 Confirm the relevant compliance standards for hot water storage vessels:

- vented copper hot water storage cylinders
- vented cylinders made from materials other than copper
- copper hot water storage combination units
- primary storage vessels (thermal stores)
- unvented hot water storage cylinders

5.2 Confirm the requirements relating to labelling of hot water vessels.

Learning Outcome 06: The learner will Know the requirements relating to the preparation and water treatment of hot water systems and wet central heating systems.

The learner can:

6.1 Confirm the requirements relating to the:

- cleaning and flushing of wet central heating systems – new systems
- cleaning and flushing of wet central heating systems – boiler replacements to existing systems
- use of chemical water treatment inhibitors or other appropriate means of controlling corrosion and the formation of scale and sludge within primary circuits – new and existing systems
- treatment of feed water to water heaters and the hot water circuit of combination boilers - new and existing systems

Learning Outcome 07: The learner will Know the requirements relating to the commissioning of hot water systems and wet central heating systems.

The learner can:

- 7.1 Confirm the requirements of the commissioning process and commissioning checks in relation to:
- compliance with manufacturers' instructions
 - compliance with current building regulations
 - provision of system controls
 - system flushing, cleaning and protection
 - heat generating appliance checks
 - temperature checks – heating
 - temperature checks – domestic hot water
 - provision of condensate drainage
 - demonstration of the operation of the system/appliance/controls to the customer/user
 - provision of system/appliance/control literature to the customer/user
- 7.2 Identify the options relating to the use of industry approved commissioning checklists:
- Gas fired systems
 - Oil fired systems

Learning Outcome 08: The learner will Know the requirements of the minimum standards for the control of gas-fired and oil-fired wet central heating systems.

The learner can:

- 8.1 Confirm the meaning of the term 'boiler interlock'
- 8.2 Identify the control and wiring arrangements required to provide a 'boiler interlock'
- 8.3 Confirm the requirements for the provision of a boiler interlock in relation to:
- new systems
 - replacement systems (including boiler replacements to existing systems)
- 8.4 Confirm the requirements relating to space heating zone control for:
- new systems in dwellings with a total usable floor area up to 150m².
 - replacement systems (including boiler replacements to existing systems) in dwellings with a total usable floor area up to 150m².
 - new systems in dwellings with a total usable floor area greater than 150m².
 - replacement systems (including boiler replacements to existing systems) in dwellings with a total usable floor area greater than 150m².
 - single-storey open-plan dwellings in which the living area is greater than 70% of the total floor area.
- 8.5 Confirm the requirements relating to hot water zone control for:
- systems with stored domestic hot water.
 - systems where domestic hot water is produced instantaneously.
 - thermal storage systems fitted with a second circulating pump.
- 8.6 Confirm the requirements relating to time control for:
- new and replacement heating and hot water systems (including boiler replacements to existing systems) in dwellings with a total usable floor area up to 150m².
 - new and replacement heating and hot water systems (including boiler replacements to existing systems) in dwellings with a total usable floor area greater than 150m².
 - new and replacement heating and hot water systems (including boiler replacements to existing systems) where hot water is produced instantaneously.

- replacement systems where only the hot water cylinder is being replaced and a separate control for the hot water circuit is not present.
- 8.7 Confirm the requirements relating to temperature control for:
- new and replacement space heating systems (including boiler replacements to existing systems) in dwellings with a total usable floor area up to 150m² and in dwellings with a total usable floor area greater than 150m²
- 8.8 Confirm the requirements relating to temperature control for:
- new and replacement domestic hot water systems (including boiler replacements to existing systems) in dwellings with a total usable floor area up to 150m²
 - new and replacement domestic hot water systems (including boiler replacements to existing systems) in dwellings with a total usable floor area greater than 150m²
- 8.9 Identify the permitted use of non-electrical (thermo-mechanical) hot water controllers in:

Learning Outcome 09: The learner will know the requirements of the minimum standards for the control of insulation of pipework for gas-fired and oil-fired wet central heating and hot water storage systems.

The learner can:

- 9.1 Specify the maximum permitted heat loss (W/m) for pipework insulation for the pipe sizes in the range of 8mm to 54mm
- 9.2 Confirm the requirements for the insulation of:
- primary circulation pipework for heating and domestic hot water circuits
 - pipework connected to hot water storage vessels
 - domestic hot water secondary circulation pipework

Learning Outcome 10: The learner will know the requirements relating to stand-alone, glandless heating system circulators.

The learner can:

- 10.1 Confirm the requirements for circulators fitted to new and replacement systems in relation to:
- energy efficiency labelling
 - energy efficiency rating

5 National Occupational Standard:

The Units used in this qualification have a direct relationship with the National Occupational Standards for the areas of work contained within.

6 RQF Descriptor Level {3}.

Knowledge descriptor: *(the holder can)*

- *Has factual, procedural and theoretical knowledge and understanding of a subject or field of work to complete tasks and address problems that while well-defined, may be complex and non-routine.*
- *Can interpret and evaluate relevant information and ideas.*
- *Is aware of the nature of the area of study or work.*
- *Is aware of different perspectives or approaches within the area of study or work.*

Skills Descriptor (*the holder can*)

- Identify, select and use appropriate cognitive and practical skills, methods and procedures to address problems that while well defined, may be complex and non-routine.
- Use appropriate investigation to inform actions.
- Review how effective methods and actions have been.

7 Prior qualifications, knowledge, skill or understanding which the learner is required to have before taking this qualification. (Pre-requisites)

None

8 Units which a learner must have completed before the qualification will be awarded and any optional routes.

Learners must complete the 1 mandatory units before the qualification will be awarded.
See Section 4.0 above.

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

None

10 The design and delivery of the examination associated with these units are based on the following documents;

- Domestic Heating Compliance Guide 2018 (English version) incorporating Boiler Plus
- Building Regulations AD L

11 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 Section 4 of this specification.

12 Planned exemptions

None

13 Specimen assessment materials.

None

14 Specified levels of attainment

Learners must pass the mandatory units for the qualification to be awarded.

15 Other information

Where the qualification is awarded in the various devolved regions of the UK i.e. England, Scotland, Northern Ireland and Wales, the examination questions and learner responses to those questions are set

and responded to in the context of the legislation, normative standards and guidance applicable in that region. Assessors will mark examinations in accordance with the generic model answers and rationales provided by LCL Awards taking into account any variations applicable to that region.

Assessment and Examination Terminology

AC – Approved Centre; an examination conducted either at the approved centre or a location approved by the centre, using staff approved by the centre to conduct the examination.

CBSR – **Closed Book** Short Response; Short response written questions will be set by the awarding organisation and administered and marked locally at the approved centre by approved markers. Learners will be prohibited from using industry normative or informative documents.

CE – Customer Evidence; evidence provided by a customer in the form of a written witness statement confirming a competent performance by the learner. That evidence may also be provided by an employing supervisor or manager of the learner. Witness statements that relate to a technical competence will only be accepted from a person technically competent in that particular activity to provide the statement.

IK – Inferred Knowledge; inferred knowledge is assessed as part of a performance assessment by a centre approved assessor. To deem the learner as having sufficient knowledge the learner must satisfactorily pass the performance assessment.

LE – Learner Evidence; learner generated evidence is for example documented recordings of readings, calculations or the production of a risk assessment or other procedural document.

MC – Multiple Choice; set by the awarding organisation and administered and marked locally or electronically. Learners will be able to answer multi-choice questions using reference to appropriate industry normative or informative sources.

O/L – On-line: a secure web-based assessment system (XAMS)

OP – Observed Performance; the assessment of a learner's performance by an approved assessor either in the learner's work place or at the approved centre or a location approved by the centre.

OQ – Oral Questions; oral questions may be asked by an assessor as part of a performance assessment or knowledge examination to confirm the understanding of the criteria by the learner.

PA – Performance Assessment; a performance assessment conducted either in the learner's work place or at the approved centre or a location approved by the centre.

RWE – Realistic Work Environment; an area at the approved centre or a location approved by the centre which replicates and has the features of a Work Place. The learner must not be permitted to be familiar with the simulated environment prior to undertaking assessment.

WP – Work Place; is the naturally occurring environment in which the learner works, typically that would be in a customer's premise where work is being paid for by the customer.

SSAs: 5.2 Construction

Review Date 31st December 2022