



National Unit specification: general information

Unit title: Painting and Decorating: Airless Spraying and Ancillary Equipment (SCQF level 6)

Unit code: H0HG 12

Superclass: TG

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Summary

This Unit is suitable for candidates working towards a Modern Apprenticeship in Painting and Decorating and will develop the candidate's craft skills in airless spraying techniques. This Unit is designed to provide candidates with the competences to select, set up and use airless pumps, guns and ancillary equipment. The candidates will also be able transfer these skills to the workplace. It is also designed to instil safe use of this equipment within the candidate and develop their application techniques. This Unit will enable candidates to develop their understanding and use of painting and decorating terminology, equipment, techniques and practices to apply coatings. Problem solving will be an endemic part of the Unit as candidates learn to troubleshoot (diagnose and prescribe remedies) for, setting up, equipment and application faults.

Outcomes

- 1 Demonstrate knowledge and understanding of airless spraying and ancillary equipment.
- 2 Prepare for the application of coatings by airless spray gun.
- 3 Prepare for the application of coatings by airless spray ancillary equipment.
- 4 Apply coatings by airless spray and ancillary equipment.

Recommended entry

While entry is at the discretion of the centre, candidates undertaking the Professional Development Award in Painting and Decorating at SCQF level 6 must meet the requirements of the Modern Apprenticeship which include being employed in the relevant craft industry.

General information (cont)

Unit title: Painting and Decorating: Airless Spraying and Ancillary Equipment (SCQF level 6)

Credit points and level

2 National Unit credits at SCQF level 6: (12 SCQF credit points at SCQF level 6*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Core Skills

Achievement of this Unit gives automatic certification of the following:

Complete Core Skill	None
Core Skill component	Critical Thinking @ SCQF level 5

There are also opportunities to develop aspects of Core Skills which are highlighted in the Support Notes of this Unit Specification.

National Unit specification: statement of standards

Unit title: Painting and Decorating: Airless Spraying and Ancillary Equipment (SCQF level 6)

Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

Outcome 1

Demonstrate knowledge and understanding of airless spraying and ancillary equipment.

Performance Criteria

- (a) Explain the basic working principles of an airless pump correctly.
- (b) Describe the advantages of using airless spray systems.
- (c) Identify the component parts of an airless spray gun and state their function correctly.
- (d) Identify and correctly describe the function of ancillary equipment used with the airless spray system.
- (e) Explain the risk factors involved when using airless spray.
- (f) Explain the causes of, and remedies for airless spray equipment and application faults.

Outcome 2

Prepare for the application of coatings by airless spray gun.

Performance Criteria

- (a) Select and prepare materials for application by airless spray correctly.
- (b) Mask, and/or shield, and de-mask all appropriate areas prior to and after airless spraying.
- (c) Check airless equipment for damage prior to use.
- (d) Set up, use, dismantle, clean, maintain and store airless pump, fluid hose and gun correctly.

Outcome 3

Prepare for the application of coatings by airless spray ancillary equipment.

Performance Criteria

- (a) Select and prepare materials for application by airless spray ancillary equipment – pole gun and airless fed roller (either internal fed or external fed).
- (b) Mask, and/or shield, and de-mask all appropriate areas prior to and after airless spraying.
- (c) Check airless equipment for damage prior to use.
- (d) Set up, use, dismantle, clean, maintain and store airless pump, fluid hose and ancillary equipment correctly.

National Unit specification: statement of standards (cont)

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Outcome 4

Apply coatings by airless spray and ancillary equipment.

Performance Criteria

- (a) Apply coatings by airless spray guns to the given specification and standards.
- (b) Apply coatings by pole gun and airless fed roller (internal fed or external fed) ancillary equipment to the given specification and standards.
- (c) Comply with current health and safety requirements during all work methods and activities.

Evidence Requirements for this Unit

These Evidence Requirements will be met by the completion of the Painting and Decorating Training and Assessment Programme (TAP).

Evidence is required to demonstrate that the candidate has achieved this Unit to the standard specified in all Outcomes and Performance Criteria.

Written and/or oral evidence is required to demonstrate that the candidate has achieved Outcomes 1 and 2 to the standards required in the Performance Criteria. Candidates will be required to demonstrate their knowledge of:

- ◆ Airless spray systems, including; identify and correctly state the function of trigger guard, trigger lock, trigger, reversible tip and tip guard.
- ◆ Ancillary equipment, including; identify and correctly state the function of pole guns and airless external fed rollers and internal fed rollers.
- ◆ Risk factors, including injection injury and the need to earth equipment through anti-static wires, safety mechanisms and risk assessments.
- ◆ Troubleshooting, equipment and coating faults.

This assessment will be through a question paper and conducted under closed-book, controlled, supervised conditions. However, to encourage safety, the use of equipment operating/safe handling manuals can be used by candidates when answering troubleshooting questions.

Product and performance evidence is required to demonstrate that the candidate has achieved Outcomes 2, 3 and 4 to the standards specified in the Performance Criteria. The candidates will be required to complete three spraying tests. The tests will require that the candidates use an airless gun, a spray pole gun and a spray fed roller (either external or internal fed) to given specifications and standards. Assessment of these Outcomes will be evidenced through observation of work processes and assessment of the completed pieces of work. Candidates must meet the given standards and tolerances during the practical assessments. An assessor observation checklist must be used to record this evidence. Assessment should be conducted under controlled, supervised conditions.

National Unit specification: statement of standards (cont)

Unit title: Painting and Decorating: Airless Spraying and Ancillary Equipment (SCQF level 6)

Summary of standards (working towards industrial tolerances)	
Item	Measurement of standard
Prepares materials for spraying with airless equipment	Paint materials mixed in compliance with manufacturer's instructions Material mixed, decanted, strained and thinned correctly
Protects surfaces for spraying operations	Immediately adjacent surfaces masked and/or shielded Masking tape finished to correct position and firmly fixed Masking paper and /or film correctly used where required De-masking on completion of spraying operations without damage to the surface No overspray evident on adjacent surfaces
Checks airless equipment for damage prior to use	Checks fluid hose for damage free from, bulges kinks fraying etc, checks pump and guns for damage prior to use
Set up equipment correctly and safely	Connects hose and guns to correct torque Sets up correct spraying pressure free from tailing
Spraying application technique meets required standard	Even coating applied with minimum evidence of the following defects: <ul style="list-style-type: none"> ◆ runs and sags ◆ dry misty coating ◆ arcing ◆ banding ◆ orange peel ◆ misses
Health and safety requirements met under current regulations	Complies at all times Correct PPE selected and worn Local exhaust ventilation (LEV) must be used, if applicable.
Risk assessment	Safety boots worn at all times Overalls worn at all times Safety glasses worn at all times Particulate respirators worn during all spraying operations Gloves worn Equipment used correctly at all times Equipment cleaned and stored safely after all spraying operations

National Unit specification: support notes

Unit title: Painting and Decorating: Airless Spraying and Ancillary Equipment (SCQF level 6)

This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 80 hours.

Guidance on the content and context for this Unit

This Unit has been developed as a mandatory Unit in the Professional Development Award in Painting and Decorating at SCQF level 6.

The successful completion of this Unit will provide candidates with the required underpinning knowledge to set up, use and clean airless spray equipment and ancillary equipment correctly and safely.

The Unit should be offered to candidates from the construction and related or similarly structured industries, and the skills are transferable within different working environments. The Unit is primarily aimed at candidates whose normal place of work would be a site, workshop, or similar type of work environment.

This Unit will deal with the preparation of candidates for the completion of three spraying tests using airless spray gun, pole gun and internal or external fed roller equipment. It should be delivered as part of a structured programme of training and orientated to the context of the candidate's work area of responsibility.

Health and safety and sustainability are integral and key to the construction industry, therefore, throughout the Unit, emphasis will be placed where appropriate on the application of health and safety and sustainability. Safety working practices should be looked at in accordance with current safety codes of practice and regulation. Sustainability should include reference to the criteria of affecting sustainability, the impact of not implementing sustainability on the environment and the legislation promoting sustainability.

Guidance on learning and teaching approaches for this Unit

Safe use of the equipment should be instilled within the candidate from the outset and constantly reinforced. Candidates should be encouraged to read and use the equipment safe operating manuals. Checking of equipment prior to use should be encouraged throughout the Unit. The candidates should be given every opportunity to practice spraying application techniques with airless equipment through the initial tasks and/or naturally occurring practical projects in order that they can successfully achieve the standards specified in all spraying tests.

Knowledge of the working principles of the equipment should be developed by the candidate. The method of how to set the pressure safely should be reinforced continuously and faults with too high or too low pressure should be highlighted. Equipment faults and their remedies (troubleshooting) should also be a significant part of the teaching approach and whether faults can be remedied by the operative (on site) or whether the faults need to be rectified by a specialised spray equipment service engineer.

National Unit specification: support notes (cont)

Unit title: Painting and Decorating: Airless Spraying and Ancillary Equipment (SCQF level 6)

The use of solvent borne and/or water borne paint coatings is at the discretion of the delivery centre, however, candidates must demonstrate knowledge of cleaning airless spray systems after use with both solvent and water based coatings.

Opportunities should be taken throughout the delivery of this Unit to meet the requirements of the generic Units of the Training and Assessment Programme including:

- ◆ *Conform to General Workplace Health, Safety and Welfare*
- ◆ *Confirm Work Activities and Resources for the Work*
- ◆ *Develop and Maintain Good Working Relationships*
- ◆ *Confirm the Occupational Method of Work*
- ◆ *Conform to Productive Working Practices*
- ◆ *Move Handle or Store Resources*

Guidance on approaches to assessment for this Unit

Detailed assessment material for this Unit will be found in section 6 of the Painting and Decorating Training and Assessment Programme (TAP). Centres may use the instruments of assessment which they consider to be most appropriate but are advised to use the TAP which has been developed centrally by SQA. Any other instruments of assessment used must be comparable to the TAP and have been through prior verification.

The candidate's knowledge and understanding of terminology and airless spray systems will be assessed through a question paper.

Candidates should be given as much practice in spraying application techniques, prior to being set the assessment. Practical setting up of the equipment safely should be reinforced. Evidence will be gathered for Outcomes 3 and 4 through observation that the candidates have met the given standards and tolerances during the practical assessment. An assessor observation checklist should be used to record this evidence.

Opportunities for the use of e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

National Unit specification: support notes (cont)

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Opportunities for developing Core Skills

The Core Skill of *Problem Solving* could be developed as candidates undertake this Unit. Candidates will need to take account of a range of factors in order to work efficiently and safely, such as the choice of tools, appropriate materials, safety issues, safety equipment and sustainability. Individual discussions with assessors will enhance the evaluation of efficient working practices.

There are opportunities to develop the Core Skill of *Working with Others* at SCQF level 4. Outcome 4 will give the candidates opportunities to work with others as they plan and set out work surfaces, requisition equipment, and check equipment. They will also be required to work in groups to set up, clean dismantle and store equipment after use. The candidates will also work in groups completing risk assessments. Candidates can agree responsibilities and provide support and information to each other during the assessments. After assessment, they should be encouraged to consider how effectively they supported each other.

There could be opportunities for candidates to develop the Core Skill of *Communication* at SCQF level 4. Candidates will have the opportunity to develop written and/or communication skills for the knowledge part of the assessment in covering Outcomes 1 and 2.

The Core Skill of *Information and Communication Technology (ICT)* at SCQF level 3 will be developed by candidates researching Health and Safety legislation affecting their area of work and by visiting sites related to airless spraying equipment.

Numeracy at SCQF level 4 could be developed as the candidates work through the Outcome 2 completing the calculations.

This Unit has the Critical Thinking component of Problem Solving embedded in it. This means that when candidates achieve the Unit, their Core Skills profile will also be updated to show they have achieved Critical Thinking at SCQF level 5.

Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements

History of changes to Unit

Version	Description of change	Date

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