

## Overview

This standard is about spraying concrete to prepared substrate, interpreting information, adopting safe, healthy and environmentally responsible work practices, and selecting materials, components and equipment

This standard is for people working independently or in a team in specialist concrete occupations particularly those involved in sprayed concrete operations, as nozzle or pump operator, and can be used by operatives, supervisors and managers

## Performance criteria

- You must be able to:*
- P1 interpret the given information relating to the work and resources to confirm its relevance
  - P2 comply with the given, relevant legislation and official guidance to carry out your work and maintain safe and healthy work practices
  - P3 select the required quantity and quality of resources for the methods of work
  - P4 comply with organisational procedures to minimise the risk of damage to the work and surrounding area
  - P5 comply with the given contract information to carry out the work efficiently to the required specification
  - P6 complete the work within the allocated time, in accordance with the programme of work

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## Knowledge and understanding

*You need to know and understand:* **Performance Criteria 1**

### **Interpretation of information**

K1 the organisational procedures developed to report and rectify inappropriate **information** and unsuitable **resources**, and how they are implemented

K2 the types of **information**, their source and how they are interpreted

K3 the organisational procedures to solve **problems** with the **information** and why it is important they are followed

### **Performance Criteria 2**

#### **Safe work practices**

K4 the level of understanding operatives must have of **information** for relevant, current **legislation and official guidance** and how it is applied

K5 the types of **fire extinguishers** and how and when they are used

K6 how **emergencies** should be responded to and who should respond

K7 the organisational **security procedures** for tools, equipment and personal belongings

K8 what the accident reporting procedures are and who is responsible for making the report

K9 why, when and how **health and safety control equipment** should be used

K10 how to comply with environmentally responsible work practices to meet the requirements of current **legislation and official guidance**

### Performance Criteria 3

#### Selection of resources

K11 the characteristics, quality, uses, sustainability, limitations and defects associated with the **resources** and how defects should be rectified

K12 how the **resources** should be used and how any **problems** associated with the **resources** are reported

K13 the organisational procedures to select **resources**, why they have been developed and how they are used

K14 the **hazards** associated with the **resources** and **methods of work** and how they are overcome

### Performance Criteria 4

#### Minimise the risk of damage

K15 how to **protect work** from damage and the purpose of protection

K16 why **disposal of waste** should be carried out safely and how it is achieved

### Performance Criteria 5

#### Meet the contract specification

K17 how **methods of work**, to meet the specification, are carried out and **problems** reported

K18 how **maintenance** of tools and equipment is carried out

### Performance Criteria 6

#### Allocated time

K19 what the **programme** is for the work to be carried out in the estimated, allocated time and why deadlines should be kept

**Scope/range****Performance Criteria 1**

1 interpretation of drawings, specifications, schedules, method statements, risk assessments and manufacturers' information related to the work to be carried out

**Performance Criteria 2**

2 avoidance of risk by complying with the given information relating to the following

2.1 methods of work

2.2 safe use of health and safety control equipment

2.3 safe use of access equipment

2.4 safe use, storage and handling of materials, tools and equipment

2.5 specific risks to health relating to operatives and other personnel

**Performance Criteria 3**

3 selection of resources associated with own work

3.1 materials, components and fixings

3.2 tools and equipment

**Performance Criteria 4**

4 protection of the work and its surrounding area from damage

5 maintain a clear and tidy work space

6 disposal of waste in accordance with current legislation

### **Performance Criteria 5**

- 7 demonstration of work skills to measure, mark out, assemble, check, prepare, finish, cure, protect, test, record and report
- 8 use and maintain concrete spraying machinery and compressor, hand tools, portable power tools and ancillary equipment
- 9 apply sprayed concrete by wet and/or dry methods to given working instructions for at least five of the following
  - 9.1 pre wet surfaces for spraying
  - 9.2 spray concrete to profile
  - 9.3 produce samples for testing
  - 9.4 cure and protect concrete
  - 9.5 record and report on test
  - 9.6 record and report on spraying
  - 9.7 operate spraying nozzle
  - 9.8 operate pump
  - 9.9 clean pump
  - 9.10 clear lines

### **Performance Criteria 6**

- 10 safe completion of own work within the estimated, allocated time to meet the needs of other occupations and/or client

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**Scope/range related  
to knowledge and  
understanding**

**Disposal of waste**

1 environmental responsibilities, organisational procedures, manufacturers' information, statutory regulations and official guidance

**Emergencies**

2 operative's response to situations in accordance with organisational authorisation and personal skills when involved with

2.1 fires, spillages, injuries

2.2 emergencies relating to occupational activities

**Fire extinguishers**

3 water, CO<sub>2</sub>, foam, powder and their uses

**Hazards**

4 those identified by Control of Substances Hazardous to Health (COSHH), risk assessments, methods of work, manufacturers' technical information, statutory regulations and official guidance

**Health and safety control equipment**

5 identified by the principles of prevention for occupational use, types and purpose of each type, work situations and general work environment

5.1 collective protective measures

5.2 local exhaust ventilation (LEV)

5.3 personal protective equipment (PPE)

5.4 respiratory protective equipment (RPE)

**Information**

6 drawings, specifications, current legislation, schedules, method statements, risk assessments, work instructions, electronic data, manufacturers' information, official guidance and current regulations associated with applying sprayed concrete

### **Legislation and official guidance**

7 this relates to the operative's responsibilities regarding duty of care legislation, potential accidents, health hazards and the environment whilst working in the workplace, below ground level, in confined spaces, at height, with tools and equipment, with materials and substances, with movement and storage of materials by manual handling and mechanical lifting

### **Maintenance**

8 operative care of concrete spraying machinery and compressors, hand tools, portable power tools and ancillary equipment

### **Methods of work**

9 application of knowledge for safe and healthy work practices, procedures and skills relating to the method and area of work and materials used to

9.1 identify and follow the application quality requirements

9.2 assemble and check spray equipment (wet and/or dry application)

9.3 prepare substrates including wetting, depth guides and protection measures

9.4 include and accommodate cathodic protection materials

9.5 maintain protection against overspray and rebounding materials

9.6 set up spray and pumping equipment

9.7 operate robotic spraying equipment

9.8 operate hand-held spraying equipment

9.9 spray in layers to agreed profile and depth

9.10 apply specified finish

9.11 cure and protect concrete

9.12 provide samples for testing concrete (compression, tension, consistency and workability)

9.13 record and report

9.14 recognise and determine when specific skills and knowledge are required and report accordingly

9.15 operate spraying machines, compressors and pumps

9.16 maintain spraying machines, nozzles, hoses, compressors and pumps during operations



- 9.17 understand the specific requirements for structures of special interest, traditional build (pre 1919) and historical significance
- 9.18 work with, around and in close proximity to plant and machinery
- 9.19 use hand tools, portable power and pneumatic tools and equipment
- 9.20 work at height
- 9.21 use access equipment
- 10 team work and communication
- 11 needs of other occupations associated with applying sprayed concrete

### **Problems**

- 12 those arising from information, resources and methods of work
- 12.1 own authority to rectify
- 12.2 report unsafe work practices and environment
- 12.3 organisational reporting procedures

### **Programme**

- 13 types of progress charts, timetables and estimated times
- 14 organisational procedures for reporting circumstances which will affect the work programme

### **Protect work**

- 15 protect work against damage from general workplace activities, other occupations and adverse weather conditions

### **Resources**

- 16 materials, components and equipment relating to types, quantity, quality, sizes and the sustainability of standard and/or specialist
  - 16.1 pre-blended bagged materials, sand, aggregate, cements, water, additives, admixtures, structural concrete, curing membranes
  - 16.2 working platforms
  - 16.3 hand tools, portable power or pneumatic tools, spraying and testing equipment and ancillaries
- 17 confirm resources and materials conform with the specification
- 18 methods of calculating quantity, length, area, volume and wastage associated with the method and procedure to apply sprayed concrete

### **Security procedures**

- 19 site, workplace, company, vehicles and operative

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