

# Diploma in Painting and Decorating at SCQF Level 6 (6807-33)

February 2016 Version 2



## Qualification at a glance

<b>Subject area</b>	Construction
<b>City &amp; Guilds number</b>	6807
<b>Age group approved</b>	16-18, 19+
<b>Entry requirements</b>	None
<b>Assessment</b>	Multiple choice, assignment
<b>Support materials</b>	Centre handbook Assessor Guidance Task Manual
<b>Registration and certification</b>	Consult the Walled Garden/Online Catalogue for last dates

<b>Title and level</b>	<b>City &amp; Guilds number</b>
Diploma in Painting and Decorating at SCQF Level 6	6807-33

<b>Version and date</b>	<b>Change detail</b>	<b>Section</b>
V2 February 2016	Unit 201 amended City & Guilds group statement amended Phone numbers deleted	Units Useful contacts Useful contacts



# Contents

<b>1</b>	<b>Introduction</b>	<b>4</b>
	Structure	5
<b>2</b>	<b>Centre requirements</b>	<b>6</b>
	Approval	6
	Resource requirements	6
<b>3</b>	<b>Delivering the qualification</b>	<b>8</b>
	Initial assessment and induction	8
	Support materials	8
<b>4</b>	<b>Assessment</b>	<b>9</b>
<b>5</b>	<b>Units</b>	<b>17</b>
<b>Unit 201</b>	<b>Health, safety and welfare in construction</b>	<b>19</b>
<b>Unit 301</b>	<b>Principles of organising, planning and pricing construction work</b>	<b>25</b>
<b>Unit 220</b>	<b>Erecting and dismantling access equipment and working platforms</b>	<b>29</b>
<b>Unit 311</b>	<b>Applying hangings to walls and ceilings</b>	<b>34</b>
<b>Unit 312</b>	<b>Producing specialist finishes for painted decorative work</b>	<b>44</b>
<b>Unit 313</b>	<b>Producing specialist architectural finishes for decorative work</b>	<b>54</b>
<b>Unit 314</b>	<b>Applying water-borne paint systems using airless equipment</b>	<b>58</b>
<b>Unit 331</b>	<b>Applying water-borne paint systems using High Volume Low Pressure (HVL) spray equipment</b>	<b>65</b>
<b>Appendix 1</b>	<b>Sources of general information</b>	<b>71</b>



# 1 Introduction

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

<b>Area</b>	<b>Description</b>
Who is the qualification for?	It is for learners who work or want to work as a Painter and Decorator in the Construction sector.
What does the qualification cover?	<p>It allows learners to learn, develop and practise the skills required for employment and/or career as a general construction operative.</p> <p>It covers the following skills:</p> <ul style="list-style-type: none"> <li>• erecting and dismantling access equipment and working platforms</li> <li>• applying hangings to walls and ceilings</li> <li>• producing specialist finishes for painted decorative work</li> <li>• producing specialist architectural finishes for decorative work</li> <li>• applying water-borne paint systems using airless equipment</li> <li>• applying water-borne paint systems using high volume low pressure (HVLP) spray equipment</li> </ul>
Is the qualification part of a framework or initiative?	The qualification is a technical certificate within the Construction Building Apprenticeship Framework.
What opportunities for progression are there?	It allows candidates to progress into employment.

## Structure

To achieve the **Diploma in Painting and Decorating at SCQF Level 6 (6807-33)**, learners must achieve all **50** credits from the mandatory units below.

<b>City &amp; Guilds unit no.</b>	<b>Unit title</b>	<b>Credit value</b>
201	Health, safety and welfare in construction	7
220	Erecting and dismantling access equipment and working platforms	3
301	Principles of organising, planning and pricing construction work	7
311	Applying hangings to walls and ceilings	7
312	Producing specialist finishes for painted decorative work	7
313	Producing specialist architectural finishes for decorative work	5
314	Applying water-borne paint systems using airless equipment	7
331	Applying water-borne paint systems using High Volume Low Pressure (HVLP) spray equipment	7



## 2 Centre requirements

### Approval

The approval process for Construction qualifications is available at our website. Please visit [www.cityandguilds.com/construction](http://www.cityandguilds.com/construction) for further information.

### Resource requirements

#### Physical resources and site agreements

Centres will have well equipped workshops with a comprehensive range of hand and portable power tools that meet current industry standards. All powered equipment should be well maintained and PAT certified. Centres will have special designated areas within Painting and decorating workshop (cubicles or project areas) allowing candidates to practice the requirements of the units and carry out the Practical Assignments.

#### Centre staffing

All staff who assess (tutor/deliver) this qualification must:

- have recent relevant experience in the specific area they will be teaching;
- be technically competent in the area for which they are delivering training and/or have experience of providing training;
- have a CV available demonstrating relevant experience and any qualifications held.

All staff who quality assure this qualification must:

- have a good working knowledge and experience within the construction industry;
- have an established strategy and documentary audit trail of internal quality assurance;
- have a good working knowledge of quality assurance procedures;
- have a CV available demonstrating relevant experience and any qualifications held.

While the Assessor/Verifier (A/V) units/TAQA are valued as qualifications for centre staff, they are not currently a requirement for this SCQF qualification. However, we encourage trainers and assessors to qualify to the current TAQA standard.

#### 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.

**Learner entry requirements:**

Whilst there are no formal entry requirements for this qualification, learners are advised to take the SCQF Level 4 and SCQF Level 5 Diplomas in order to ensure they have the right skills and knowledge for SCQF Level 6. Alternatively, the learner should provide evidence of significant industry experience, at the centres discretion.

**Age restrictions**

City & Guilds cannot accept any registrations for learners under 16 as this qualification is not approved for under 16s.



## 3 Delivering the qualification

### Initial assessment and induction

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

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

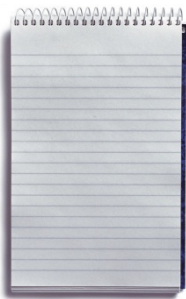
We recommend that centres provide an induction programme so the learner fully understands the requirements of the qualification], their responsibilities as a learner, and the responsibilities of the centre. This information can be recorded on a learning contract.

### Support materials

The following resources are available for this qualification:

<b>Description</b>	<b>How to access</b>
Assessor guidance	<a href="http://www.cityandguilds.com">www.cityandguilds.com</a>
Task manual	<a href="http://www.cityandguilds.com">www.cityandguilds.com</a>
Qualification approval form	<a href="http://www.cityandguilds.com/construction">www.cityandguilds.com/construction</a>
SmartScreen	<a href="http://www.smartscreen.co.uk">www.smartscreen.co.uk</a>





## 4 Assessment

<b>Unit</b>	<b>Title</b>	<b>Assessment method</b>	<b>Where to obtain assessment materials</b>
201	Health, safety and welfare in construction	City & Guilds e-volve multiple choice test. The test covers all of the knowledge in the unit.	Examinations provided on e-volve.
301	Principles of organising, planning and pricing construction work	City & Guilds e-volve multiple choice test. The test covers all of the knowledge in the unit.	Examinations provided on e-volve.
220	Erecting and dismantling access equipment and working platforms	Multiple choice question paper, covering knowledge outcomes. Practical assignment, covering performance outcomes. Both assessments are set by City & Guilds, delivered and marked by the tutor/assessor, and will be externally verified by City & Guilds to make sure they are properly carried out.	<b>www.cityandguilds.com</b>

<b>Unit</b>	<b>Title</b>	<b>Assessment method</b>	<b>Where to obtain assessment materials</b>
311	Applying hangings to walls and ceilings	<p>Multiple choice question paper, covering knowledge outcomes.</p> <p>Practical assignment, covering performance outcomes.</p> <p>Both assessments are set by City &amp; Guilds, delivered and marked by the tutor/assessor, and will be externally verified by City &amp; Guilds to make sure they are properly carried out.</p>	<b>www.cityandguilds.com</b>
312	Producing specialist finishes for painted decorative work	<p>Multiple choice question paper, covering knowledge outcomes.</p> <p>Practical assignment, covering performance outcomes.</p> <p>Both assessments are set by City &amp; Guilds, delivered and marked by the tutor/assessor, and will be externally verified by City &amp; Guilds to make sure they are properly carried out.</p>	<b>www.cityandguilds.com</b>
313	Producing specialist architectural finishes for decorative work	<p>Multiple choice question paper, covering knowledge outcomes.</p> <p>Practical assignment, covering performance outcomes.</p> <p>Both assessments are set by City &amp; Guilds, delivered and marked by the tutor/assessor, and will be externally verified by City &amp; Guilds to make sure they are properly carried out.</p>	<b>www.cityandguilds.com</b>

<b>Unit</b>	<b>Title</b>	<b>Assessment method</b>	<b>Where to obtain assessment materials</b>
314	Applying water-borne paint systems using airless equipment	<p>Multiple choice question paper, covering knowledge outcomes.</p> <p>Practical assignment, covering performance outcomes.</p> <p>Both assessments are set by City &amp; Guilds, delivered and marked by the tutor/assessor, and will be externally verified by City &amp; Guilds to make sure they are properly carried out.</p>	<b>www.cityandguilds.com</b>
331	Applying water-borne paint systems using High Volume Low Pressure (HVLP) spray equipment	<p>Multiple choice question paper, covering knowledge outcomes.</p> <p>Practical assignment, covering performance outcomes.</p> <p>Both assessments are set by City &amp; Guilds, delivered and marked by the tutor/assessor, and will be externally verified by City &amp; Guilds to make sure they are properly carried out.</p>	<b>www.cityandguilds.com</b>

## Test specifications

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

**Test 1:** Unit 301 Principles of organising, planning and pricing construction work

**Duration:** 60 minutes

Unit	Outcome	Number of questions	%
301	1 Understand different types of drawn information in construction	7	17.5
	2 Understand energy efficiency and sustainable materials for construction	8	20
	3 Understand how to estimate quantities and price work for construction	10	25
	4 Understand how to plan work activities for construction	6	15
	5 Understand how to communicate effectively in the workplace	9	22.5
	<b>Total</b>	<b>39</b>	<b>100</b>

**Test 2:** Unit 220 Erecting and dismantling access equipment and working platforms

**Duration:** 30 minutes

Unit	Outcome	Number of questions	%
220	1 Understand the preparation required for using access equipment and working platforms	4	20
	3 Understand how to check access equipment and identify faults	8	40
	5 Understand how to erect access equipment and working platforms	6	30
	7 Understand how to dismantle and store components	2	10
	<b>Total</b>	<b>20</b>	<b>100</b>

**Test 3:** Unit 311 Applying hangings to walls and ceilings  
**Duration:** 75 minutes

<b>Unit</b>	<b>Outcome</b>	<b>Number of questions</b>	<b>%</b>
311	1 Understand methods used in wallpaper production, trimming and jointing	12	25
	2 Understand how to select and prepare adhesives	6	13
	4 Understand how to apply papers to ceilings, walls and complex surfaces	16	33
	6 Understand how to hang wide width vinyls	5	10
	8 Understand how to hang specialist papers	7	15
	10 Know how to store materials	2	4
<b>Total</b>		<b>48</b>	<b>100</b>

**Test 4** Unit 312 Producing specialist finishes for painted decorative work  
**Duration:** 60 minutes

<b>Unit</b>	<b>Outcome</b>	<b>Number of questions</b>	<b>%</b>
312	2 Understand how to prepare multi plate and apply stencils	15	39
	4 Understand how to replicate different types of wood using graining methods	12	32
	6 Understand how to replicate marble	6	16
	8 understand how to apply metal leaf	5	13
<b>Total</b>		<b>38</b>	<b>100</b>

**Test 5:** Unit 313 Producing specialist architectural finishes for decorative work

**Duration:** 40 minutes

Unit	Outcome	Number of questions	%
313	1 Understand how to set out and install centre-pieces	10	42
	3 Understand how to set out and install covings	14	58
<b>Total</b>		<b>24</b>	<b>100</b>

**Test 6:** Unit 314 Applying water-borne paint systems using airless equipment

**Duration:** 60 minutes

Unit	Outcome	Number of questions	%
314	1 Understand how to prepare work areas by protecting adjacent surfaces, furniture and fittings	6	17
	3 Understand how to select components and produce a working airless spray unit	8	23
	5 Understand how to apply water-borne coatings by airless spray	9	26
	7 Know how to rectify faults in spray equipment and defects in applied coatings	7	20
	9 Know how to clean, maintain and store airless spray equipment and materials	5	14
<b>Total</b>		<b>35</b>	<b>100</b>

**Test 7:** Unit 331 Applying water-borne paint systems using high volume- low pressure (HVLP ) spray equipment  
**Duration:** 50 minutes

Unit	Outcome	Number of questions	%
331	1 Understand how to prepare work areas by protecting adjacent surfaces, furniture and fitting using high volume low-pressure spray equipment (HVLP)	6	20
	3 Understand how to set up HVLP spray equipment and materials for spray application	12	40
	5 Know how to rectify faults in spray equipment and defects in applied coatings	7	23
	7 Know how to clean, maintain and store HVLP spray equipment and materials	5	17
<b>Total</b>		<b>30</b>	<b>100</b>

**Test 8:** Unit 201 Health, safety and welfare in construction

**Duration:** 1 hour

<b>Unit</b>	<b>Outcome</b>	<b>Number of questions</b>	<b>%</b>
201	1 Know the health and safety regulations, roles and responsibilities	7	17.5
	2 Know accident and emergency reporting procedures and documentation	5	12.5
	3 Know how to identify hazards in the workplace	7	17.5
	4 Know about health and welfare in the workplace	3	7.5
	5 Know about how to handle materials and equipment safely	2	5
	6 Know about access equipment and working at heights	3	7.5
	7 Know how to work with electrical equipment in the workplace	4	10
	8 Know how to use personal protective equipment (PPE)	5	12.5
	9 Know the cause of fire and fire emergency procedures	4	10
	<b>Total</b>	<b>40</b>	<b>100</b>





## 5 Units

### Structure of units

These units each have the following:

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

### Range explained:

Range gives further scope on what areas within assessment criteria must be covered. The range in a unit **must** be taught to learners and parts of the range will be assessed.

### Glossary of terms:

The following key words and terms are used in the units.

Ball-pien hammer	Small hand held hammer used with nail punches and when placing sprigs in window frames etc
Broom	Sweeping brush
Cherry Pickers	Motor vehicle which has an extendable boom with cage where operatives stand in when painting high points/areas on buildings/bridges etc
Caulking blades	Refers to caulk boards plastic/stiff rubber
Chisel knife	Small 1 inch/25mm scraper used to assist operatives removing small drawing pins, staples etc during preparation of surfaces
Curtains	Heavy build up of paint/coating sliding down surface
Drop sheets	Large dust sheets
HVLP	High volume low pressure
Making good	Preparing surfaces ready for decoration etc
Paper hanging shears	Paperhanging scissors
Pop ups	Small podium scaffold which can be collapsed down when not in use
Outriggers	Stabilisers on mobile tower scaffolds

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Scuttle	Roller bucket
Skid marks	Roller head slides across surface during application of coatings
Starting lines	Starting lines
Swingbacks	Back frame of a step ladder
Wood ingrain	Woodchip paper

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## Unit 201

## Health, safety and welfare in construction

<b>Level:</b>	5
<b>Credit value:</b>	7
<b>Aim:</b>	The aim of this unit is to provide the learner with the knowledge to carry out safe working practices in construction, in relation to sourcing relevant safety information and using the relevant safety procedures at work

<b>Learning outcome</b>
The learner will: 1. know the health and safety regulations, roles and responsibilities
<b>Assessment criteria</b>
The learner can: 1.1 identify <b>health and safety legislation</b> relevant to and used in the construction environment 1.2 state <b>employer and employee responsibilities</b> under the Health and Safety at Work Act (HASWA) 1.3 state <b>roles and responsibilities</b> of the Health and Safety Executive (HSE) 1.4 identify <b>organisations</b> providing relevant health and safety information 1.5 state the importance of holding on-site safety inductions and toolbox talks.

<b>Range</b>
<b>Health and safety legislation</b> Health and Safety at Work Act, Reporting Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR), Control of Substances Hazardous to Health (COSHH), Construction, Design and Management (CDM) regulations, Provision and Use of Work Equipment Regulations (PUWER), manual handling operations Regulations, Personal Protective Equipment (PPE) at Work Regulations, Work at Height Regulations, Control of Noise at Work Regulations, Control of Vibration at Work Regulations, Electricity at Work Regulations, Lifting operations and Lifting Equipment Regulations (LOLER)
<b>Employer responsibilities</b> Safe working environment, adequate staff training, health and safety information, site inductions, toolbox talks, risk assessment, supervision, PPE, reporting hazards, accidents and near misses, sections 2 to 9 of Health and Safety at Work Act, CDM reg's, construction phase plans, welfare, display public liability Insurance and health and safety law

poster.
<p><b>Employee responsibilities</b> Working safely, working in partnership with the employer, reporting hazards, accidents and near misses, following organisational procedures as per Sections 2 to 9 of Health and Safety at Work Act.</p>
<p><b>Roles and responsibilities:</b> Enforcement (including fees for intervention), legislation and advice, inspection, investigation eg site investigations.</p>
<p><b>Organisations</b> Health and Safety Executive (HSE) website, Institute of Occupational Safety and Health, British Safety Council, 'manufacturer', ROSPA.</p>

<b>Learning outcome</b>
The learner will: 2. know accident and emergency reporting procedures and documentation
<b>Assessment criteria</b>
The learner can: 2.1 state legislation used for reporting accidents 2.2 state major <b>types of emergencies</b> that could occur in the workplace 2.3 identify reportable injuries, diseases and dangerous occurrences as per RIDDOR 2.4 state main types of <b>records</b> used in the event of an accident, emergency and near miss and reasons for reporting them 2.5 identify <b>authorised personnel</b> involved in dealing with accident and emergency situations 2.6 state <b>actions</b> to take when discovering an accident.

<b>Range</b>
<p><b>Types of emergencies</b> Fires, security incidents, gas leaks.</p>
<p><b>Records:</b> Accident book, first aid records, organisational records and documentation.</p>
<p><b>Authorised personnel</b> First aiders, supervisors/managers, health and safety executive, emergency services, safety officer.</p>
<p><b>Actions</b> Area made safe, call for help, emergency services.</p>

<b>Learning outcome</b>
The learner will:

3. know how to identify hazards in the workplace
<b>Assessment criteria</b>
The learner can: 3.1 state the importance of <b>good housekeeping</b> 3.2 state reasons for risk assessments and method statements 3.3 identify <b>types of hazards</b> in the workplace 3.4 state the importance of the correct storage of combustibles and chemicals on site 3.5 identify different <b>signs and safety notices</b> used in the workplace.

<b>Range</b>
<b>Good housekeeping:</b> Cleanliness, tidiness, use of skips and chutes, segregation of materials, clear access to fire escapes, clear access to fire extinguishers.  <b>Types of hazards:</b> Fires, slips, trips and falls, hazardous substances (relating to inhalation, absorption, exposure, ingestion, cross-contamination), electrical, asbestos, manual handling, plant and vehicle movement, adverse weather.  <b>Signs and safety notices:</b> Prohibition, mandatory, warning, safe condition, supplementary.

<b>Learning outcome</b>
The learner will: 4. know about health and welfare in the workplace
<b>Assessment criteria</b>
The learner can: 4.1 identify requirements for welfare facilities in the workplace as per Construction Design Management (CDM) 4.2 state health effects of noise and <b>precautions</b> that can be taken 4.3 state <b>risks</b> associated with drugs, alcohol and medication which could affect performance in the workplace.

<b>Range</b>
<b>Precautions</b> Reducing noise at source, PPE, isolation, exposure time.  <b>Risks</b> Reduced risk perception, loss of concentration, balance problems, absenteeism and reduced productivity.

<b>Learning outcome</b>
The learner will: 5. know how to handle materials and equipment safely
<b>Assessment criteria</b>
The learner can: 5.1 identify legislation relating to safe handling of materials and equipment 5.2 state procedures for safe lifting and manual handling activities in accordance with guidance and legislation 5.3 state the importance of using <b>lifting aids</b> when handling materials and equipment.

<b>Range</b>
<b>Lifting aids</b> Wheelbarrow, sack barrow, mechanical lifting aids, pallet truck.

<b>Learning outcome</b>
The learner will: 6. know about access equipment and working at heights
<b>Assessment criteria</b>
The learner can: 6.1 identify legislation relating to working at heights 6.2 identify types of <b>access equipment</b> 6.3 state <b>safe methods</b> of use for <b>access equipment</b> 6.4 identify <b>dangers</b> of working at height.

<b>Range</b>
<b>Access equipment:</b> Stepladders, ladders (pole, extension), trestles, hop-ups, proprietary scaffolding, podium, stilts
<b>Safe methods</b> Regular inspection, check for broken, damaged or missing components, responsible use, consideration of adverse weather conditions, good housekeeping
<b>Dangers</b> Falling tools, falling equipment, falling materials, persons falling from height (injuries to themselves and others).

<b>Learning outcome</b>
The learner will: 7. know how to work with electrical equipment in the workplace
<b>Assessment criteria</b>
The learner can: 7.1 state <b>precautions</b> to take to avoid risks to self and others when working with electrical equipment 7.2 state <b>dangers</b> of using electrical equipment 7.3 identify <b>voltages</b> and voltage colour coding that are used in the workplace 7.4 state <b>methods</b> of storing electrical equipment.

<b>Range</b>
<b>Precautions</b> Check leads, check plugs, use of cable hangers, check tools and equipment, current valid PAT certificate
<b>Dangers:</b> Burns, electrocution, fire.
<b>Voltages</b> Battery powered, 110/115 volts, 230/240 volts and 415 volts.
<b>Methods</b> Components present, equipment cleaned, checked for damage, stored in a clean and secure location.

<b>Learning outcome</b>
The learner will: 8. know how to use Personal Protective Equipment (PPE)
<b>Assessment criteria</b>
The learner can: 8.1 state the legislation governing use of Personal Protective Equipment (PPE) 8.2 state <b>types of PPE</b> used in the workplace 8.3 state the importance of PPE 8.4 state why it is important to store, maintain and use PPE correctly 8.5 state the importance of checking and reporting damaged PPE.

<b>Range</b>
<b>PPE:</b> Head protection, eye protection, ear protection, face/dust masks, breathing apparatus, high visibility clothing, safety footwear, gloves, sun protection, barrier cream, water proofs, knee pads, overalls/disposable clothing

**Learning outcome**

The learner will:

9. know the cause of fire and fire emergency procedures

**Assessment criteria**

The learner can:

- 9.1 state **elements** essential to creating a fire
- 9.2 identify methods of fire prevention
- 9.3 state actions to be taken on discovering a fire
- 9.4 state **types of fire extinguishers** and their uses.

**Range****Elements**

Oxygen, fuel, heat.

**Types of fire extinguishers:**

Water, foam, CO2, dry powder.



## Unit 301

## Principles of organising, planning and pricing construction work

<b>Level:</b>	6
<b>Credit value:</b>	7
<b>Aim:</b>	<p>The aim of this unit is to provide the learner with the knowledge of building methods and construction technology in relation to:</p> <ul style="list-style-type: none"><li>• understanding a range of building materials used within the construction industry and their suitability to the construction of modern buildings.</li><li>• organise the building process and communicate the design to work colleagues and others.</li></ul>

<b>Learning outcome</b>
The learner will: 1. understand different types of drawn information in construction
<b>Assessment criteria</b>
The learner can: 1.1 compare advantages and disadvantages of computer-aided design (CAD) programs to traditional drawing methods 1.2 explain <b>information</b> required to produce orthographic projection drawings 1.3 explain the process and purpose of producing a schedule from a drawing 1.4 explain the <b>benefits</b> of isometric projection drawings 1.5 explain <b>information</b> required to produce isometric projection drawings.

<b>Range</b>
<p><b>Information (AC1.2)</b> Room dimensions, heights, width, sizes, heights and positions of walls, doors and window specifications, building regulations</p> <p><b>Benefits</b> Pictorial view of an object, assembly or design. Helps the client, customer, supplier or non-technical person understand how the finished product will look or what is required.</p> <p><b>Information (AC1.5)</b> Isometric axis, positioning and required view of the object, lines or surfaces relative to isometric axis. Object dimensions and scale.</p>

<b>Learning outcome</b>
<p>The learner will:</p> <ol style="list-style-type: none"> <li>2. understand energy efficiency and sustainable materials for construction</li> </ol>
<b>Assessment criteria</b>
<p>The learner can:</p> <ol style="list-style-type: none"> <li>2.1 evaluate the uses of thermally insulated <b>materials</b></li> <li>2.2 describe construction methods used to insulate against heat loss and gain</li> <li>2.3 compare thermal values of <b>wall construction</b></li> <li>2.4 explain the purpose of an Energy Performance Certificate (EPC)</li> <li>2.5 describe <b>sustainable materials</b> and their use in construction.</li> </ol>

<b>Range</b>
<p><b>Materials</b> Polyisocyanurate (PIR), expanded polystyrene (EP) fibre glass, sheep wool, mineral wool, double glazed units, multi-foil insulation.</p> <p><b>Construction methods</b> location of insulation, selection of materials, compliance with Building Regulations</p> <p><b>Wall construction</b> Cavity, solid and timber frame</p> <p><b>Sustainable materials</b> Locally sourced, managed timber (FSC), recycled materials.</p>

<b>Learning outcome</b>
The learner will: 3. understand how to estimate quantities and price work for construction
<b>Assessment criteria</b>
The learner can: 3.1 describe how to estimate quantities of construction materials 3.2 describe information required to prepare a materials list using a schedule 3.3 explain the purpose of preferred suppliers lists when ordering materials 3.4 explain the purpose of the Bill of quantities 3.5 explain the purpose of the tendering process 3.6 explain the difference between quoting and estimating 3.7 calculate waste percentages for a construction task 3.8 describe the information required to prepare a <b>quote</b> .

<b>Range</b>
<b>information required (AC3.2)</b> Quantity, quality, colour, dimensions, location, installation details
<b>Information required (AC3.8)</b> Labour, operational costs, VAT, Material cost

<b>Learning outcome</b>
The learner will: 4. understand how to plan work activities for construction
<b>Assessment criteria</b>
The learner can: 4.1 outline the benefits of planning the sequence of <b>material and labour requirements</b> 4.2 outline advantages and disadvantages of purchasing or hiring plant and equipment 4.3 identify <b>planning methods</b> 4.4 identify information required to produce a GANTT chart for a building project.

<b>Range</b>
<b>Planning</b> Programmes of work, stock systems, critical path analysis, lead time, schedules, Gantt chart.
<b>Planning methods</b> GANTT chart, critical path analysis.

**Learning outcome**

The learner will:

5. understand how to communicate effectively in the workplace

**Assessment criteria**

The learner can:

- 5.1 explain the purpose of **site documentation**
- 5.2 identify information to create an agenda for a meeting
- 5.3 explain information required to prepare a toolbox talk and site induction
- 5.4 explain the purpose of a site survey and the information required to prepare a **defects list**
- 5.5 describe information required to prepare written communications to resolve **problems**.

**Range****Site documentation**

Organisation chart, method statement, risk assessment, manufacturers' technical information, delivery notes, variation orders, permits to work, diaries, minutes, memos.

**Defects**

Poor standard of work, poor quality of materials, damaged materials, human error

**Problems**

Delivery, materials, quality, human resources.

## Unit 220

# Erecting and dismantling access equipment and working platforms

<b>Level:</b>	5
<b>Credit value:</b>	3
<b>Aim:</b>	The aim of this unit is to provide the learner with the skills and knowledge required to erect and dismantle access equipment and working platforms

<b>Learning outcome</b>
The learner will: 1. understand the preparation required for using access equipment and working platforms.
<b>Assessment criteria</b>
The learner can: 1.1 explain <b>factors</b> to be considered when selecting <b>access equipment and working platforms</b> 1.2 identify suitable <b>access equipment and working platforms</b> for types of internal and external work 1.3 outline how <b>manufacturers' specifications and legislative requirements</b> relate to Work at Height Regulations.

<b>Range</b>
<b>Factors</b> Ground conditions, height, type and duration of work, weather conditions, internal/external locations, access and egress.
<b>Access equipment and working platforms</b> Ladders, stepladders, proprietary towers, trestle platforms, stepladders/ platform steps, proprietary staging and podiums, scaffold board.
<b>Manufacturers' specifications and legislative requirements</b> Work at Height Regulations.

<b>Learning outcome</b>
The learner will: 2. be able to prepare for using access equipment and working platforms.
<b>Assessment criteria</b>
The learner can: 2.1 select suitable <b>access equipment and working platforms</b> for types of internal and external work 2.2 produce risk assessments in line with manufacturer's instructions and legislative requirements for <b>access equipment and working platforms</b> .

<b>Range</b>
<b>Access equipment and working platforms</b> Ladders, stepladders, proprietary towers, trestle platforms, stepladders/ platform steps, proprietary staging and podiums, scaffold board.

<b>Learning outcome</b>
The learner will: 3. understand how to check access equipment and identify faults.
<b>Assessment criteria</b>
The learner can: 3.1 describe the function of <b>access equipment components</b> 3.2 identify <b>hazards</b> associated with the use of access equipment and working platforms 3.3 explain the reasons for <b>inspections</b> and <b>inspection time periods</b> 3.4 state the procedure for carrying out visual checks on <b>access equipment</b> prior to use.

<b>Range</b>
<b>Access equipment components</b> Stiles, rungs, tie rods, ropes, treads, hinges, swingbacks, locking bars, non-slip inserts, scaffold boards, platform staging, tubes, boards, fittings, scaffold board. Tubes: Standard, transoms and boarded transoms, ledgers, bracers, rails. Fittings: Coupler, couplet, base plate.
<b>Hazards</b> Falls from heights, slips, trips, cuts and abrasions, faulty equipment.
<b>Inspections</b> Pre-erection, in-use.
<b>Inspection time periods</b> Pre-erection, post erection, handing over, post accident and incident, inclement weather.

<b>Learning outcome</b>
The learner will: 4. be able to check access equipment.
<b>Assessment criteria</b>
The learner can: 4.1 select suitable <b>access equipment components</b> 4.2 check <b>access equipment components</b> 4.3 adjust defective <b>access equipment components</b> to ensure they are safe to use.

<b>Range</b>
<b>Access equipment components</b> Scaffold tags, ladders (stiles, rungs, tie, rods) treads, hinges, swingbacks, locking bars, non-slip inserts, clip-on platforms, access stairs, access hatches, braces, working platforms, stabilisers, outriggers.

<b>Learning outcome</b>
The learner will: 5. understand how to erect access equipment and working platforms.
<b>Assessment criteria</b>
The learner can: 5.1 explain the benefits of a risk assessment for <b>access equipment and working platforms</b> 5.2 identify suitable <b>personal protective equipment (PPE)</b> for erecting <b>access equipment and working platforms</b> 5.3 explain the reasons for correct manual handling of components when erecting <b>access equipment and working platforms</b> 5.4 state the main implications of Work at Height Regulations in relation to use of <b>access equipment and working platforms</b> 5.5 explain the purpose of <b>regulation dimensions</b> .

<b>Range</b>
<b>PPE</b> Hard hats, gloves, eye protection, steel toe capped boots, overalls, high visibility jacket/vest, fixed length and fall arrest.
<b>Access equipment and working platforms</b> Ladders, proprietary towers, trestle platforms, stepladders and platform steps, proprietary staging and podiums, scaffold board.
<b>Regulation dimensions</b> Hand rail location, guard rail location, toe boards, maximum working heights, platform widths, base to height ratios.

<b>Learning outcome</b>
The learner will: 6. be able to erect access equipment and working platforms.
<b>Assessment criteria</b>
The learner can: 6.1 use <b>personal protective equipment (PPE)</b> when erecting <b>access equipment and working platforms</b> 6.2 erect <b>access equipment and working platforms</b> in the correct sequence to ensure it is safe for use 6.3 secure <b>access equipment and working platforms</b> where required 6.4 check <b>access equipment and working platforms</b> meet current <b>environmental and health and safety regulations</b> .

<b>Range</b>
<b>Access equipment and working platforms</b> Ladders, proprietary towers, trestle platforms, stepladders and platform steps, proprietary staging and podiums, scaffold boards.
<b>Environmental and health and safety regulations</b> Work at Height Regulations 2006.

<b>Learning outcome</b>
The learner will: 7. understand how to dismantle and store components.
<b>Assessment criteria</b>
The learner can: 7.1 explain the correct sequence of dismantling <b>access equipment and working platforms</b> 7.2 explain storage requirements for <b>access equipment and working platforms</b> .

<b>Range</b>
<b>Access equipment and working platforms</b> Ladders, proprietary towers, trestle platforms, stepladders and platform steps, proprietary staging and podiums, scaffold boards.

<b>Learning outcome</b>
The learner will: 8. be able to dismantle and store components.
<b>Assessment criteria</b>
The learner can: 8.1 dismantle and store <b>access equipment and working platforms</b> in accordance with organisational requirements.



<b>Range</b>
<b>Access equipment and working platforms</b>
Ladders, proprietary towers, trestle platforms, stepladders and platform steps, proprietary staging and podiums.

## Unit 311

# Applying hangings to walls and ceilings

<b>Level:</b>	6
<b>Credit value:</b>	7
<b>Aim:</b>	The aim of this unit is to provide the learner with the skills and knowledge required to apply hangings to walls and ceilings.

<b>Learning outcome</b>
The learner will: 1. understand methods used in wallpaper production and the trimming and jointing methods required.
<b>Assessment criteria</b>
The learner can: 1.1 describe <b>methods of production</b> 1.2 describe <b>printing methods</b> 1.3 identify <b>pattern types</b> 1.4 identify <b>paper types</b> and their characteristics 1.5 describe appropriate locations for a range of <b>paper types</b> 1.6 describe <b>methods for trimming paper types</b> and <b>tools and equipment</b> required 1.7 describe the importance of accurate trimming when removing a selvedge 1.8 describe <b>methods of jointing</b> , for <b>paper types</b> and <b>tools and equipment</b> required when hanging 1.9 identify <b>international performance symbols</b> .

<b>Range</b>
<b>Methods of production</b> Wet embossing, laminating, dry embossing, heat expansion, particles onto wet adhesive.
<b>Printing methods</b> Block, screen, machine, wet, dry, embossing.
<b>Pattern types</b> Set/straight match, drop/offset match, random/free match.
<b>Paper types/wall coverings</b> Pulps, relief, washable, vinyl, duplex, simplex, wide width vinyls (fabric-backed vinyl, paper-backed vinyl), supadurables, glass fibre, foil damp, photo murals, metallics, flock, hessian, warps/weftless, lincrusta, hand-print, , paper-backed fabrics
<b>Methods for trimming</b> Pre-trimmed, remove selvedge.

**Tools and equipment:**

Metal straight edge and trimming knife, fabric-backed vinyl joint cutter, tape measure, folding rule, plumb bob, spirit level, paperhanging shears, sponges, paperhanging brush, rubber rollers, felt rollers, spatulas, seam roller, trimming knives, paste brush, access equipment, pencil, paste table, buckets, troughs, protective strip (plastic for paper backed wide-width vinyls, zinc), chalk and line.

**Methods of jointing**

Butt joint, overlap, cut.

**International performance symbols**

Spongeable, washable, super-washable, scrubbable, moderate light fastness, good light fastness, strippable, peelable, ready pasted, paste-the-wall, free match, straight match, offset match, design/distance repeat, direction of hanging, co-ordinated fabric available, reverse alternate lengths.

**Learning outcome**

The learner will:

2. know how to select and prepare adhesives.

**Assessment criteria**

The learner can:

- 2.1 state **papers** for which **adhesives** are suitable
- 2.2 explain **advantages and disadvantages** of **adhesives**
- 2.3 describe **factors** that may affect the consistency of adhesives
- 2.4 describe how **defects** can occur due to incorrect consistency of adhesives.

**Range****Papers/wallcoverings**

Pulps, relief, (anaglypta) washable, vinyl, duplex, simplex, wide width vinyls (fabric-backed vinyl, paper-backed vinyl), supadurables, glass fibre, foil damp, photo murals, metallics, flock, hessian, warps/weftless, lincrusta, hand-print, paper-backed fabrics

**Adhesives**

Cellulose paste, starch paste, PVA, ready-mixed (heavy weight), proprietary (easy strip, light, medium, heavy), overlap, Lincrusta glue, foil damp

**Advantages and disadvantages**

Ease of application, adhesive properties, marking/staining, mould inhibitor.

**Factors**

Incorrect preparation, paper type, paper weight, room/air temperature, surface.

**Defects**

Blisters, delamination, stretching, tearing, lack of adhesion.

**Learning outcome**

The learner will: 3. be able to select and prepare adhesives.
<b>Assessment criteria</b>
The learner can: 3.1 select <b>adhesive</b> for work activity 3.2 use adhesives in accordance with manufacturers' instructions 3.3 prepare <b>adhesives</b> without lumps 3.4 adjust consistency of <b>adhesives</b> to suit paper type 3.5 follow current requirements of <b>health and safety and environmental regulations</b> .

<b>Range</b>
<b>Adhesive</b> (select appropriate) Cellulose paste, starch paste, PVA, ready-mixed (heavy weight), proprietary (easy strip, light, medium, heavy), overlap, Lincrusta glue.
<b>Health and safety and environmental regulations</b> Control of Substances Hazardous to Health (COSHH), Volatile Organic Compounds (VOCs), disposal of waste, cuts and abrasions, dermatitis, dust inhalation, burns, electrical safety, work at heights regulations, risk assessment, Personal Protective Equipment (PPE).

<b>Learning outcome</b>
The learner will: 4. understand how to apply papers to ceilings, walls and complex surfaces.
<b>Assessment criteria</b>
The learner can: 4.1 explain <b>factors</b> to be considered when planning 4.2 explain the use of <b>papers</b> and <b>pattern type</b> 4.3 describe why lining is advisable in different circumstances 4.4 describe <b>girling and area methods</b> for calculating the quantity of <b>paper</b> for different <b>pattern types</b> 4.5 explain <b>factors</b> to consider when cutting papers 4.6 explain the reason for ' <b>marking lines</b> ' 4.7 describe the <b>faults</b> caused by careless pasting 4.8 describe how to rectify <b>faults</b> caused by careless pasting 4.9 explain the reasons for selecting concertina and end-to-end/lap folds, for horizontal and vertical lengths 4.10 describe reasons for using different <b>pasting methods</b> for different <b>papers</b> 4.11 explain which types of <b>cutting equipment</b> should be used for different types of papers 4.12 describe the process used for <b>hanging papers</b> 4.13 describe working practices relating to <b>health and safety issues</b> 4.14 explain the causes of the <b>defects</b> and how they can be prevented 4.15 state the implications of not maintaining the <b>paperhanging tools</b> in a clean and cared for condition.

<b>Range</b>
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**Factors (AC4.1)**

Ceilings, walls, staircases, sloping ceiling/dormer window, free-standing column/pillar, ceiling of above average span alcove/niche/ arch, starting point, finishing point, centring, doors, window reveals, features/obstacles, borders.

**Papers/wallcoverings**

Lining (two qualities), embossed, blown vinyl, standard (washable, vinyl), ready-pasted, borders, solvent-painted wall, excessive making good, type of finishing paper.

**Pattern types**

Bold patterns, fine print, chintz

**Girthing and area methods**

Standard widths, non-standard widths

**Factors (AC4.5)**

Pattern type (bold with prominent repeat, small or indefinite pattern), pattern match (set/straight, offset/drop), batches, wastage, shading/colour

**Marking lines**

Occasions: first drop on wall, after internal/external angle, over and around reveals position: horizontal, vertical method: spirit level, plumb bob considerations: access required, light source, room dimensions, economy.

**Faults**

Dry edges, blistering, delaminating, joint gapping, paste staining, polishing, sheen patches, staining, tearing.

**Pasting methods**

Pasting machine, brush, roller, ready pasted.

**Cutting equipment:**

Shears, knife and straight edge and casing wheel.

**Hanging papers/wall coverings**

Processes: practical hanging and trimming of patterned (set/straight match, drop match) papers and with borders to walls only with internal and external angles, sockets/switches/ceiling rose, window reveals.

Using: cutting methods (star cut and half star cut, mitres)

To: ceilings, walls, stairwells, sloping ceiling/dormer window, free-standing column/pillar, ceiling of above average span, alcove/niche/arch.

**Health and safety issues**

The work at height regulations, sharp blades, electrical safety, COSHH, disposal of waste.

**Defects**

Creasing, inaccurate angle cutting, loss of emboss, mould growth, overlapping, poor matching, shading, tearing.

**Paper hanging tools**

Tape measure, folding ruler, plumb bob, spirit level, paperhanging shears, sponges, paperhanging brush, trimming knives, caulker, pencil,

spatulas, access equipment, paste brush, buckets, rubbish containers/bags, metal straight edge and trimming knife, chalk and line, troughs, paste table.

### Learning outcome

The learner will:

5. be able to apply papers to ceilings, walls and complex surfaces.

### Assessment criteria

The learner can:

- 5.1 plan the **position** of paper-hangings
- 5.2 select, position and erect access equipment
- 5.3 select **tools and equipment** to complete tasks
- 5.4 calculate quantities of paper using both girthing and area methods
- 5.5 measure and cut lengths with the minimum of waste
- 5.6 plan, measure and mark starting lines, taking into account:
  - a. **occasions**
  - b. **position**
  - c. **methods**
  - d. **considerations**
- 5.7 **paste** paper without misses, fold lengths and soak
- 5.8 **apply papers** and pattern types with minimum **defects**
- 5.9 cut papers neatly to the top, bottom and around obstacles, maintaining cleanliness
- 5.10 follow current environmental and health and safety regulations.

### Range

#### Position

Ceilings, walls, staircases, sloping ceiling/dormer window, free-standing column/pillar, ceiling of above average span alcove/niche/arch.

#### Tools and equipment

Tape measure, folding ruler, plumb bob, spirit level, paperhanging shears, sponges, paperhanging brush, trimming knives, caulker, pencil, spatulas, access equipment, paste brush, buckets, rubbish containers/bags, metal straight edge and trimming knife, chalk line, troughs, paste table.

#### Occasions

First drop on wall, after internal/external angle, over and around reveals.

#### Position

Horizontal, vertical.

#### Methods (select appropriate method)

Spirit level, plumb bob, laser level.

#### Considerations

Access required, light source, room dimensions, economy.

#### Paste

Factors: mixing, consistency, application sequence, faults (misses, excess paste, paste staining, discolouration), methods (pasting machine, brush, roller, ready pasted), folds (end-to- centre, concertina).

**Apply papers/wall coverings**

Processes: practical hanging and trimming of patterned (set/straight match, drop match) papers and with borders to walls only with internal and external angles, sockets/switches/ceiling rose, window reveals.

Using: cutting methods (star cut and half star cut, mitres)

To: ceilings, walls, stairwells, sloping ceiling/dormer window, free-standing column/pillar, ceiling of above average span, alcove/ niche/ arch

**Defects**

Creasing, overlaps, blisters, tears, delamination, polished edges, open joints, loose edges, irregular cutting, inaccurate matching, flattening of emboss, staining or surface marking, corners incorrectly negotiated, inaccurate plumbing.

**Learning outcome**

The learner will:

6. understand how to hang wide-width vinyls.

**Assessment criteria**

The learner can:

- 6.1 explain the reasons for checking the **suitability** of the surface in relation to the need to make good and prime, when hanging paper-backed and fabric-backed papers
- 6.2 explain the implications and importance of each **stage** of the manufacturers' instructions
- 6.3 state the maintenance and cleaning of wide-width vinyls
- 6.4 explain the causes of **defects** and how they can be prevented.

**Range****Suitability**

Make good and prime for hanging paper-backed and fabric backed papers.

**Stage**

Surface preparation, material type, internal angles, adhesive type and application method, directional hanging advice, process of cutting from rolls (descending order), use of full width material (no off-cuts or out-of-sequence drops), shading checks, use of spatula, jointing methods, health and safety advice.

**Defects**

Shading, springing joints, surface marking/staining.

<b>Learning outcome</b>
The learner will: 7. be able to hang paper backed and fabric backed wide-width vinyls.
<b>Assessment criteria</b>
The learner can: 7.1 check the <b>surface suitability</b> 7.2 plan the position of vinyls 7.3 select, position and erect appropriate <b>access equipment</b> 7.4 select <b>tools and equipment</b> appropriate to the task 7.5 calculate quantities of paper-backed and fabric-backed papers using both girthing and areas methods 7.6 plan, measure and mark starting lines, taking into account: a. <b>occasions</b> b. <b>position</b> c. <b>methods</b> d. <b>considerations</b> 7.7 follow <b>manufacturers' instructions</b> for hanging wide-width vinyls 7.8 cut paper neatly to obstacles, maintaining cleanliness 7.9 follow current <b>health and safety and environmental regulations</b> .

<b>Range</b>
<b>Surface suitability</b> Rectify if required (prime and make good)
<b>Tools and equipment</b> Metal straight edge and trimming knife, fabric-backed vinyl joint cutter, spatulas, sponges, access equipment, pencil, tape measure, folding rule, plumb bob, spirit level, plastic protective strip, paste tables, pasting roller/brush, rubbish, containers/bags, buckets.
<b>Occasions</b> First drop on wall, after internal/external angle, over and around reveals.
<b>Position</b> Horizontal, vertical.
<b>Methods</b> (select appropriate method) Spirit level, plumb bob, laser level.
<b>Considerations</b> Access required, light source, room dimensions, economy.
<b>Manufacturers' instructions</b> Surface preparation, material type, internal angles, adhesive type and application method, directional hanging advice, process of cutting from rolls (descending order), use of full width material (no off-cuts/out-of-sequence drops), shading checks, use of spatula, jointing methods, health and safety advice.
<b>Health and safety and environmental regulations</b> Electrical safety, sharp blades, COSHH, work at height regulations, disposal of waste.



<b>Learning outcome</b>
The learner will: 8. understand how to hang specialist papers.
<b>Assessment criteria</b>
The learner can: 8.1 explain reasons for checking the <b>suitability of the surface</b> when hanging <b>specialist papers</b> 8.2 compare <b>advantages and disadvantages</b> for specifying use of each <b>specialist paper</b> 8.3 explain factors to be considered when planning 8.4 describe girthing and area methods for calculating the quantity of paper for specialist papers 8.5 explain <b>factors</b> to consider when cutting specialist papers 8.6 describe how <b>careless pasting</b> can cause the faults in relation to the specialist paper, and their prevention and repair 8.7 explain the implications and importance of each <b>stage</b> of the manufacturers' instructions for specialist papers 8.8 explain <b>causes of defects</b> that occur with specialist papers and how they can be prevented 8.9 explain the selection of <b>methods of trimming</b> for each of the <b>specialist papers</b> 8.10 explain why trimming techniques for Lincrusta differ from techniques used for other specialist papers.

<b>Range</b>
<b>Suitability of the surface</b> Make good, prime and line.
<b>Specialist papers/wall coverings</b> Paper-backed fabric, Lincrusta, hand print, flock or other decorative specialist papers (eg warps/weftless, supadurables, hessian, metallics, glass fibre) etc.
<b>Advantages and disadvantages</b> Decorative, cost, ease of application, textured, durability, cleaning dampen sound
<b>Factors</b> Starting point, finishing point, internal and external angles, doors, features and obstacles, window reveals, joints, walls. Cutting considerations: batches, shading, pattern type, pattern match (set/straight, offset/drop), wastage
<b>Careless pasting</b> Dry edges, blistering, delaminating, joint gapping, paste staining, polishing, staining, tearing process of cutting from rolls, directional hanging advice, jointing methods, internal angles, health and safety advice.
<b>Stage</b> Surface preparation, material type, shading checks, adhesive type and application method.

**Causes**

irregular cutting, inaccurate matching, under/over soaking  
over brushing, overuse of seam roller, careless pasting

**Defects**

Loose edges, loose fibres, polished areas, delamination, blisters, tears,  
overlaps, open joints, flattening of emboss, staining/surface marking,  
corners incorrectly negotiated.

**Methods of trimming**

Knife and straight edge, shears, casing wheel, knife and self healing  
board.

**Learning outcome**

The learner will:

9. be able to hang specialist papers.

**Assessment criteria**

The learner can:

- 9.1 check the **suitability of surface** for **specialist papers**  
9.2 plan the **position** of **specialist papers**  
9.3 select **tools and equipment** appropriate to the task  
9.4 calculate quantities of specialist papers using both girthing and  
areas methods  
9.5 plan, measure and mark starting lines, taking into account:  
a. **occasions**  
b. **position**  
c. **methods**  
d. **considerations**  
9.6 follow **manufacturers' instructions** for hanging specialist papers  
9.7 cut paper neatly to obstacles, maintaining cleanliness  
9.8 follow current requirements of **health and safety and  
environmental regulations.**

**Range****Suitability of surface**

Rectify (by making good, priming, lining if required)

**Position**

Walls, starting point, finishing point, internal and external angles, doors,  
features and obstacles, ceilings, window.

**Specialist papers/wall coverings**

Lincrusta, paper-backed fabric, hand print, flock, warps/weftless,  
supadurables, Suparglypta, hessian, metallics, glass fibre, photo mural.

**Tools and equipment**

Tape measure, metal straight edge, trimming knife, folding ruler, plumb  
bob, spirit level, paperhanging brush, paperhanging shears, sponges,  
rubber rollers, felt rollers, spatulas, seam roller, protective strip, access  
equipment, pencil, chalk and line, paste table, paste brush, buckets,  
cotton gloves, Ridgley straight edge and trimmer, rubbish containers/  
bags.

<p><b>Occasions</b> First drop on wall, after internal/external angle, over and around reveals.</p> <p><b>Position</b> Horizontal, vertical.</p> <p><b>Methods</b> (select appropriate method) Spirit level, plumb bob, laser level.</p> <p><b>Considerations</b> Access required, light source, room dimensions, economy.</p> <p><b>Manufacturers' instructions</b> Surface preparation, material type, shading checks, adhesive type and application method, process of cutting from rolls, directional hanging advice, jointing methods, internal angles, health and safety advice.</p> <p><b>Health and safety and environmental regulations</b> Electrical safety, sharp blades, COSHH, work at height regulations, disposal of waste.</p>
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<b>Learning outcome</b>
The learner will: 10. know how to store materials.
<b>Assessment criteria</b>
The learner can: 10.1 describe <b>factors</b> to consider when storing papers and adhesives 10.2 state reasons why a wall hanging may be supplied with a selvedge and the recommendation to store it 'on end'.

<b>Range</b>
<b>Factors</b> Physical: racks, wrapping and dust. Atmospheric: temperature, dampness and direct sunlight.

<b>Learning outcome</b>
The learner will: 11. be able to store materials.
<b>Assessment criteria</b>
The learner can: 11.1 reclaim unused specialist, papers and range of adhesives 11.2 store specialist papers and range of adhesives.

## Unit 312

## Producing specialist finishes for painted decorative work

<b>Level:</b>	6
<b>Credit value:</b>	7
<b>Aim:</b>	The aim of this unit is to provide the learners with the skills and knowledge required for producing specialist finishes for painted decorative work.

<b>Learning outcome</b>
The learner will: 1. be able to produce quality finish ground coats for painted decorative work.
<b>Assessment criteria</b>
The learner can: 1.1 prepare <b>surfaces</b> to produce quality finish ground coats for painted decorative work using <b>abrasives</b> and <b>preparation processes</b> 1.2 select <b>tools and equipment</b> to produce quality ground coat finishes 1.3 prepare and apply <b>materials</b> to produce quality ground coat finishes to ensure no defects present 1.4 follow current <b>environmental and relevant health and safety regulation</b> .

<b>Range</b>
<p><b>Surfaces</b> Previously painted timber, previously painted plaster or plasterboard, embossed paper.</p> <p><b>Abrasives</b> Silicon carbide, glass paper, aluminium oxide.</p> <p><b>Preparation processes</b> Wet abrading, dry abrading, making good, spot priming.</p> <p><b>Tools and equipment</b> Hair stiplers, rollers, rubbing blocks, buckets, sponges, dusting brush, paint brushes (natural bristle and synthetic filament), tack rags, stirrers, paint strainers, kettles.</p> <p><b>Materials</b></p> <p><b>Fillers</b> Water-borne primers/eggshell, solvent-borne primer/eggshell.</p> <p><b>Environmental and relevant health and safety regulation</b> Control of Substances Hazardous to Health (COSHH), Volatile organic compounds (VOCs), disposal of waste, cuts and abrasions, dermatitis, dust inhalation, burns, electrical safety, work at heights regulations, risk assessment, personal protective equipment (PPE).</p>

<b>Learning outcome</b>
The learner will: 2. understand how to prepare multi-plate and apply stencils.
<b>Assessment criteria</b>
The learner can: 2.1 explain differences between different multi-plates <b>stencil types</b> 2.2 describe <b>methods</b> used for enlarging and reducing multi-plate stencils 2.3 explain advantages and disadvantages of <b>plate materials</b> 2.4 describe <b>methods</b> used for transferring designs 2.5 compare advantages and disadvantages of cutting with craft knives and hot knives 2.6 describe the suitability of <b>base materials</b> used for cutting multi-plate stencils 2.7 explain <b>factors</b> to take into consideration when cutting stencils 2.8 explain <b>planning considerations</b> when setting out and applying stencils to wall areas 2.9 explain the purpose of <b>lines</b> and registration marks to mark out areas to be stenciled 2.10 describe advantages and disadvantages of <b>methods</b> used for securing stencils to prevent <b>application faults</b> 2.11 explain cleaning, maintenance and storage requirements for <b>tools and equipment</b> .

**Range****Stencil types**

Positive, negative, multi-plate.

**Enlarging and reducing methods**

Accurate measurement, grid, illuminated projection, photocopy, print.

**Plate materials**

Treated paper, treated card, proprietary stencil card, acetate sheet.

**Transferring methods**

Trace, pounce and photocopy – onto the stencil plate materials of paper and proprietary stencil card and acetate.

**Base materials**

Glass plate, proprietary cutting mat.

**Factors**

Cleanliness, hand position, knife angle, direction of cutting, blade sharpness, repair of broken ties, size and sequence of pattern (small areas and vertical lines first), free movement of stencil plate, margin widths.

**Planning considerations**

Location of doors, windows, corners, access requirements, room dimensions, stencil size, number of repeats/connections spacing, order of application.

**Lines**

Chalk: centre/horizontal/vertical.

**Securing methods**

Proprietary spray adhesive, tape (masking, low-tack).

**Application faults**

Creep, smudging, paint lifting, uneven colour, bittiness, undue texture, uneven weight of colour over repeats, buckled/curled stencil plate.

**Tools and equipment**

Ruler/tape measure, pencil, chalk and line, stencil knife/craft knife, hot knife, palette, stencil brushes.

<b>Learning outcome</b>
The learner will: 3. be able to prepare and apply multi- plates.
<b>Assessment criteria</b>
The learner can: 3.1 produce stencil designs and use appropriate <b>transfer methods</b> to <b>stencil plate material</b> 3.2 prepare <b>multi-plate stencil materials</b> 3.3 select <b>tools and equipment</b> 3.4 cut out multi-plate stencil types from <b>plate materials</b> with accurate and clean cut design outlines and strong ties 3.5 set and mark out stencil locations for linear runs, borders and walls, demonstrating <b>planning considerations</b> 3.6 apply multi-plate stencil types with sharp outlines, as accurate linear work 3.7 clean, maintain and store <b>tools and equipment</b> 3.8 follow current <b>health and safety and environmental regulations</b> .

<b>Range</b>
<p><b>Transfer methods</b> Select two of the following:</p> <ul style="list-style-type: none"> <li>• trace</li> <li>• pounce</li> <li>• photocopy.</li> </ul> <p><b>Stencil plate materials</b> Select two of the following:</p> <ul style="list-style-type: none"> <li>• treated paper</li> <li>• treated card</li> <li>• proprietary stencil card</li> <li>• acetate sheet.</li> </ul> <p><b>Tools and equipment</b> Pencil, ruler/tape measure, chalk and line, stencil knife/craft knife, palette, stencil brushes, hot knife.</p> <p><b>Planning considerations</b> Number of repeats/ connections, location of doors, windows, corners, access requirements, room dimensions, stencil size, spacing.</p> <p><b>Health and safety and environmental regulations</b> Control of Substances Hazardous to Health (COSHH), Volatile organic compounds (VOCs), disposal of waste, cuts and abrasions, dermatitis, dust inhalation, burns, electrical safety, work at heights regulations, risk assessment, personal protective equipment (PPE).</p>

<b>Learning outcome</b>
The learner will: 4. understand how to replicate different types of wood using graining methods.
<b>Assessment criteria</b>
The learner can: 4.1 explain the importance of ensuring that the appropriate ground coat colour is used 4.2 outline reasons for selecting <b>colourants</b> to produce the scumble for different <b>graining effects</b> 4.3 explain methods by which oil based glazes and acrylic glazes dry 4.4 describe <b>brushes, tools and equipment</b> used to produce replica <b>graining effects</b> 4.5 explain the <b>graining effects</b> produced by different <b>brushes, tools and equipment</b> 4.6 describe cleaning, maintenance and storage requirements for <b>tools and brushes</b> 4.7 describe how specific cuts in wood dictate the grain pattern 4.8 explain <b>processes</b> in relation to each wood effects 4.9 describe the graining sequence for <b>structural components</b> 4.10 explain the importance of cleanliness and sharpness when graining.

<b>Range</b>
<b>Colourant</b> Artist's oil, acrylics, gouache, powder pigment, universal strainers.
<b>Graining effects</b> Straight grain – oak, mahogany, one other wood type, figure work graining – oak and mahogany.
<b>Oil-based scumbles</b> Solvent borne glaze, oil colourant, oil graining colour/medium solvent borne propriaty scumble binders (fullers earth /whiting, stale beer, vinegar) varnish, white spirit, linseed oil, driers, glycerine.
<b>Water-borne scumbles</b> Acrylic glaze, acrylic colourants, dry pigments, water fullers earth/whiting stale beer, vinegar) varnish, glycerine, retarding agents.
<b>Tools and equipment</b> Metal/rubber/card combs, check/tick roller, natural sponges, feathers eg goose-wing, lint-free rag, palette knives, palettes, kettles, plastic pots.
<b>Brushes</b> 'Rubbing in' brushes, mixing brushes, fitches, floggers and dragging brushes, softeners (hog's hair, badger), sable pencils and writers, varnish brushes.



**Processes**

Rubbing in, flogging, combing, softening overgraining, mottling, wiping out, heartwood or painting in heartwood, combing with painting in.

**Structural components**

Panelled doors, windows, dado rails, narrow linear runs (i.e. architraves and skirtings), small wall panels.

**Learning outcome**

The learner will:

5. be able to replicate different types of wood using graining methods.

**Assessment criteria**

The learner can:

- 5.1 check **factors** relating to ground coat suitability, and rectify if required
- 5.2 select **colourant** appropriate to each **replica graining** type
- 5.3 prepare **graining materials**
- 5.4 select **brushes, tools and equipment** to be used to produce replica graining
- 5.5 produce **replica graining** for **structural components** using **processes**
- 5.6 clean, maintain and store **brushes, tools, and equipment**
- 5.7 follow current health and safety and environmental regulations.

**Range****Factors**

No visible coating defects (misses, ropiness, bits and nibs, undue texture), colour, finish (eggshell, mid-sheen).

**Colourant**

Artist's oil, acrylics, gouache, powder pigment, universal strainers.

**Replica graining**

Straight grain – oak, mahogany, one other timber type, figure work graining – oak and mahogany.

**Graining materials**

Solvent-borne glaze, water borne glaze, oil colourant, glue size, white spirit, linseed oil, solvent-borne proprietary scumbles, binders (fuller's earth/whiting, stale beer, vinegar), oil graining colour/medium, water graining colour/medium, acrylic colourant.

**Brushes**

Rubbing in brushes, mixing brushes, overgrainers, sable pencils/writers, fitches, mottlers/cutters, floggers/dragging brushes, softeners (hog's hair, badger) sable pencils and writers, varnish brushes.

**Tools**

Metal/rubber/card combs, check/tick roller, veining horn, natural sponges, crayons.

**Equipment**

Lint-free rag, palette knives, palettes, kettles, plastic pots.

**Structural components**

Select three of the following:

- panelled doors
- windows
- dado rails
- narrow linear runs (ie architraves and skirtings)
- small wall panels

**Processes**

Rubbing in, flogging, combing, softening, overgraining, mottling, wiping out heartwood and painting in heartwood, combing with painting in and apply protective finishing coats

**Learning outcome**

The learner will:

6. understand how to replicate marble.

**Assessment criteria**

The learner can:

- 6.1 state how veins in marble are naturally formed
- 6.2 state the appropriate British Standard 4800 colour for ground coats to **replicate marble**
- 6.3 state the appropriate **pigment colours** to **replicate marble**
- 6.4 describe **brushes, tools and equipment** required to produce replicate marble effects
- 6.5 explain the effects produced by different **brushes, tools and equipment**
- 6.6 describe **terminology** relating to marbling
- 6.7 describe cleaning, maintenance and storage requirements for **brushes, tools and equipment.**

<p><b>Range</b></p> <p><b>Replicate marble</b> Carrara, Sienna, vert de mer, Black and Gold, Rouge Royale, St.Anne, Breche Violet.</p> <p><b>Pigment colours</b> White, black, ultramarine blue, ochre, umber (raw, burnt), sienna (raw, burnt), chrome, Indian red, Brunswick green, Prussian blue, paynes grey.</p> <p><b>Brushes, tools and equipment</b></p> <p><b>Brushes</b> Rubbing in mixing, varnish, floggers/ dragging, softeners (hog's hair, badger), sable pencils/writer, fitches.</p> <p><b>Tools</b> Feathers, (ie goose-wing) natural sponges.</p> <p><b>Equipment</b> Lint-free rag, palette knives, palettes, kettles, plastic pots, dippers, chalk and line, masking tape, paper.</p> <p><b>Terminology</b> Medium, gilp, clouding or scumbling, wash (of colour) transparency.</p>
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<p><b>Learning outcome</b></p> <p>The learner will:</p> <p>7. be able to replicate marble.</p>
<p><b>Assessment criteria</b></p> <p>The learner can:</p> <p>7.1 check <b>factors</b> relating to ground coat suitability and rectify if required</p> <p>7.2 select pigment colours appropriate to <b>replicate marble</b></p> <p>7.3 prepare <b>marbling materials</b></p> <p>7.4 select <b>brushes, tools and equipment</b></p> <p>7.5 produce <b>replica marble</b> using appropriate <b>processes</b></p> <p>7.6 apply protective finishing coats</p> <p>7.7 clean, maintain and store <b>brushes, tools and equipment</b></p> <p>7.8 follow current <b>health and safety and environmental regulations.</b></p>

<p><b>Range</b></p> <p><b>Factors</b> No visible coating defects (misses, ropiness, bits and nibs, undue texture), colour, finish (eggshell, mid-sheen).</p> <p><b>Replica marble</b> Carrara, Sienna, Vert De Mer, Black and Gold, Rouge Royale, St.Anne, Breche Violet.</p> <p><b>Marbling materials</b> Solvent-borne glaze and water-borne glaze, oil colourant and acrylic colourant, varnish (water-borne and solvent-borne), white spirit, linseed oil, crayons.</p> <p><b>Brushes, tools and equipment</b> Brushes: rubbing in mixing, varnish softeners (hog's hair, badger), sable pencils/writer, fitches. Tools: feathers, (ie goose-wing) natural sponges. Equipment: lint-free rag, palette knives, palettes, kettle's, plastic pots, dippers, chalk and line, masking tape, paper.</p> <p><b>Processes</b> Oil-in and rubbing in, veining, softening, glazing, cissing and opening out, stippling, wiping out.</p> <p><b>Health and Safety and Environmental Regulations</b> Control of Substances Hazardous to Health (COSHH), Volatile organic compounds (VOCs), disposal of waste, cuts and abrasions, dermatitis, dust inhalation, burns, electrical safety, work at heights regulations, risk assessment, personal protective equipment (PPE).</p>
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<p><b>Learning outcome</b></p> <p>The learner will:</p> <p>8. understand how to apply metal leaf.</p>
<p><b>Assessment criteria</b></p> <p>The learner can:</p> <p>8.1 explain <b>factors</b> relating to surface conditions suitability to receive gilding</p> <p>8.2 explain the importance of establishing the correct drying stages</p> <p>8.3 explain <b>processes</b> used to apply metal leaf</p> <p>8.4 state types of <b>damage</b> that may be caused by <b>processes</b> and how they may be prevented</p> <p>8.5 describe the importance of correct cleaning and storage of camel hair mops, pounce bags and specialist tools.</p>

<b>Range</b>
<p><b>Factors</b> Smooth, defect free, clean, hard, dry</p> <p><b>Processes</b> Tack time testing, metal leaf application, skewing, faulting, burnishing, cleaning off, backing up.</p> <p><b>Damage</b> Lack of adhesion, shrivelling, flaking, tarnishing.</p>

<b>Learning outcome</b>
The learner will: 9. be able to apply metal leaf.
<b>Assessment criteria</b>
<p>The learner can:</p> <p>9.1 check <b>factors</b> relating to <b>surfaces</b> suitability and rectify if required</p> <p>9.2 select <b>tools</b> to apply metal leaf</p> <p>9.3 prepare and apply <b>barrier coat materials</b> evenly and without misses</p> <p>9.4 select and apply <b>mordants</b> to ensure the required finish, regularly checking for correct drying stage</p> <p>9.5 apply metal leaf to flat and detailed areas</p> <p>9.6 remove barrier coats from finished work, where applicable</p> <p>9.7 burnish applied metal leaf</p> <p>9.8 clean, maintain and store tools and equipment</p> <p>9.9 follow current <b>health and safety and environmental regulations</b>.</p>

<b>Range</b>
<p><b>Factors</b> Smooth, defect free clean, hard, dry surfaces: painted, varnished, glass.</p> <p><b>Tools</b> Camel hair mops, pounce bags, specialist.</p> <p><b>Barrier coat materials</b> Egg glair (egg white, warm water), French chalk.</p> <p><b>Mordants</b> Glare, gelatine, gold size.</p> <p><b>Health and Safety and Environmental Regulations</b> Control of Substances Hazardous to Health (COSHH), Volatile organic compounds (VOCs), disposal of waste, cuts and abrasions, dermatitis, dust inhalation, burns, electrical safety, work at heights regulations, risk assessment, personal protective equipment (PPE).</p>

## Unit 313

# Producing specialist architectural finishes for decorative work

<b>Level:</b>	6
<b>Credit value:</b>	5
<b>Aim:</b>	To provide the learner with the skills and knowledge required to produce specialist architectural finishes for decorative work.

<b>Learning outcome</b>
The learner will: 1. understand how to set out and install centre-pieces.
<b>Assessment criteria</b>
The learner can: 1.1 explain <b>health and safety risks and precautions</b> associated with the installation of centre-pieces 1.2 explain <b>factors</b> to consider when selecting designs and materials for a centre-piece 1.3 state <b>adhesives</b> for <b>centre-piece types</b> 1.4 explain <b>stages</b> for setting out and installing centre-pieces 1.5 state reasons for having registration marks on the ceiling and centre-pieces 1.6 explain the process for achieving registration marks 1.7 identify <b>suitable fixings</b> for centre-pieces 1.8 explain reasons for <b>moistening</b> the surface prior to applying centre-pieces.

<b>Range</b>
<b>Health and safety risks and precautions</b> Electricity, power tools, working at height, manual handling, working above head, sharp tools.
<b>Factors</b> Architectural, design, weight, size, labour requirements.
<b>Adhesives</b> Ready mix, powder based.
<b>Centre piece type</b> Polyurethane foam centre-pieces: PVA Gypsum plaster centre-pieces: proprietary, heavy duty, stucco.
<b>Stages</b> <ul style="list-style-type: none"><li>• erect access equipment, dry locate, fix location pins</li><li>• set out and mark out position for centre- piece, drill holes in centre-</li></ul>

<p>piece for fixing, registration marks on centre-piece and surface</p> <ul style="list-style-type: none"> <li>• secure to surface: drill and fit wall plugs, prepare adhesive</li> <li>• mark and cut out for cabling, apply adhesive to centre-piece, moisten area to receive centre-piece</li> <li>• apply centre-piece to surface, make good gaps and fixing holes.</li> </ul> <p><b>Suitable fixings</b> Nails, wall plugs, brass screws.</p> <p><b>Moistening</b> Reduce porosity of surface, allow slip.</p>
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<b>Learning outcome</b>
The learner will: 2. be able to set out and install centre pieces.
<b>Assessment criteria</b>
The learner can: 2.1 select <b>materials, tools and equipment</b> for setting out and installing centre pieces 2.2 erect and check <b>access equipment</b> 2.3 set out area to receive centre-piece 2.4 cut access holes for cabling 2.5 install centre-piece to the ceiling following the <b>stages of work</b> 2.6 follow current <b>environmental and health and safety regulations</b> .

<b>Range</b>
<p><b>Materials</b> Polyurethane foam centre-pieces, PVA, gypsum plaster centre-pieces, adhesives (proprietary, heavy duty, stucco).</p> <p><b>Tools and equipment</b> Access equipment, tape measure, pencil, drill, saw, hammer, screwdriver, stirring stick, buckets, sponges, brushes, plastic pots.</p> <p><b>Access equipment</b> Ladders, step ladders, platform steps, trestle platforms, podiums.</p> <p><b>Stages of work</b></p> <ul style="list-style-type: none"> <li>• Erect access equipment, dry locate, fix location pins</li> <li>• Set out and mark out position for centre- piece, drill holes in centre-piece for fixing, registration marks on centre-piece and surface</li> <li>• Secure to surface, drill and fit wall plugs, prepare adhesive</li> <li>• mark and cut out for cabling, apply adhesive to centre-piece, moisten area to receive centre-piece</li> <li>• apply centre-piece to surface, make good gaps and fixing holes.</li> </ul> <p><b>Environmental and health and safety regulations</b> Control of Substances Hazardous to Health (COSHH), Volatile Organic Compounds (VOCs), disposal of waste, cuts and abrasions, dermatitis, dust inhalation, burns, electrical safety, work at heights regulations, risk assessment, Personal Protective Equipment (PPE).</p>

<b>Learning outcome</b>
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<p>The learner will:</p> <p>3. understand how to set out and install coving.</p>
<p><b>Assessment criteria</b></p> <p>The learner can:</p> <p>3.1 explain <b>health and safety risks</b> and required precautions associated with the installation of coving</p> <p>3.2 state <b>materials</b> used for manufacture of polyurethane foam and gypsum plaster coving</p> <p>3.3 explain <b>tools and equipment</b> required to install coving</p> <p>3.4 state advantages and disadvantages for using mitre blocks and templates</p> <p>3.5 explain <b>considerations</b> when installing coving and cornices with complex designs</p> <p>3.6 state <b>adhesives</b> for coving types</p> <p>3.7 state implications of an adhesive's viscosity when applying it to coving, and once installed</p> <p>3.8 explain benefits in relation to both temporary and permanent fixing, when installing coving</p> <p>3.9 explain the stages for setting out and installing coving</p> <p>3.10 state advantages of leaving a 2-3mm gap</p> <p>3.11 state the sequence of installing coving for a chimney breast wall.</p>

<p><b>Range</b></p>
<p><b>Health and safety risks</b> Working at height, manual handling, working above head, sharp tools, dust particles.</p> <p><b>Materials</b> Polyurethane foam, gypsum plaster, weight, support, accurate location, remove excess adhesive, install temporary additional support nails, make good gaps and fixing holes, remove support nails, leave to set.</p> <p><b>Tools and equipment</b> Access equipment, tape measure, pencil, chalk line, galvanised nails, hammer, mitre block, template, saw, stirring stick, buckets, sponges, brushes, plastic pots.</p> <p><b>Considerations</b> Even pattern distribution, centre around features, calculate joint locations, making good.</p> <p><b>Adhesives</b> Ready mix, powder based.</p>



**Learning outcome**

The learner will:

4. be able to set out and install coving.

**Assessment criteria**

The learner can:

- 4.1 select coving, **tools and equipment** appropriate for the work
- 4.2 check and erect **access equipment**
- 4.3 set out area to receive coving
- 4.4 measure and cut lengths of coving for internal and external angles and butt joints
- 4.5 install **coving**
- 4.6 follow current **environmental and health and safety regulations**.

**Range****Tools and equipment**

Access equipment, tape measure, pencil, chalk line, galvanised nails, hammer, mitre block, template, saw, stirring stick, buckets, sponges, brushes, plastic pots.

**Access equipment**

Ladders, step ladders, platform steps, trestle platforms, podiums.

**Coving**

To include internal and external angles and butt joints.

**Environmental and health and safety regulations**

Control of Substances Hazardous to Health (COSHH), Volatile Organic Compounds (VOCs), disposal of waste, cuts and abrasions, dermatitis, dust inhalation, burns, electrical safety, work at heights regulations, risk assessment, Personal Protective Equipment (PPE).

## Unit 314

# Applying water-borne paint systems using airless equipment

<b>Level:</b>	6
<b>Credit value:</b>	7
<b>Aim:</b>	To provide the learner with the skills and knowledge required to apply water-borne paint systems using airless equipment.

<b>Learning outcome</b>
The learner will: 1. understand how to prepare work areas by protecting adjacent surfaces, furniture and fittings.
<b>Assessment criteria</b>
The learner can: 1.1 explain <b>domestic</b> and <b>commercial factors</b> to consider, when preparing the work area 1.2 identify types and uses of <b>masking tapes</b> 1.3 explain the <b>procedure</b> for applying and removing masking tapes 1.4 identify types and uses of <b>protective sheeting</b> 1.5 explain maintenance and storage requirements for <b>protective sheeting</b> types.

<b>Range</b>
<b>Domestic factors:</b> Door and window furniture, wall-mounted fixtures and fittings, air quality within the work area, room furniture, floor coverings.
<b>Commercial factors</b> Workstations, lighting, machinery, equipment, furniture, public access to premises, climate/weather, temperature, air quality within the work area, ventilation, debris.
<b>Masking tapes</b> Exterior, interior, low tack, crepe, 7-day.
<b>Procedure</b> Continuous masking by overlapping each previously applied strip, starting at first area to be sprayed.
<b>Protective sheeting</b> Dust sheets (lightweight, protective backing, heavy duty), polythene sheets, tarpaulin, drop sheets.

<b>Learning outcome</b>
The learner will:

2. be able to prepare work areas by protecting adjacent surfaces, furniture and fittings.
<b>Assessment criteria</b>
The learner can: 2.1 prepare work areas ready for spray painting 2.2 select <b>protective materials</b> and equipment to protect adjacent surfaces, furniture and fittings 2.3 position and fix <b>protective materials</b> 2.4 set up adequate Local Extract Ventilation (LEV) and natural ventilation for work area.

<b>Range</b>
<b>Protective materials</b> Masking paper, masking machine, masking shield, dust sheets (lightweight, protective backing, heavy duty), self-adhesive, masking paper, drop sheets, polythene sheets, tarpaulin.

<b>Learning outcome</b>
The learner will: 3. understand how to select components and produce a working airless spray unit.
<b>Assessment criteria</b>
The learner can: 3.1 explain why airless system would be selected in preference to a High Volume Low Pressure HVLP system 3.2 explain the advantages and disadvantages of using airless equipment 3.3 state the function of each of airless equipment <b>component</b> 3.4 explain the assembly sequence of component parts to produce a working unit 3.5 explain the adjustment procedures to ensure correct spray application 3.6 state the function of the <b>ancillary components</b> 3.7 state <b>health and safety issues</b> when working with airless systems.

<b>Range</b>
<b>Component</b> Fluid pumps (electrically driven or pneumatically driven), pump filters, gravity feed hopper and filter, suction feed tube and filter, fluid line, whip-end (where applicable), gun, gun in-line filter, trigger locking device, trigger guard, fluid tips, tip safety guard.
<b>Ancillary components</b> Extension pole, pole gun, swivel head fluid tip, roller frame, roller sleeve.
<b>Health and safety issues</b> Personal Protective Equipment (PPE), Respiratory Protective Equipment (RPE), Health and Safety at Work Act, inhalation (of overspray), eye irritation, ingestion, COSHH regulations.

<b>Learning outcome</b>
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The learner will: 4. be able to select components and produce a working airless spray unit.
<b>Assessment criteria</b>
The learner can: 4.1 select <b>component parts</b> for the spray system type for spray application 4.2 assemble <b>component parts</b> to produce a working airless unit 4.3 load paint material used in an airless spray unit 4.4 test and adjust airless spray unit for correct application.

<b>Range</b>
<b>Component parts</b> Fluid pumps (electrically driven or pneumatically driven), pump filters, gravity feed hopper and filter, suction feed tube and filter, fluid line, whip-end (where applicable), gun, gun in-line filter, trigger locking device, trigger guard, fluid tips, tip safety guard.

<b>Learning outcome</b>
The learner will: 5. understand how to apply water-borne coatings by airless spray.
<b>Assessment criteria</b>
The learner can: 5.1 explain the importance of correct material viscosity and how to adjust and check <b>airless equipment</b> in relation to temperature 5.2 explain the importance of maintaining viscosity of batches 5.3 explain problems which may arise from using unstrained paint 5.4 explain the importance of using <b>application techniques</b> correctly 5.5 explain the terms Wet Film Thickness (WFT) and Dry Film Thickness (DFT) and how they affect surface protection 5.6 explain the effects of temperature, humidity and ventilation on the viscosity and drying process of surface coatings 5.7 identify the appropriate PPE and RPE for applying paint by airless spray.

<b>Range</b>
<b>Application techniques</b> Distance adjustment, speed of movement, parallel movement, triggering, internal corners, pipework, external corners (stripe coat), other surface obstructions.  <b>Airless equipment</b> Viscometer (Ford Cup), ratio stick.

**Learning outcome**

The learner will:

6. be able to prepare and apply water-borne coatings by airless spray.

**Assessment criteria**

The learner can:

- 6.1 prepare **paint materials** by using viscometer (ford cup) and ratio stick to establish appropriate viscosity
- 6.2 select **equipment** required to apply surface coatings
- 6.3 apply paint to **surface areas** using airless system without **defects**
- 6.4 use correct **application techniques** when applying coatings by airless spray
- 6.5 demonstrate safe temporary shutdown procedures to make adjustments for spraying
- 6.6 check for Wet Film Thickness (WFT) where appropriate
- 6.7 follow current **environmental and health and safety regulations**.

**Range****Paint materials**

Using viscometer (Ford Cup) and ration stick.

**Equipment**

Loaded and ready to use airless system, Wet Film Thickness (WFT) gauge, Dry Film Thickness (DFT) gauge, masking shield, PPE/RPE.

**Surface coatings**

Water-borne (for interior and exterior use): paints, stains, preservatives and varnishes.

**Defects**

Runs, sags, dry spray, banding, overspray, orange peel.

**Application techniques**

Distance adjustment, speed of movement, parallel movement, triggering, stripe coating (external corners)

**Environmental and health and safety regulations**

Personal Protective Equipment (PPE), Respiratory Protective Equipment (RPE), Health and Safety at Work Act, inhalation (of overspray), eye irritation, ingestion, COSHH regulations.

<b>Learning outcome</b>
The learner will: 7. know how to rectify faults in spray equipment and defects in applied coatings.
<b>Assessment criteria</b>
The learner can: 7.1 explain <b>equipment faults</b> and correction and prevention procedures 7.2 explain <b>material faults</b> and correction and prevention procedures 7.3 explain the causes and remedies of the <b>defects</b> in applied coatings 7.4 define <b>terminology</b> in relation to spray.

<b>Range</b>
<b>Equipment faults</b> Electrical failure, dirty air cap, needle packing, loose, damaged or worn fluid tip or needle, incorrect set-up (fluid tip), fluttering, defective spray patterns, fluid leakage, kinked hoses, spluttering.
<b>Material faults</b> Contamination, incorrect viscosity.
<b>Defects</b> Runs, sags, dry spray, banding, overspray, orange peel.
<b>Terminology</b> Litres per minute, PSI, triggering, arcing, overlapping, spray distance, gun set-up.

<b>Learning outcome</b>
The learner will: 8. be able to rectify equipment faults using rectification procedures.
<b>Assessment criteria</b>
The learner can: 8.1 rectify <b>equipment faults</b> using <b>rectification procedures</b> 8.2 rectify <b>material faults</b> using <b>rectification procedures</b> 8.3 adjust application techniques to ensure a good quality finish.

<b>Range</b>
<b>Equipment faults</b> Electrical failure, , needle packing, loose damaged or worn fluid tip or needle, incorrect set-up (fluid tip), fluttering, defective spray patterns, fluid leakage, kinked hoses, spluttering.
<b>Rectification procedures</b> Shutdown, dismantle, clean, replace, reassemble, set up the system, adjust the system.
<b>Material faults</b> Contamination, incorrect viscosity.

<b>Learning outcome</b>
The learner will: 9. know how to clean, maintain and store airless spray equipment and materials.
<b>Assessment criteria</b>
The learner can: 9.1 state the <b>safety factors</b> to be observed when operating shutdown procedures 9.2 state the correct sequence for cleaning and flushing the airless system be used 9.3 state the requirements for the maintenance and storage of spray equipment 9.4 state the appropriate <b>legislation</b> sources relating to waste disposal.

<b>Range</b>
<b>Safety factors</b> Shut down system, remove container, empty container, flush out container with appropriate thinner, recharge with appropriate thinner, reconnect and restart system, spray through gun to flush, shut down, repeat procedure until flushing thinner is clean, shut down system, disassemble component, clean and dry components, lubricate where required, reassemble, store.
<b>Legislation</b> Health and Safety at Work Act, Environmental Protection Agency (EPA), COSHH, HSE

<b>Learning outcome</b>
The learner will: 10. be able to clean, maintain and store airless spray equipment and materials.
<b>Assessment criteria</b>
The learner can: 10.1 shut down <b>spray equipment</b> safely for cleaning 10.2 empty containers and dispose of <b>materials</b> 10.3 clean interior and exterior surfaces ready for storage 10.4 lubricate component parts 10.5 store spray equipment 10.6 follow current <b>environmental and relevant health and safety regulations</b> .

**Range****Spray equipment**

Gravity feed, suction feed, pressure feed.

**Materials**

Water-borne coatings, solvent, rags, lubricants.

**Environmental and relevant health and safety regulations**

Control of Substances Hazardous to Health (COSHH), Volatile Organic Compounds (VOCs), disposal of waste, cuts and abrasions, dermatitis, dust inhalation, burns, electrical safety, work at heights regulations, risk assessment, Personal Protective Equipment (PPE).



## Unit 331

# Applying water-borne paint systems using High Volume Low Pressure (HVLP) spray equipment

<b>Level:</b>	6
<b>Credit value:</b>	7
<b>Aim:</b>	To provide the learner with the skills and knowledge required to apply water-borne paint systems using High Volume Low Pressure (HVLP) spray equipment

<b>Learning outcome</b>
The learner will: 1. understand how to prepare work areas by protecting adjacent surfaces, furniture and fitting using High Volume Low-Pressure spray equipment (HVLP).
<b>Assessment criteria</b>
The learner can: 1.1 explain <b>factors</b> to consider, when preparing the work area 1.2 identify types and uses of <b>masking tapes</b> 1.3 explain <b>procedures</b> for applying and removing masking tapes 1.4 identify types and uses of <b>protective sheeting</b> 1.5 explain maintenance and storage requirements for <b>protective sheeting</b> types.

<b>Range</b>
<b>Factors</b> Domestic: door and window furniture, wall-mounted fixtures and fittings, air quality within the work area, room furniture, floor coverings. Commercial: workstations, lighting, machinery, equipment, furniture, public access to premises, climate/weather, temperature, air quality within the work area, ventilation, debris.
<b>Masking tapes</b> Exterior, interior, low tack, crepe, 7-day.
<b>Procedure</b> Continuous masking by overlapping each previously applied strip, starting at first area to be sprayed.
<b>Protective sheeting</b> Dust sheets (lightweight, protective backing, heavy duty), polythene sheets, tarpaulin, drop sheets.

<b>Learning outcome</b>
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<p>The learner will:</p> <p>2. be able to prepare work and surrounding areas prior to painting using HVLP spray equipment.</p>
<p><b>Assessment criteria</b></p>
<p>The learner can:</p> <p>2.1 prepare work areas ready for spray painting</p> <p>2.2 select <b>protective materials</b> and equipment to protect adjacent surfaces, furniture and fittings</p> <p>2.3 position and fix <b>protective materials</b></p> <p>2.4 set up adequate Local Extract Ventilation (LEV) and natural ventilation for work area.</p>

<p><b>Range</b></p>
<p><b>Protective materials</b></p> <p>Masking paper, masking machine, masking shield, dust sheets (lightweight, protective backing, heavy duty), self-adhesive, masking paper, drop sheets, polythene sheets, tarpaulin.</p>

<p><b>Learning outcome</b></p>
<p>The learner will:</p> <p>3. understand how to set up HVLP spray equipment to prepare materials for spray application.</p>
<p><b>Assessment criteria</b></p>
<p>The learner can:</p> <p>3.1 justify reasons for choosing <b>spray system types</b></p> <p>3.2 explain the advantages and disadvantages of using HVLP spray gun equipment</p> <p>3.3 explain the function of the <b>HVLP spray gun equipment components</b></p> <p>3.4 explain the function of <b>pressure pot components</b></p> <p>3.5 explain the function of <b>components parts</b></p> <p>3.6 explain the assembly sequence of <b>component parts</b> to produce a working unit</p> <p>3.7 explain the adjustment procedures to ensure correct spray application</p> <p>3.8 explain why an air pressure check at the nozzle is required</p> <p>3.9 explain <b>health and safety issues</b> when working with HVLP systems.</p>

<p><b>Range</b></p>
<p><b>Spray systems types</b></p> <p>Air spray High Volume Low Pressure (HVLP) gravity feed, suction feed, pressure feed.</p>
<p><b>HVLP spray gun equipment components</b></p> <p>Spray gun body, air inlet connector, air valve, trigger, air baffle, air cap, fluid needle, fluid tip, fluid needle packing, spreader control valve (where appropriate), fluid needle adjuster.</p>
<p><b>Pressure pot components</b></p> <p>Container, lid, clamps, seal, air inlet valve, pressure regulator, pressure</p>

gauge, safety valve, fluid delivery tube, fluid outlet valve (where applicable).

**Component parts**

Spray guns, air hoses, compressor, pressure pot, transformer

**Health and safety issues**

Personal Protective Equipment (PPE), Respiratory Protective Equipment (RPE), Health and Safety at Work Act, inhalation (of overspray), eye irritation, ingestion, COSHH regulations.

**Learning outcome**

The learner will:

- 4. be able to apply water-borne coatings by HVLP spray.

**Assessment criteria**

The learner can:

- 4.1 prepare paint materials by using viscometer (Ford cup) and ratio stick to establish appropriate viscosity
- 4.2 prepare paint materials by straining
- 4.3 select **equipment** required to apply **surface coatings**
- 4.4 set up the HVLP system to apply **surface coatings** without **defects**
- 4.5 use correct **application techniques** when applying water-borne coatings by HVLP spray
- 4.6 demonstrate safe temporary shutdown procedures to make adjustments for spraying
- 4.7 check for Wet Film Thickness (WFT) where appropriate
- 4.8 follow current **environmental and health and safety regulations**.

<p><b>Range</b></p>
<p><b>Equipment</b> Loaded and ready to use HVLP system, Wet Film Thickness (WFT) gauge, Dry Film Thickness (DFT) gauge, masking shield, PPE/RPE.</p>
<p><b>Surface coatings</b> Water-borne: paints, stains, preservatives and varnishes, interior and exterior use.</p>
<p><b>Defects</b> Runs, sags, dry spray, banding, overspray, orange peel.</p>
<p><b>Application techniques</b> Distance adjustment, speed of movement, parallel movement, triggering, stripe coating (external corners)</p>
<p><b>Environmental and relevant health and safety regulations</b> Control of Substances Hazardous to Health (COSHH), Volatile Organic Compounds (VOCs), disposal of waste, cuts and abrasions, dermatitis, dust inhalation, burns, electrical safety, work at heights regulations, risk assessment, Personal Protective Equipment (PPE).</p>

<p><b>Learning outcome</b></p>
<p>The learner will: 5. understand how to rectify faults in spray equipment and defects in applied coatings.</p>
<p><b>Assessment criteria</b></p>
<p>The learner can: 5.1 explain <b>equipment faults</b> and correction and prevention procedures 5.2 explain <b>material faults</b> of contamination and incorrect correction and prevention procedures 5.3 explain the causes and remedies of the <b>defects</b> in applied coatings 5.4 define <b>terminology</b> in relation to spray.</p>

<p><b>Range</b></p>
<p><b>Equipment faults</b> electrical failure, dirty air cap, needle packing, loose, damaged or worn fluid tip or needle, incorrect set-up (fluid tip), fluttering, defective spray patterns, fluid leakage, kinked hoses, spluttering.</p>
<p><b>Material faults</b> Contamination, incorrect viscosity.</p>
<p><b>Defects</b> Runs, sags, dry spray, banding, overspray, orange peel.</p>
<p><b>Terminology</b> Litres per minute, PSI, triggering, arcing, overlapping, spray distance, gun set-up.</p>

<b>Learning outcome</b>
The learner will: 6. be able to rectify faults in spray equipment and defects in applied coatings.
<b>Assessment criteria</b>
The learner can: 6.1 rectify <b>equipment faults</b> using <b>rectification procedures</b> 6.2 rectify <b>material faults</b> using <b>rectification procedures</b> 6.3 adjust application techniques to ensure that good quality finish.

<b>Range</b>
<b>Equipment faults</b> Electrical failure, dirty air cap, needle packing, loose damaged or worn fluid tip or needle, incorrect set-up (fluid tip), fluttering, defective spray patterns, fluid leakage, kinked hoses, spluttering.
<b>Rectification procedures</b> Shutdown, dismantle, clean, replace, reassemble, set up the system, adjust the system.
<b>Material faults</b> Contamination, incorrect viscosity.

<b>Learning outcome</b>
The learner will: 7. know how to clean, maintain and store HVLP spray equipment and materials.
<b>Assessment criteria</b>
The learner can: 7.1 state the safety factors to be observed when operating shutdown procedures 7.2 state the correct sequence for <b>cleaning and flushing</b> the HVLP system used 7.3 state the requirements for the maintenance and storage of spray equipment 7.4 state appropriate <b>legislation</b> sources relating to waste disposal.

<b>Range</b>
<b>Cleaning and flushing</b> Shut down system, remove container, empty container, flush out container with appropriate thinner, recharge with appropriate thinner, reconnect and restart system, spray through gun to flush, shut down, repeat procedure until flushing thinner is clean, shut down system, disassemble component, clean and dry components, lubricate where required, reassemble, store.
<b>Legislation</b> Health and Safety at Work Act, Environment Agency, COSHH, HSE.

<b>Learning outcome</b>
The learner will: 8. be able to clean, maintain and store HVLP spray equipment and materials.
<b>Assessment criteria</b>
The learner can: 8.1 shut down the <b>spray equipment</b> safely for cleaning 8.2 empty containers and dispose of <b>materials</b> 8.3 clean interior and exterior surfaces ready for storage 8.4 lubricate component parts 8.5 store spray equipment 8.6 follow current <b>environmental and relevant health and safety regulations</b> .

<b>Range</b>
<b>Spray equipment</b> Gravity feed, suction feed, pressure feed.
<b>Materials</b> Water-borne coatings, solvent, rags, lubricants.
<b>Environmental and relevant health and safety regulations</b> Control of Substances Hazardous to Health (COSHH), Volatile Organic Compounds (VOCs), disposal of waste, cuts and abrasions, dermatitis, dust inhalation, burns, electrical safety, work at heights regulations, risk assessment, Personal Protective Equipment (PPE).



## 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](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 candidates
- Non-compliance
- Complaints and appeals
- Equal opportunities
- Data protection
- Management systems
- Maintaining records
- Assessment
- Internal quality assurance
- External quality assurance.

**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.

## Useful contacts

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**International learners**

General qualification information

E: [intcg@cityandguilds.com](mailto:intcg@cityandguilds.com)

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**Centres**

Exam entries, Certificates,  
Registrations/enrolment, Invoices,  
Missing or late exam materials,  
Nominal roll reports, Results

E: [centresupport@cityandguilds.com](mailto:centresupport@cityandguilds.com)

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**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](mailto:singlesubjects@cityandguilds.com)

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**International awards**

Results, Entries, Enrolments,  
Invoices, Missing or late exam  
materials, Nominal roll reports

E: [intops@cityandguilds.com](mailto:intops@cityandguilds.com)

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**Walled Garden**

Re-issue of password or username,  
Technical problems, Entries,  
Results, e-assessment, Navigation,  
User/menu option, Problems

E: [walledgarden@cityandguilds.com](mailto:walledgarden@cityandguilds.com)

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**Employer**

Employer solutions, Mapping,  
Accreditation, Development Skills,  
Consultancy

E: [business@cityandguilds.com](mailto:business@cityandguilds.com)

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**Publications**

Logbooks, Centre documents,  
Forms, Free literature

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[feedbackandcomplaints@cityandguilds.com](mailto:feedbackandcomplaints@cityandguilds.com)



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### **City & Guilds Group**

The City & Guilds Group is a leader in global skills development. Our purpose is to help people and organisations to develop their skills for personal and economic growth. Made up of City & Guilds, City & Guilds Kineo, The Oxford Group and ILM, we work with education providers, businesses and governments in over 100 countries.

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