

City & Guilds Level 3 Award in Initial and Periodic Inspection and Testing of Electrical Installations (2391-52)

Version 2.1 (August 2018)

Qualification Handbook

Qualification at a glance

Subject area	Electrical Installation
City & Guilds number	2391
Age group approved	18+
Entry requirements	It would be expected that candidates have a basic knowledge and understanding of electrical science and principles and experience of electrical installation work either within the electrical contracting industry or an allied trade.
Assessment types	Multiple Choice Test; Assignment
Approvals	Automatic approval for approved 2394/2395
Support materials	SmartScreen; Qualification Handbook
Registration and certification	Consult the Walled Garden/Online Catalogue for last dates

Title and level	GLH	TQT	City & Guilds qualification number	Ofqual accreditation number
City & Guilds Level 3 Award in Initial and Periodic Inspection and Testing of Electrical Installations	50	67	2391-52	603/1275/0

Version and date	Change detail	Section
1.1 December 2017	Added grade boundaries	Assessment
2.0 January 2018	Qualification title changed to reflect the content more clearly. Formatting changes	All All
2.1 August 2018	Regional Difference Range statement amended (AC 1.3) AC 2.2 amended Regional differences section added	Delivery of Qualification Unit 502 Assessment

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1 Introduction

This document tells you what you need to do to deliver the qualification:

Area	Description
Who is the qualification for?	It is aimed at practising electricians who have not carried out inspection and testing since qualifying or who require some update of training before going onto other City & Guilds qualifications. The qualification is also suitable for those with limited experience of initial inspection and periodic inspection of electrical installations, such as those entering the industry from other engineering disciplines or who have been working in allied trades
What does the qualification cover?	This qualification prepares candidates for the initial verification and periodic inspection of electrical installation work.
What opportunities for progression are there?	It allows candidates to progress into employment or to the following City & Guilds qualifications: <ul style="list-style-type: none">• City & Guilds Level 4 Award in the Design and Verification of Electrical Installations (2396)• ILM management and leadership qualifications
Who did we develop the qualification with?	The qualification is endorsed by the Institution of Engineering and Technology
Is it part of an apprenticeship framework or initiative?	No

Structure

To achieve the City & Guilds Level 3 Award in Initial and Periodic Inspection and Testing of Electrical Installations, candidates must achieve the mandatory unit 2391-502

City & Guilds Level 3 Award in Initial and Periodic Inspection and Testing of Electrical Installations

City & Guilds unit number	Unit title	GLH
Mandatory		
501	Initial and Periodic Inspection and Testing of Electrical Installations	50

Total Qualification Time

Total Qualification Time (TQT) is the total amount of time, in hours, expected to be spent by a Learner to achieve a qualification. It includes both guided learning hours (which are listed separately) and hours spent in preparation, study and assessment.

Title and level	GLH	TQT
City & Guilds Level 3 Award in Initial and Periodic Inspection and Testing of Electrical Installations	50	67

2 Centre requirements

Approval

If your Centre is approved to offer the qualification City & Guilds Level 3 Award in the Initial Verification and Certification of Electrical Installations (2394-01) or City & Guilds Level 3 Award in the Periodic Inspection, Testing and Certification of Electrical Installations (2395-01) you will receive automatic approval to offer the new City & Guilds Level 3 Award in Initial and Periodic Inspection and Testing of Electrical Installations (2391-52).

To offer these qualifications, new centres will need to gain both centre and qualification approval. Please refer to the Centre Manual - Supporting Customer Excellence for further information.

Centre staff should familiarise themselves with the structure, content and assessment requirements of the qualifications before designing a course programme.

Resource requirements

Physical resources and site arrangements

Centres must provide access to sufficient equipment in the centre or workplace to ensure candidates have the opportunity to cover all of the practical activities.

The assignment guide gives details on the specifications of any practical rig which must be built.

Centre staffing

Staff delivering these qualifications must be able to demonstrate that they meet the following occupational expertise requirements. They should:

- be technically competent in the area for which they are delivering training and/or should have experience of providing training
- have recent relevant experience in the specific area they will be assessing
- have credible experience of providing training.

Centre staff may undertake more than one role, e.g. tutor and assessor or internal verifier, but cannot internally verify their own assessments.

Learner entry requirements

City & Guilds does not set entry requirements for these qualifications. However, centres must ensure that candidates have the potential and opportunity to gain the qualifications successfully. It would be expected that candidates have a basic knowledge and understanding of electrical science and principles and experience of electrical installation work either within the electrical contracting industry or an allied trade.

Age restrictions

City & Guilds cannot accept any registrations for learners under 18 as these qualifications are not approved for learners under 18.

3 Delivering the qualification

Initial assessment and induction

An initial assessment of each candidate should be made before the start of their programme to identify:

- if the candidate has any specific training needs
- support and guidance they may need when working towards their qualifications
- any units they have already completed, or credit they have accumulated which is relevant to the qualifications
- the appropriate type and level of qualification.

We recommend that centres provide an induction programme so the candidate fully understands the requirements of the qualification[s], their responsibilities as a candidate, and the responsibilities of the centre. This information can be recorded on a learning contract.

Support materials

The following resources are available for these qualifications:

Description	How to access
SmartScreen	www.smartscreen.co.uk

The following resources are available for this qualification

Recording documents

Candidates and centres may decide to use a paper-based or electronic method of recording evidence.

City & Guilds endorses several ePortfolio systems, including our own, Learning Assistant, an easy-to-use and secure online tool to support and evidence learners' progress towards achieving qualifications. Further details are available at: www.cityandguilds.com/eportfolios.

City & Guilds has developed a set of *Recording forms* including examples of completed forms, for new and existing centres to use as appropriate. Recording forms are available on the City & Guilds website.

Although new centres are expected to use these forms, centres may devise or customise alternative forms, which must be approved for use by the external verifier, before they are used by candidates and assessors at the centre. Amendable (MS Word) versions of the forms are available on the City & Guilds website.

Delivery of qualification for centres in nations other than England

For centres delivering this qualification where the content of the units is expressed differently in nations other than England, eg legislation, professional bodies, local directives and policy initiatives, this content should be adapted to meet local needs.

4 Assessment

Summary of assessment methods

Candidates must:

- successfully complete one practical assignment (2391-502)
- successfully complete one online multiple choice test (2391-052)

Assessment Number	Title	Assessment method	Where to obtain assessment materials
502	Initial and Periodic Inspection and Testing	Practical Assignment	The practical assignment is available from the City & Guilds website
052	Initial and Periodic Inspection and Testing	Online Multiple Choice Test	This assessment is provided on e-volve

Assessment strategy

Test Specifications

The way the knowledge is covered by each test is laid out in the table(s) below:

Assessment type: Multiple Choice Test

Assessment conditions: Open book and invigilated

Grading: Pass/Fail

Grade Boundaries: The pass mark is set at approximately 75%, however this may be adjusted to ensure consistency across cohorts (reliability).

Test: 2391-052	Duration: 120 minutes		
Unit 502	Outcome	Number of questions	%
	1 Understand requirements for inspection and testing	13	22
	2 Understand safety management procedures when undertaking inspection and testing	3	3
	3 Understand the requirements for the inspection of electrical installations	11	19

Test: 2391- 052	Duration: 120 minutes		
	4 Understand the requirements for testing electrical installations	33	56
	5 Perform inspection and testing of electrical installations	0	0
	Total	60	100

Regional differences

This qualification contains reference to statutory and non-statutory documents, which may differ depending where this qualification is delivered. It is the expectation that centre deliver content that is relevant to the cohort they are teaching. We have written our assessment to reference legislation that is relevant to all ensuring that the assessment is fit for purpose for all the nations, rather than having separate versions of each specification for each of the nations.

Recognition of prior learning (RPL)

Recognition of prior learning means using a person's previous experience, or qualifications which have already been achieved, to contribute to a new qualification.

For this qualification, RPL is allowed and is not sector specific.

5 Units

Structure of the units

These units each have the following:

- City & Guilds reference number
- Title
- **Unit aim**
- Learning outcomes, which are comprised of a number of assessment criteria

Centres must deliver the full breadth of the range. Specialist equipment or commodities may not be available to all centres, so centres should ensure that their delivery covers their use. This may be covered by a practical demonstration (e.g. video). For the practical assessments for this qualification, centres should ensure that there are sufficient resources to complete the task but are not required to use all the equipment or commodities in the range.

Unit 502

Initial and Periodic Inspection and Testing of Electrical Installations

Unit level: Level 3

Unit aim: This unit is designed to enable learners to understand principles, practices and legislation for initial verification and periodic inspection of electrical installations with statutory and non-statutory regulations and requirements. Its content is the knowledge needed by a learner to underpin the application of skills for the inspection, testing, commissioning and certification of electrical installations.

Learning outcome

The learner will:

- 1 Understand requirements for inspection and testing of electrical installations

Assessment criteria

The learner can:

- 1.1 State the purpose of the following:
 - 1.1 a Initial verification
 - 1.1 b Periodic inspection and testing
- 1.2 Explain reasons for conducting types of inspection and testing
- 1.3 Compare initial verification and periodic inspection and testing processes
- 1.4 Identify statutory and non-statutory documents that may be required during the inspection and testing processes
- 1.5 Identify documents that would be completed and issued following:
 - 1.5 a Initial verification
 - 1.5 b Periodic inspection and testing
- 1.6 Identify information needed in order to:
 - 1.6 a carry out initial verification in accordance with BS 7671/GN 3
 - 1.6 b agree extent and limitations
 - 1.6 c determine appropriate sampling
- 1.7 Define the responsibilities of the relevant signatories in relation to certification and reporting
- 1.8 Identify the type of information to be recorded on documents for the following:
 - 1.8 a Initial verification
 - 1.8 b Periodic Inspection and testing

- 1.9 Describe the purpose of the inspection and testing documents and the requirements for recording and retention
-

Range

(AC1.2) **Reasons:**

Insurance:

- Legislation
- Licencing
- Change of occupancy
- Change of use
- Substantial alteration or addition
- Damage.

(AC1.4) **Statutory and non-statutory documents:**

- Relevant health and safety legislation
- Electricity at work regulations
- BS 7671
- IET Guidance Note 3
- HSE Guidance GS 38

(AC1.5, AC1.8, AC1.9) **Documents:**

Initial verification:

- An electrical installation certificate
- A minor electrical installation works certificate
- Schedule of inspections
- Schedule of test results
- Guidance to recipients.

Periodic Inspection:

- An electrical installation condition report
- Schedule of inspections
- Schedule of test results
- Guidance to recipients.

(AC1.7) **Signatories:**

- Design
 - Construction
 - Inspection and Testing.
-

Learning outcome

The learner will:

- 2 Understand safety management procedures when undertaking inspection and testing of electrical installations

Assessment criteria

The learner can:

- 2.1 Identify health and safety requirements which apply when carrying out inspection and testing
 - 2.2 Outline the relevant requirements of the Electricity at Work Regulations (EWR) for safe inspection and testing of electrical installations
 - 2.3 Describe the procedure for completing safe isolation in accordance with industry guidance
 - 2.4 Explain why safe isolation is carried out for the protection of the inspector and other persons
 - 2.5 Identify the implications of not carrying out safe isolation
-

Range

(AC2.1) **Health and Safety Requirements:**

- Working in accordance with risk assessments/permits to work/method statements
- Safe use of tools and equipment
- Safe and correct use of measuring instruments
- Provision and use of appropriate PPE
- Reporting of unsafe situations.

(AC2.2) **Requirements:**

In terms of:

- Those carrying out the work
- Those using premises during the inspection.

(AC2.5) **Implications:**

In relation to:

- The inspector
 - Other personnel
 - Customer/clients
 - Public
 - Building systems (removal of supply).
-

Learning outcome

The learner will:

- 3 Understand the requirements for the inspection of electrical installations

Assessment criteria

The learner can:

- 3.1 Identify the items to be inspected during inspection in accordance with the schedule of inspections
 - 3.2 Explain how the items on the Schedule of Inspections would be verified or classified
 - 3.3 Describe the appropriate human senses required for a particular inspection
 - 3.4 Describe how to deal with an item that is found unsatisfactory during the inspection process for:
 - 3.5 a Initial verification
-

- 3.5 b Periodic inspection
- 3.6 Describe how the IP classification system is used for electrical equipment
-

Range

(AC3.1) **Items to be inspected:**

- Schedule of inspections in BS 7671 (domestic or similar up to 100 A).
-

Learning outcome

The learner will:

- 4 Understand the requirements for testing electrical installations

Assessment criteria

The learner can:

- 4.1 State the reasons for instruments to be maintained and comply with standards such as BS 7671 and GS38
- 4.2 Describe the characteristics of instruments and leads used for each test
- 4.3 Explain why there is:
- 4.3 a a recommended test sequence for initial verification
- 4.3 b not a recommended test sequence for periodic inspection and test
- 4.4 Explain why certain tests may not be necessary at periodic inspection and test
- 4.5 Explain the purpose of each test
- 4.6 Describe how each test is carried out and how it may be adapted for periodic conditions
- 4.7 Identify factors that affect the result of each test
- 4.8 Interpret the result of each test
- 4.9 Explain how test results are verified for compliance or classification
-

Range

(AC4.1) **Maintained:**

- Regularly checked
- Calibrated
- Checks before use.

(AC4.2, **Test:**

- AC4.5, AC4.6, AC4.8)
- Continuity of protective conductors
 - Continuity of ring final circuits
 - Insulation resistance (to include testing electrically separated circuits)
 - Polarity
 - Earth electrode
 - Earth fault loop impedance
 - RCD tests (fault protection and additional protection)
 - Prospective fault current
 - Phase sequence
-

- Functional testing
- Voltage drop (using measured conductor resistance method).

(AC4.7) **Factors:**

- Circuit length
- Temperature effects
- Parallel conductors
- Loading
- Preparation (nulling)

(AC4.9) **Classification:**

- C1
- C2
- C3
- FI
- Unsafe situations.

Learning outcome

The learner will:

- 5 Perform inspection and testing of electrical installations

Assessment criteria

The learner can:

- 5.1 Establish a safe system of work appropriate to the installation
- 5.2 Carry out the relevant safe isolation procedure in accordance with HSE guidance
- 5.3 Carry out inspection in accordance with BS 7671 and IET Guidance Note 3
- 5.4 Complete a schedule of inspections in accordance with BS 7671 and IET Guidance Note 3
- 5.5 Carry out tests in accordance with BS 7671 and IET Guidance Note 3
- 5.6 Verify test results for compliance or classification
- 5.7 Complete documentation in accordance with BS 7671 and IET Guidance Note 3

Range

(AC5.5) **Test:**

- Continuity of protective conductors
- Continuity of ring final circuits
- Insulation resistance (to include testing electrically separated circuits)
- Polarity
- Earth electrode
- Earth fault loop impedance
- RCD tests (fault protection and additional protection)
- Prospective fault current
- Phase sequence
- Functional testing

- Voltage drop (using measured conductor resistance method).

(AC5.7) **Documentation:**

- Electrical Installation Certificate
- Electrical Installation Condition Report
- Schedule(s) of Inspections
- Schedule(s) of Test results
- Minor Electrical Installation Works Certificate.

Appendix 1 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. They should be referred to in conjunction with this handbook. To download the documents and to find other useful documents, go to the Centres and Training Providers homepage on www.cityandguilds.com.

Centre Manual - Supporting Customer Excellence contains detailed information about the processes which must be followed and requirements which must be met for a centre to achieve 'approved centre' status, or to offer a particular qualification, as well as updates and good practice exemplars for City & Guilds assessment and policy issues.

Specifically, the document includes sections on:

- The centre and qualification approval process
- Assessment, internal quality assurance and examination roles at the centre
- Registration and certification of candidates
- Non-compliance
- Complaints and appeals
- Equal opportunities
- Data protection
- Management systems
- Maintaining records
- Assessment
- Internal quality assurance
- External quality assurance.

Our Quality Assurance Requirements encompasses all of the relevant requirements of key regulatory documents such as:

- SQA Awarding Body Criteria (2007)
- NVQ Code of Practice (2006)

and sets out the criteria that centres should adhere to pre and post centre and qualification approval.

Access to Assessment & Qualifications provides full details of the arrangements that may be made to facilitate access to assessments and qualifications for candidates who are eligible for adjustments in assessment.

The **centre homepage** section of the City & Guilds website also contains useful information on such things as:

- **Walled Garden:** how to register and certificate candidates on line
- **Events:** dates and information on the latest Centre events
- **Online assessment:** how to register for e-assessments.

Centre Guide – Delivering International Qualifications contains detailed information about the processes which must be followed and requirements which must be met for a centre to achieve 'approved centre' status, or to offer a particular qualification.

Specifically, the document includes sections on:

- The centre and qualification approval process and forms
- Assessment, verification and examination roles at the centre
- Registration and certification of candidates
- Non-compliance
- Complaints and appeals
- Equal opportunities
- Data protection
- Frequently asked questions.

Appendix 2 Useful contacts

UK learners General qualification information	E: learnersupport@cityandguilds.com
International learners General qualification information	E: intcg@cityandguilds.com
Centres Exam entries, Certificates, Registrations/enrolment, Invoices, Missing or late exam materials, Nominal roll reports, Results	E: centresupport@cityandguilds.com
Single subject qualifications Exam entries, Results, Certification, Missing or late exam materials, Incorrect exam papers, Forms request (BB, results entry), Exam date and time change	E: singlesubjects@cityandguilds.com
International awards Results, Entries, Enrolments, Invoices, Missing or late exam materials, Nominal roll reports	E: intops@cityandguilds.com
Walled Garden Re-issue of password or username, Technical problems, Entries, Results, e- assessment, Navigation, User/menu option, Problems	E: walledgarden@cityandguilds.com
Employer Employer solutions, Mapping, Accreditation, Development Skills, Consultancy	E: business@cityandguilds.com

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City & Guilds Group

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