

# Level 3 Award in Electric Vehicle Charging Equipment Installation (2919-01-02)

June 2019 Version 2.2



## Qualification at a glance

<b>Subject area</b>	<b>Building Services Industry</b>
<b>City &amp; Guilds number</b>	2919
<b>Age group approved</b>	18+
<b>Entry requirements</b>	Please see the guidance on page 9
<b>Assessment</b>	Online multiple choice test using Evolve Practical assignment
<b>Fast track</b>	Full qualification approval (QAP)
<b>Support materials</b>	Centre handbook Assessment pack
<b>Registration and certification</b>	Consult the Walled Garden/Online Catalogue for last dates

<b>Title and level</b>	<b>GLH</b>	<b>TQT</b>	<b>City &amp; Guilds number</b>	<b>Accreditation number</b>
Level 3 Award In Domestic, Commercial and Industrial Electric Vehicle Charging Equipment Installation	16	20	2919-01	600/7756/6
Level 3 Award In Domestic Electric Vehicle Charging Equipment Installation	16	20	2919-02	600/7374/3

<b>Version and date</b>	<b>Change detail</b>	<b>Section</b>
2.1 September 2017	Added TQT details  Deleted QCF	<b>Qualification at a glance and Structure</b>  <b>Throughout</b>
2.2 June 2019	Addition guidance on learner entry requirements.  Unit 301 and 302 AC6.6 updated	<b>Centre requirements</b>  <b>Unit 301 and 302</b>



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# 1 Introduction

This document tells you what you need to do to deliver the qualifications

<b>Area</b>	<b>Description</b>
Who are the qualifications for?	This qualification aims to provide expert guidance to learners wishing to gain knowledge and understanding on Electric Vehicle charging equipment installation
What do the qualifications cover?	It allows learners to learn, develop and practise the skills required for employment and/or career progression in the Electrotechnology sector
What opportunities for progression are there?	It allows learners to progress into employment within this specific field, or to the following City & Guilds qualifications: <ul style="list-style-type: none"><li>• Level 3 NVQ in Electrotechnical Services</li><li>• Level 3 Diploma in Electrotechnical Technology</li><li>• Level 3 Award in the Initial Verification and Certification of Electrical Installations</li><li>• Level 3 Award in the Periodic Inspection, Testing and Certification of Electrical Installations</li><li>• Level 4 Award in Design and Verification of Electrical Installation</li></ul>

## Structure

To achieve the (2919-01) Level 3 Award in Domestic, Commercial and Industrial Electric Vehicle Charging Equipment Installation, learners must achieve **2 credits** from the mandatory units 301/601.

To achieve the (2919-02) Level 3 Award in Domestic Electric Vehicle Charging Equipment Installation, learners must achieve **2 credits** from the mandatory units 302/602.

### Level 3 Award In Domestic, Commercial and Industrial Electric Vehicle Charging Equipment Installation

Unit accreditation number	City & Guilds unit number	Unit title	Credit value
<b>Mandatory</b>			
Y/504/5514	301/601	Understand and apply selection, installation and commissioning of electric vehicle charging equipment in domestic, commercial and industrial locations	2

### Level 3 Award In Domestic Electric Vehicle Charging Equipment Installation

<b>Mandatory</b>			
D/504/5515	302/602	Understand and apply selection, installation and commissioning of electric vehicle charging equipment in domestic locations	2

## 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.

<b>Title and level</b>	<b>GLH</b>	<b>TQT</b>
Level 3 Award In Domestic, Commercial and Industrial Electric Vehicle Charging Equipment Installation	16	20
Level 3 Award In Domestic Electric Vehicle Charging Equipment Installation	16	20



## 2 Centre requirements

### Approval

There is no fast track approval for this qualification, centres who wish to offer this qualification must use the **standard** Qualification Approval Process. Centres will need to download the qualification approval form (QAP) and send this back to their regional office

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 agreements

Centres can use specially designated areas within a centre to assess the simulated practical assignments. The equipment, systems and machinery must meet industrial standards and be capable of being used under normal working conditions.

#### Centre staffing

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

- be occupationally competent or technically knowledgeable in the areas for which they are delivering training and/or have experience of providing training. This knowledge must be to the same level as the training being delivered
- hold appropriate qualifications or
- 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, eg tutor and assessor or internal quality assurer, but cannot internally verify their own assessments.

#### Assessors and Internal Quality Assurer

Assessor/Internal Quality Assurer TAQA qualifications are valued as qualifications for centre staff, but they are not currently a requirement for the qualifications

### **Assessors must;**

- hold, or be working towards TAQA (A1/A2 – D32/33 updated) standards and continue to practice to these standards and possess CPD evidence of personally maintaining these standards, or
- have other suitable equivalent assessor qualifications endorsed by the Sector Skills Council and/or the Awarding Organisation.

### **Assessor Occupational Competence**

For the purposes of this qualification, occupational competence will be deemed to have been demonstrated by the verifiable evidence of **one, preferably more**, of the following:

- **a relevant sector** qualification equal to or at a level above the training and/or assessment being delivered. Where earlier forerunner qualifications are held eg City and Guilds Craft or Advanced Craft Certificated, the assessor must demonstrate through CPD evidence a thorough knowledge of the qualification standards that they meet the required criteria
- **an up-to-date CPD record including relevant CPD qualifications.** Assessors must either be able to demonstrate that they are registered and up-to-date with their registration with an appropriate approved industry registration body or have one or more relevant occupational qualifications to demonstrate that they can be regarded as occupationally competent in terms of assessing or verifying the qualification and the unit contained
- **a verifiable CV** of industry experience and current knowledge of industry practice and techniques relevant to the occupational area in which they assess. This verifiable evidence must be **at or above the level being assessed**
- a thorough **knowledge and understanding** of the qualification standards and requirements

### **Assessor continuing professional development (CPD)**

The occupational competence of assessors must be updated on a regular basis and be periodically reconfirmed via CPD evidence and quality assured by City and Guilds.

It is the responsibility of the assessor to make use of opportunities for CPD such as industry conferences and events, access to trade publications and journals, SSC and professional/Trade Association events, at least on an annual basis to enhance and upgrade their professional development and technical knowledge.

It is imperative that evidence records of these CPD opportunities/occasions are maintained and retained in a verifiable CPD record

Assessor/Verifier (A/V) units are valued as qualifications for centre staff, but they are not currently a requirement for the qualifications.

### **Continuing professional development (CPD)**

Centres must support their staff to ensure that they have current knowledge of the occupational area, that delivery, mentoring, training,



assessment and verification is in line with best practice, and that it takes account of any national or legislative developments.

Centre staffs are also expected to demonstrate their CPD achievement of at least 20 CPD points from the Institute of Books, each year.

### **Learner entry requirements**

This course is intended for practicing electricians however, City & Guilds does not set entry requirements for these qualifications. Centres must ensure that learners have the potential and opportunity to gain the qualifications successfully. Due to the safety implications of working with electricity and the guided learning hours associated with this qualification, learners should have a Level 3 qualification demonstrating competency associated with working in the electrical installation industry.

### **Age restrictions**

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



### 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 qualifications, their responsibilities as a candidate, and the responsibilities of the centre. This information can be recorded on a learning contract.



## 4 Assessment

### Assessment of the qualification

City & Guilds has written the following assessments to use with this qualification:

- online multiple choice tests, using e-volve
- practical assignment

Both methods of assessment will be used for each unit. The Knowledge requirements will be tested through the online multiple choice test and the practical requirements will be assessed through the assignment.

Level 3 Award In Domestic, Commercial and Industrial Electric Vehicle Charging Equipment Installation

<b>Unit Number</b>	<b>Unit Title</b>	<b>Assessment method</b>	<b>Where to obtain assessment materials</b>
301	Understand and apply selection, installation and commissioning of electric vehicle charging equipment in domestic, commercial and industrial locations (Level 3) (1)	Practical Assignment	Go to <a href="http://www.cityandguilds.com">www.cityandguilds.com</a> and navigate to the 2919 webpage. Password available on the Walled Garden.
601	Understand and apply selection, installation and commissioning of electric vehicle charging equipment in domestic, commercial and industrial locations (Level 3) (1)	Evolve Multiple Choice Test	City & Guilds Evolve test system

Level 3 Award in Domestic Electric Vehicle Charging Equipment Installation

<b>Unit Number</b>	<b>Unit Title</b>	<b>Assessment method</b>	<b>Where to obtain assessment materials</b>
302	Understand and apply selection, installation and commissioning of electric vehicle charging equipment in domestic locations (Level 3) (1)	Practical Assignment	Go to <a href="http://www.cityandguilds.com">www.cityandguilds.com</a> and navigate to the 2919 webpage. Password available on the Walled Garden.
602	Understand and apply selection, installation and commissioning of electric vehicle charging equipment in domestic locations (Level 3) (1)	Evolve Multiple Choice Test	City & Guilds Evolve test system

## Test specifications

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

**Test 1:** Units 601/602

**Duration:** 1 hour

<b>Unit</b>	<b>Outcome</b>	<b>Number of questions</b>	<b>%</b>
601/602	1 Know the key requirements relating to electric vehicle charging equipment	2	5
	2 Understand the advantages and disadvantages of different types of electric vehicle charging arrangements and equipment	6	15
	3 Understand the planning and preparation for design and installation of electric vehicle charging equipment	20	50
	4 Understand the requirements for inspection, testing, commissioning and handover of electric vehicle charging equipment	12	30
	<b>Total</b>	<b>40</b>	<b>100</b>



## 5 Units

### Availability of units

The following units can also be obtained from The Register of Regulated Qualifications: <http://register.ofqual.gov.uk/Unit>

### Structure of units

These units each have the following:

- City & Guilds reference number
- unit accreditation number
- title
- level
- credit value
- unit aim
- information on assessment
- learning outcomes which are comprised of a number of assessment criteria

## Unit 301

# Understand and apply selection, installation and commissioning of electric vehicle charging equipment in domestic, commercial and industrial locations

<b>UAN:</b>	<b>Y/504/5514</b>
<b>Level:</b>	Level 3
<b>Credit value:</b>	2
<b>GLH:</b>	16

<b>Learning outcome</b>
The learner will: 1. Know key requirements relating to electric vehicle charging equipment
<b>Assessment criteria</b>
The learner can: 1.1 Identify <b>statutory</b> and <b>non-statutory</b> documents relating to the selection, installation and commissioning of electric vehicle charging equipment 1.2 Identify the organisation <b>registration requirements</b> for installing electrical charging equipment in locations.

<b>Range</b>
<b>Statutory</b> Electricity at Work Regulations Health and Safety at Work Act ESQCR Traffic management order Planning consent
<b>Non-statutory</b> IET code of practice for Electric Vehicle Charging Equipment Installation BS 7671 IET Guidance Notes
<b>Registration requirements</b> Domestic: Part P Commercial: Compex On street: HERS.

<b>Learning outcome</b>
The learner will: 2. Know advantages and disadvantages of different types of electric vehicle charging arrangements and equipment
<b>Assessment criteria</b>
The learner can: 2.1 Identify electric vehicle charging equipment for different <b>modes</b> of charging 2.2 State advantages and disadvantages of electric vehicle charging modes 2.3 Identify industry range of plugs, socket-outlets and <b>charging connections</b> 2.4 Identify variations in electric vehicle charging <b>equipment</b> features 2.5 State applications of electric vehicle charging equipment.

<b>Range</b>
<b>Modes</b> Mode 1 Mode 2 Mode 3 Mode 4
<b>Charging Connects</b> Case A Case B Case C
<b>Equipment</b> Power supplies Multiple socket-outlets Feeder pillars Protective devices Timers Built-in energy meters Security features Communication features.

<b>Learning outcome</b>
The learner will: 3. Understand preparation for design and installation of electric vehicle charging equipment
<b>Assessment criteria</b>
The learner can: 3.1 Describe what needs to be <b>assessed prior to installing</b> electric vehicle charging equipment 3.2 Describe what needs to be <b>assessed with regards to the location</b> of vehicle charging equipment 3.3 Describe design and <b>installation requirements</b> in relation to the



- system earthing and supply arrangements
- 3.4 Describe procedures for circuit arrangements and cable selection for electrical vehicle equipment
- 3.5 Explain **methods** used for protection against electric shocks
- 3.6 Explain requirements for Residual Current Device (RCD) protection for electric vehicle charging installations
- 3.7 Describe labeling required for electric vehicle charging installations
- 3.8 Describe requirements for isolation and switching in electric vehicle charging installations.

<b>Range</b>
<p><b>Assessed prior to installing</b></p> <p>Supply metering</p> <p>Adequacy of supply</p> <p>Earthing arrangements</p> <p>Simultaneous contact assessment</p> <p>GPRS coverage</p> <p>Manufacturer's requirements</p> <p>Planning consent</p> <p>Traffic management</p> <p>DNO notification</p> <p>Client's requirements.</p> <p><b>Assessed with regards to the location</b></p> <p>Potentially explosive atmospheres</p> <p>Parking spaces</p> <p>Single vehicle charging</p> <p>Multiple vehicle charging</p> <p>Vehicle impact protection</p> <p>Control device location</p> <p>Socket-outlet location</p> <p>Ventilation and cooling</p> <p>IP protection.</p> <p><b>Installation requirements</b></p> <p>TT</p> <p>TN-S</p> <p>TN-C-S</p> <p>Single-phase</p> <p>Three-phase</p> <p><b>Methods</b></p> <p>ADS</p> <p>Electrical separation</p> <p>Basic protection</p> <p>Additional protection.</p>

**Learning outcome**

The learner will:

4. Be able to prepare for design and installation of electric vehicle charging equipment

**Assessment criteria**

The learner can:

- 4.1 Carry out **assessments** prior to installing electric vehicle charging equipment
- 4.2 Apply design and **installation requirements** in relation to the system earthing and supply arrangements
- 4.3 Select appropriate cable for the supplies to electric vehicle charging equipment
- 4.4 Select suitable **methods** used for protection against electric shock which apply to electric vehicle charging installations
- 4.5 Select suitable Residual Current Device (RCD) protection for electric vehicle charging installations
- 4.6 Select suitable equipment for isolation and switching in electric vehicle charging installations
- 4.7 Apply design and installation requirements for specific types of installation locations.

**Range****Assessments**

Installation  
Supply metering  
Adequacy of supply  
Earthing arrangements  
Simultaneous contact assessment  
GPRS coverage  
Manufacturer's requirements  
Planning consent  
Traffic management  
DNO notification  
Client's requirements.

Location  
Potentially explosive atmospheres  
Parking spaces  
Single vehicle charging  
Multiple vehicle charging  
Vehicle impact protection  
Control device location  
Socket-outlet location  
Ventilation and cooling  
IP protection  
BS 7671  
BS EN 61851

<p><b>Installation requirements</b></p> <p>TT TN-S TN-C-S Single-phase Three-phase.</p> <p><b>Methods</b></p> <p>ADS Electrical separation Basic protection Additional protection.</p> <p><b>Installation requirements</b></p> <p>BS 7671 BS EN 61851.</p> <p><b>Installation locations</b></p> <p>Domestic installations On-street locations Commercial and industrial installations.</p>
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<p><b>Learning outcome</b></p> <p>The learner will:</p> <p>5. Be able to install electric vehicle equipment for domestic, commercial and industrial locations</p>
<p><b>Assessment criteria</b></p> <p>The learner can:</p> <p>5.1 Apply <b>procedures</b> for dealing with health and safety requirements in the workplace</p> <p>5.2 Complete <b>information</b> required for completion of the checklist contained in the IET code of practice</p> <p>5.3 Apply <b>methods of fixing</b> electric vehicle charging equipment for on-street, commercial and industrial locations</p> <p>5.4 Install cable installation methods and wiring systems</p> <p>5.5 Apply cable termination methods.</p>

<p><b>Range</b></p> <p><b>Procedures</b></p> <p>Risk assessment Method statements Traffic management Safe isolation procedures.</p> <p><b>Information</b></p> <p>Domestic installations On-street locations</p>
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Commercial and industrial installations

**Methods of fixing**

Wall mounted  
On-street  
Floor standing.

**Learning outcome**

The learner will:

- 6. Understand the requirements for inspection, testing, commissioning and handover of electric vehicle charging equipment

**Assessment criteria**

The learner can:

- 6.1 Identify information required to complete an Electrical Installation Certificate
- 6.2 State requirements for a visual inspection during initial verification
- 6.3 Explain **methods** used to test circuits installed associated with vehicle charging equipment
- 6.4 Describe **information and documentation** which is handed to the client on completion and handover
- 6.5 Explain what the client must be **made aware of** for continued operation of electric vehicle charging equipment and supplies
- 6.6 Identify requirements for a Distribution Network Operator (DNO) notification.

**Range**

**Methods**

Continuity of protective conductors  
Insulation resistance  
Separation of circuits  
Polarity  
Verification of automatic disconnection of supply  
Earth electrode resistance  
Earth fault loop impedance testing  
Prospective fault current testing  
Additional protection  
Functional testing.

**Information and documentation**

Manufacturers' documentation  
Certification  
Warranties  
Instructions  
Maintenance requirements.

**Made aware of**

Periodic inspection and testing Regular RCD testing Manufacturers' maintenance recommendations.
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<b>Learning outcome</b>
The learner will: 7. Be able to carry out inspection, testing, commissioning and handover of electric vehicle charging equipment
<b>Assessment criteria</b>
The learner can: 7.1 Carry out visual inspections during initial verification 7.2 Apply <b>relevant tests</b> to circuits associated with vehicle charging equipment 7.3 Perform handover processes for electric vehicle charging equipment.

<b>Range</b>
<b>Relevant tests</b> Continuity of protective conductors Insulation resistance Separation of circuits Polarity Verification of automatic disconnection of supply Earth electrode resistance Earth fault loop impedance testing Prospective fault current testing Additional protection Functional testing.

## Unit 302

## Understand and apply selection, installation and commissioning of electric vehicle charging equipment in domestic locations

<b>UAN:</b>	<b>D/504/5515</b>
<b>Level:</b>	Level 3
<b>Credit value:</b>	2
<b>GLH:</b>	16

### Learning outcome

The learner will:

1. Know key requirements relating to electric vehicle charging equipment

### Assessment criteria

The learner can:

- 1.1 Identify the **statutory** and **non-statutory** documents relating to the selection, installation and commissioning of electric vehicle charging equipment
- 1.2 Identify the organisation **registration requirements** for installing electrical charging equipment in locations.

### Range

#### Statutory

Electricity at Work Regulations

Health and Safety at Work Act

ESQCR

Traffic management order

Planning consent.

#### Non-statutory

IET code of practice for Electric Vehicle Charging Equipment Installation  
BS 7671

IET Guidance Notes

#### Registration requirements

Domestic: Part P

Commercial: Compex

On street: HERS.

<b>Learning outcome</b>
The learner will: 2. Know advantages and disadvantages of different types of electric vehicle charging arrangements and equipment
<b>Assessment criteria</b>
The learner can: 2.1 Identify electric vehicle charging equipment for the different <b>modes</b> of charging 2.2 State advantages and disadvantages of electric vehicle charging modes 2.3 Identify industry range of plugs, socket-outlets and <b>charging connections</b> 2.4 Identify variations in electric vehicle charging <b>equipment</b> features 2.5 State applications of electric vehicle charging equipment.

<b>Range</b>
<b>Modes</b> Mode 1 Mode 2 Mode 3 Mode 4.
<b>Charging Connects</b> Case A Case B Case C.
<b>Equipment</b> Power supplies Multiple socket-outlets Feeder pillars Protective devices Timers Built-in energy meters Security features Communication features.

**Learning outcome**

The learner will:

3. Understand preparation for design and installation of electric vehicle charging equipment

**Assessment criteria**

The learner can:

- 3.1 Describe what needs to be **assessed prior to installing** electric vehicle charging equipment
- 3.2 Describe what needs to be **assessed with regards to the location** of vehicle charging equipment
- 3.3 Describe design and **installation requirements** in relation to the system earthing and supply arrangements
- 3.4 Describe procedures for circuit arrangements and cable selection for electrical vehicle equipment
- 3.5 Explain **methods** used for protection against electric shocks
- 3.6 Explain requirements for Residual Current Device (RCD) protection for electric vehicle charging installations
- 3.7 Describe labeling required for electric vehicle charging installations
- 3.8 Describe requirements for isolation and switching in electric vehicle charging installations

**Range****Assessed prior to installing**

Supply metering  
Adequacy of supply  
Earthing arrangements  
Simultaneous contact assessment  
GPRS coverage  
Manufacturer's requirements  
Planning consent  
Traffic management  
DNO notification  
Client's requirements.

**Assessed with regards to the location**

Potentially explosive atmospheres  
Parking spaces  
Single vehicle charging  
Multiple vehicle charging  
Vehicle impact protection  
Control device location  
Socket-outlet location  
Ventilation and cooling  
IP protection.

**Installation requirements**

TT  
TN-S



<p>TN-C-S Single-phase Three-phase</p> <p><b>Methods</b> ADS Electrical separation Basic protection Additional protection.</p>
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<p><b>Learning outcome</b></p> <p>The learner will:</p> <p>4. Be able to plan and prepare for the design and installation of electric vehicle charging equipment in domestic locations</p>
<p><b>Assessment criteria</b></p> <p>The learner can:</p> <p>4.1 Carry out <b>assessments</b> prior to installing electric vehicle charging equipment in domestic locations</p> <p>4.2 Apply design and <b>installation requirements</b> in relation to the system earthing and supply arrangements</p> <p>4.3 Select appropriate cable for the supplies to electric vehicle charging equipment in domestic locations</p> <p>4.4 Select suitable <b>methods</b> used for protection against electric shock which apply to electric vehicle charging installations</p> <p>4.5 Select suitable Residual Current Device (RCD) protection for electric vehicle charging installations</p> <p>4.6 Select suitable equipment for isolation and switching in electric vehicle charging installations in domestic locations.</p>

<p><b>Range</b></p> <p><b>Assessments</b> Installation Supply metering Adequacy of supply Earthing arrangements Simultaneous contact assessment DNO Notification Manufacturer's requirements Client's requirements.</p> <p><b>Location</b> Potentially explosive atmospheres Parking spaces Single vehicle charging Vehicle impact protection Control device location Socket-outlet location Ventilation and cooling IP protection.</p>
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**Installation requirements**

TT  
TN-S  
TN-C-S  
Single-phase  
Three-phase.

**Methods**

ADS  
Electrical separation  
Basic protection  
Additional protection.

**Learning outcome**

The learner will:

5. Be able to install electric vehicle charging equipment for domestic locations

**Assessment criteria**

The learner can:

- 5.1 Apply the **procedures** for dealing with health and safety requirements in the workplace
- 5.2 Complete the **information** required for completion of the checklist contained in the IET code of practice
- 5.3 Apply **methods of fixing** on charging equipment in domestic locations
- 5.4 Install cable installation methods and wiring systems
- 5.5 Apply cable termination methods.

**Range****Procedures**

Risk assessment  
Method statements  
Traffic management  
Safe isolation procedures.

**Information**

Domestic installations

**Methods of fixing**

Wall mounted  
Floor standing.

**Learning outcome**

The learner will:

6. Understand requirements for inspection, testing, commissioning and handover of electric vehicle charging equipment

**Assessment criteria**

The learner can:

- 6.1 Identify information required to complete an Electrical Installation Certificate
- 6.2 State requirements for a visual inspection during initial verification
- 6.3 Explain **methods** used to test circuits installed associated with vehicle charging equipment
- 6.4 Describe **information and documentation** which is handed to the client on completion and handover
- 6.5 Explain what the client must be **made aware of** for continued operation of electric vehicle charging equipment and supplies
- 6.6 Identify requirements for a Distribution Network Operator (DNO) notification.

**Range****Methods**

Continuity of protective conductors  
Insulation resistance  
Separation of circuits  
Polarity  
Verification of automatic disconnection of supply  
Earth electrode resistance  
Earth fault loop impedance testing  
Prospective fault current testing  
Additional protection  
Functional testing.

**Information and documentation**

Manufacturers' documentation  
Certification  
Warranties  
Instructions  
Maintenance requirements.

**Made aware of**

Periodic inspection and testing  
Regular RCD testing  
Manufacturers' maintenance recommendations.

**Learning outcome**

The learner will:

7. Be able to carry out inspection, testing, commissioning and handover of electric vehicle charging equipment in domestic locations

**Assessment criteria**

The learner can:

- 7.1 Carry out visual inspections during initial verification
- 7.2 Apply **relevant tests** to circuits associated with vehicle charging equipment in domestic locations
- 7.3 Perform handover processes for electric vehicle charging equipment in domestic locations.

**Range****Relevant tests**

Continuity of protective conductors  
Insulation resistance  
Separation of circuits  
Polarity  
Verification of automatic disconnection of supply  
Earth electrode resistance  
Earth fault loop impedance testing  
Prospective fault current testing  
Additional protection  
Functional testing.



## Appendix 1 Relationships to other qualifications

### Links to other qualifications

Centres are responsible for checking the different requirements of all qualifications they are delivering and ensuring that learners meet requirements of all units/qualifications.

### Literacy, language, numeracy and ICT skills development

These qualifications can develop skills that can be used in the following qualifications:

- Functional Skills (England) – see [www.cityandguilds.com/functionalskills](http://www.cityandguilds.com/functionalskills)
- Essential Skills (Northern Ireland) – see [www.cityandguilds.com/essentialskillsni](http://www.cityandguilds.com/essentialskillsni)
- Essential Skills Wales – see [www.cityandguilds.com/esw](http://www.cityandguilds.com/esw)



## Appendix 2 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](http://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 learners
- 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:

- Regulatory Arrangements for the Qualifications and Credit Framework (2008)
- 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 learners who are eligible for adjustments in assessment.

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

- **Walled Garden:** how to register and certificate learners on line

- **Events:** dates and information on the latest Centre events
- **Online assessment:** how to register for GOLA/e-volve assessments.

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[www.cityandguilds.com](http://www.cityandguilds.com)



## Useful contacts

<b>UK learners</b> <b>General qualification information</b>	<b>T: +44 (0)844 543 0033</b> <b>E: learnersupport@cityandguilds.com</b>
<b>International learners</b> General qualification information	T: +44 (0)844 543 0033 F: +44 (0)20 7294 2413 E: <b>intcg@cityandguilds.com</b>
<b>Centres</b> Exam entries, Certificates, Registrations/enrolment, Invoices, Missing or late exam materials, Nominal roll reports, Results	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 E: <b>centresupport@cityandguilds.com</b>
<b>Single subject qualifications</b> Exam entries, Results, Certification, Missing or late exam materials, Incorrect exam papers, Forms request (BB, results entry), Exam date and time change	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 F: +44 (0)20 7294 2404 (BB forms) E: <b>singlesubjects@cityandguilds.com</b>
<b>International awards</b> Results, Entries, Enrolments, Invoices, Missing or late exam materials, Nominal roll reports	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 E: <b>intops@cityandguilds.com</b>
<b>Walled Garden</b> Re-issue of password or username, Technical problems, Entries, Results, e-assessment, Navigation, User/menu option, Problems	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 E: <b>walledgarden@cityandguilds.com</b>
<b>Employer</b> Employer solutions, Mapping, Accreditation, Development Skills, Consultancy	T: +44 (0)121 503 8993 E: <b>business@cityandguilds.com</b>
<b>Publications</b> Logbooks, Centre documents, Forms, Free literature	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413

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If you have a complaint, or any suggestions for improvement about any of the services that we provide, email: [feedbackandcomplaints@cityandguilds.com](mailto:feedbackandcomplaints@cityandguilds.com)

## **About City & Guilds**

As the UK's leading vocational education organisation, City & Guilds is leading the talent revolution by inspiring people to unlock their potential and develop their skills. We offer over 500 qualifications across 28 industries through 8500 centres worldwide and award around two million certificates every year. City & Guilds is recognised and respected by employers across the world as a sign of quality and exceptional training.

## **City & Guilds Group**

The City & Guilds Group operates from three major hubs: London (servicing Europe, the Caribbean and Americas), Johannesburg (servicing Africa), and Singapore (servicing Asia, Australia and New Zealand). The Group also includes the Institute of Leadership & Management (management and leadership qualifications), City & Guilds Licence to Practice (land-based qualifications), the Centre for Skills Development (CSD works to improve the policy and practice of vocational education and training worldwide) and Learning Assistant (an online e-portfolio).

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