

## **Unit 15 Monitoring reinstatement of concrete slabs**

This unit covers the requirements that you must meet when monitoring the reinstatement of concrete slabs. **You must ensure that you act in accordance with all current specifications and procedures and that you follow safe working practices at all times when carrying out the activities covered in this unit. The Code of Practice specified in this unit is *Specification for the Reinstatement of Openings in Highways*.**

The unit contains the following two elements, which you must cover:

- 15.1 Monitor reinstatement of concrete slabs
- 15.2 Monitor site safety

In element 15.1, you will monitor the reinstatement of concrete slabs, ensuring that the materials and equipment selected are appropriate to the operation and the site location and conditions. You will check that defects in the sub-base are identified and rectified, and that adequate preparation is undertaken in respect of slab edges, reinforcement and dowel bars. You will ensure that the concrete slab is correctly constructed, and you must make the appropriate checks and assessments of the construction and the finished surface. Where you identify any problems with the reinstatement of the slab, you must show that you know the appropriate remedial action to be taken.

In element 15.2, you will monitor site safety throughout the reinstatement of concrete slabs, ensuring that health and safety requirements are met in respect of site operations and site conditions. You will need to ensure that the appropriate equipment is available on site, in sound working condition, and that safe working practices are followed throughout the operation. You must show that you know what action must be taken to remedy any risks to site safety.

# Unit 15 Monitoring reinstatement of concrete slabs

## Element 15.1 Monitor reinstatement of concrete slabs

Performance criteria	
<p>You must show that:</p> <ul style="list-style-type: none"> <li>a) you ensure that the <b>materials</b> and <b>equipment</b> selected for use are suitable to the prescribed operation and the site conditions</li> <li>b) you ensure that the sub-base is checked for uniformity and that defects identified in the sub-base are made good as necessary using the appropriate sub-base materials</li> <li>c) you check that the slip membrane has been positioned, that the slab edges have been prepared and that dowel bars and reinforcement are fixed correctly, using the appropriate <b>materials</b> and <b>equipment</b></li> <li>d) you monitor the construction of the slab, checking the use of concrete, the degree of compaction, the air entrainment and the joints, ensuring that the finish is laid to the permitted tolerances and textured to match the existing surface, and you check the use of a curing membrane</li> <li>e) you ensure that <b>safe working practices</b> are followed for reinstating concrete slabs, that are in accordance with the current relevant <b>specifications and procedures</b></li> <li>f) you identify any problems with the reinstatement of the concrete slabs and demonstrate that you know the appropriate remedial action to be taken</li> </ul>	
Knowledge requirements	Related performance criteria
<p>You need to know:</p>	
1 the types of roads on which the operation could be carried out (including Type 0-4 concrete and bituminous overlaid concrete roads and commercial vehicle crossings)	a
2 the factors influencing the selection of materials and equipment for reinstating concrete slabs (including the specification options for concrete slabs, quality control of ready mix and site-mixed concrete, the position and spacing of dowel bars and reinforcement, methods of curing concrete and the treatment of commercial vehicle access)	a
3 potential defects in the sub-base, how to identify them and the appropriate materials to use to rectify them	b
4 appropriate procedures for positioning the slip membrane and preparing slab edges and how to check that this is done correctly	c
5 appropriate procedures for fixing dowel bars and reinforcement and how to check that this is done correctly	c
6 appropriate methods of constructing the concrete slab and the checks and assessments to carry out to ensure construction is correct	d
7 the different types of joints that are used in constructing concrete slabs and requirements for their correct construction (including longitudinal and transverse joints – contraction, expansion, warping and construction joints, dowel bars and their assembly, tie bars, supporting cradles and prefabricated joint assemblies)	d
8 factors affecting the quality of the finished concrete surface (including visual defects – transverse, longitudinal and random cracking) and the checks to make to ensure this (including profile checks – finished level in respect of surrounding surface and surface texture, concrete cube crushing test, slump test)	d
9 safe working practices for reinstatement of concrete slabs	all
10 problems which occur during the reinstatement of concrete slabs and the appropriate remedial action to take the remedial action to take	f

## Unit 15 Monitoring reinstatement of concrete slabs

### Element 15.1 Monitor reinstatement of concrete slabs

#### Range to be covered

- I. You must show that **materials** include:
  - i. C40 concrete
  - ii. air-entraining additives
  - iii. steel dowel bars
  - iv. reinforcement mesh
  - v. impermeable plastic sheeting (or plastic spray curing agents)
- II. You must show that **equipment** includes:
  - i. appropriate hand tools, including hand tamping beam and bar cutters
  - ii. powered cutting equipment, including powered saw and concrete drills
  - iii. powered compacting equipment
- III. You must show that **safe working practices** include:
  - i. safe use of tools and equipment
  - ii. use of appropriate personal protective equipment, including as necessary:
    - high visibility jacket or waistcoat
    - hard hat
    - ear defenders
    - eye protection visor/goggles
    - dust mask
    - gloves
    - protective footwear
    - waterproof clothing
  - iii. use of risk assessment methods to identify and control any hazards on site
  - iv. precautions to minimise danger or inconvenience to road users
  - v. precautions to minimise danger or inconvenience to site personnel
  - vi. precautions to minimise damage to equipment or apparatus
- IV. You must show that **specifications and procedures** are:
  - i. Health and Safety Executive Guidelines (*HSG 185: Health and Safety in Excavations*)
  - ii. Specification for the Reinstatement of Openings in Highways
  - iii. manufacturer's operating procedures for powered equipment

#### Evidence requirements

- Your evidence must cover all the performance criteria, all the knowledge requirements and all the range items listed in this element.
- You must complete the following tasks for an actual or simulated site situation:
  - A. Monitor selection of materials and equipment.
  - B. Monitor preparations, including the rectification of sub-base defects and the preparation of slab edges, dowel bars and reinforcement.
  - C. Monitor the construction of the concrete slab.

#### Specification of works

- The assessment must take place at a site with physical characteristics that conform to the definition of 'street' at section 48 or 'road' at section 107 of the New Roads and Street Works Act 1991.

#### Assessment conditions

- The assessment will be undertaken by a qualified assessor, who will observe you monitoring the reinstatement of concrete slabs.
- The site at which you are assessed must conform to the specifications listed above. Real equipment must be used, that complies with the requirements of the Code of Practice.
- It is recognised that candidates for this unit are sometimes observed monitoring reinstatement activities as shown on videotape. Where this takes place, the videotape used must meet the following requirements:
  - a) the reinstatement activities shown must conform to the specification detailed above
  - b) the activities shown must allow candidates to carry out all the tasks specified above, and must cover the performance standards for this element in full.
- If you are observed monitoring the reinstatement of sub-base and base (roadbase) as shown on a videotape, you must provide supplementary evidence of competence from the workplace. Where this includes a documented observation report, a qualified Street Works supervisor or assessor must provide this.

## **Unit 15 Monitoring reinstatement of concrete slabs**

### **Element 15.1 Monitor reinstatement of concrete slabs**

#### **Evidence requirements (contd.)**

##### **Additional information for candidates and assessors**

- The adopted specification for the works should correspond to *Specification for the Reinstatement of Openings in Highways*. The following sections of the Specification provide particular guidance on various items within the performance criteria:
  - i. S2.6 Skid resistance of the finished texture, including recommendations on texture depth
  - ii. S7.1.2 Permanent reinstatement of concrete slabs (also see NG7.1)
  - iii. S7.3 Concrete road slab reinstatement, including mix specifications, membrane placement and Joints
  - iv. S7.4 Edge support and preparation, including edge tapering, dowel bars and reinforcements
  - v. S7.5 Reinforcement techniques, including welding, overlapping and wiring to the existing reinforcement
  - vi. S10 Compaction requirements, including of cementitious materials
  - vii. A2.8 Identification of structural layers
  - viii. A9.2 General requirements for ARMs
  - ix. NG3.2 This Note for Guidance refers to HSG 185 (*Health and Safety in Excavations*), which gives guidance to those carrying out excavations

# Unit 15 Monitoring reinstatement of concrete slabs

## Element 15.2 Monitor site safety

Performance criteria	
<p>You must show that:</p> <p>a) you monitor site operations in accordance with health and safety requirements</p> <p>b) you assess site conditions in accordance with health and safety requirements</p> <p>c) you ensure that checks have been carried out to ensure that appropriate <b>safety equipment</b> is available and is fit for purpose</p> <p>d) you ensure that the site is left in a clean and safe condition</p> <p>e) you ensure that <b>safe working practices</b> are followed on site throughout the reinstatement operation, that are in accordance with health and safety requirements and current relevant <b>specifications and procedures</b></p> <p>f) you identify risks to site safety and demonstrate that you know the appropriate remedial action to be taken</p>	
Knowledge requirements	Related performance criteria
<p>You need to know:</p> <p>1 health and safety requirements for site operations</p> <p>2 health and safety requirements for particular site conditions</p> <p>3 the appropriate safety equipment to use during site operations, and how to ensure that it is fit for purpose</p> <p>4 the actions that should be taken to leave the site in a clean and safe condition</p> <p>5 safe working practices on site and for reinstatement of concrete slabs</p> <p>6 potential risks to site safety and the appropriate remedial action to take</p>	
	<p>a</p> <p>b</p> <p>c</p> <p>d</p> <p>e</p> <p>f</p>
Range to be covered	
<p>I. You must show that the following <b>safety equipment</b> is used on site as necessary:</p> <p>i. adequate range of signing, lighting and guarding equipment, including:</p> <ul style="list-style-type: none"> <li>• signs</li> <li>• cones</li> <li>• signals</li> <li>• lamps</li> <li>• barriers</li> </ul> <p>ii. high visibility safety equipment</p> <p>iii. suitable materials to construct ramps</p> <p>II. You must show that <b>safe working practices</b> include:</p> <p>i. safe use of tools and equipment</p> <p>ii. use of appropriate personal protective equipment, including as necessary:</p> <ul style="list-style-type: none"> <li>• high visibility jacket or waistcoat</li> <li>• hard hat</li> <li>• ear defenders</li> <li>• eye protection visor/goggles</li> <li>• dust mask</li> <li>• gloves</li> <li>• protective footwear</li> <li>• waterproof clothing</li> </ul> <p>iii. use of risk assessment methods to identify and control any hazards on site</p> <p>iv. precautions to minimise danger or inconvenience to road users</p> <p>v. precautions to minimise danger or inconvenience to site personnel</p> <p>vi. precautions to minimise damage to equipment or apparatus</p> <p>III. You must show that <b>specifications and procedures</b> are:</p> <p>i. Health and Safety Executive Guidelines (<i>HSG 185: Health and Safety in Excavations</i>)</p> <p>ii. Specification for the Reinstatement of Openings in Highways</p> <p>iii. Safety at Street Works and Road Works – A Code of Practice</p>	

## **Unit 15 Monitoring reinstatement of concrete slabs**

### **Element 15.2 Monitor site safety**

#### **Evidence requirements**

- Your evidence must cover all the performance criteria, all the knowledge requirements and all the range items listed in this element.
- You must provide evidence of monitoring safety on site *throughout* an actual or simulated site situation.

#### **Specification of works**

- The assessment must take place at a site with physical characteristics that conform to the definition of 'street' at section 48 or 'road' at section 107 of the New Roads and Street Works Act 1991.

#### **Assessment conditions**

- The assessment will be undertaken by a qualified assessor, who will observe you monitoring site safety during the reinstatement of concrete slabs.
- The site at which you are assessed must conform to the specifications listed above. Real equipment must be used, that complies with the requirements of the Code of Practice.
- It is recognised that candidates for this unit are sometimes observed monitoring reinstatement activities as shown on videotape. Where this takes place, the videotape used must meet the following requirements:
  - a) the reinstatement activities shown must conform to the specification detailed above
  - b) the activities shown must allow candidates to carry out all the tasks specified above, and must cover the performance standards for this element in full.
- If you are observed monitoring the reinstatement of concrete slabs as shown on a videotape, you must provide supplementary evidence of competence from the workplace. Where this includes a documented observation report, a qualified Street Works supervisor or assessor must provide this.

#### **Additional information for candidates and assessors**

- The adopted specification for the works should correspond to *Specification for the Reinstatement of Openings in Highways, Safety at Street Works and Road Works – A Code of Practice* under the New Roads and Street Works Act 1991 and safe working practices for working with concrete mixing equipment and personal hygiene measures in connection with skin contamination during handling and cutting of reinforcement and dowel bars and handling of concrete.