



National Unit specification: general information

Unit title: Monitoring Reinstatement of Concrete Slabs

Unit code: F93F 04

Superclass: TG

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Version: Second

Credit points and level

1 National Unit credit(s) at SCQF level 6: (1 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.*

Unit Aim

This unit is designed to allow the learner to demonstrate the skills and knowledge required to monitor the reinstatement of concrete slabs. The learner will be able to monitor preparation and construction of concrete slab, and will be able to monitor site safety throughout concrete slab reinstatement.

Learning Outcome 1 Monitor the preparation for concrete slab reinstatement**Assessment criteria:**

- 1.1 ensure that the materials selected for use are identified and checked against the current **specification**
- 1.2 ensure that the **equipment** selected for use is:
 - (a) suitable to the site conditions and materials
 - (b) suitable to the prescribed operation
 - (c) in working condition and safe to use
- 1.3 ensure that sub-base defects are identified and made good using specified **sub-base materials**
- 1.4 ensure that slab edges are prepared according to the **specification** to form a support using steel **dowel bars**
- 1.5 ensure that the slip membrane is positioned according to the **specification**
- 1.6 ensure that slab edge support is provided
- 1.7 ensure that **mesh reinforcement** is fixed according to **specification**
- 1.8 check for any problems with the preparation for **concrete** slab reinstatement and confirm the appropriate action.

Learning Outcome 2 Understand how to monitor the preparation for concrete slab reinstatement**Assessment criteria:**

- 2.1 identify the **type of carriageway** on which the reinstatement of **concrete** slabs is carried out
- 2.2 explain the **factors that influence the selection** of materials and **equipment** for reinstating **concrete** slabs
- 2.3 identify different potential sub-base defects
- 2.4 explain how to rectify different sub base defects
- 2.5 describe the **procedures** for positioning the slip membrane and preparing slab edges
- 2.6 describe the **procedures** for providing taper edge and **dowel bar** support
- 2.7 describe the **procedures** for laying and fixing **mesh reinforcement**
- 2.8 describe potential problems with the preparation for **concrete** slab reinstatement and the appropriate remedial action.

Learning Outcome 3 Monitor the reinstatement of concrete slabs

Assessment criteria:

- 3.1 monitor the construction of the **concrete** slab, checking:
 - (a) replacement of missing or damaged **joints**
 - (b) use of **concrete**
 - (c) degree of compaction
 - (d) air entrainment
- 3.2 ensure that the finish is laid to the permitted tolerances and textured to match the existing surface
- 3.3 check the use of a curing membrane
- 3.4 check for any problems with the reinstatement of **concrete** slabs, and confirm the appropriate action.

Learning Outcome 4 Understand how to monitor the reinstatement of concrete slabs

Assessment criteria:

- 4.1 describe methods of constructing the **concrete** slab
- 4.2 describe different **joints** used in constructing **concrete** slabs
- 4.3 explain the functions of **joints** in the construction of **concrete** slabs
- 4.4 explain **factors that affect the quality** of the finished **concrete** surface
- 4.5 describe **checks and tests** to confirm the quality of the **concrete** slab and finished surface
- 4.6 describe potential problems with the reinstatement of **concrete** slabs, and the appropriate remedial action.

Learning Outcome 5 Monitor site safety

Assessment criteria:

- 5.1 ensure that a risk assessment has been carried out
- 5.2 monitor site operations in accordance with health and safety requirements
- 5.3 assess site conditions in accordance with health and safety requirements
- 5.4 ensure that **safety equipment** is available and fit for purpose
- 5.5 ensure that **safe working practices** are followed in line with health and safety requirements and current relevant **specifications**
- 5.6 check for risks to site safety, and confirm the appropriate action required
- 5.7 ensure that the site is left in a clean and safe condition.

Learning Outcome 6 Understand how to monitor site safety

Assessment criteria:

- 6.1 explain the purpose of an on-site risk assessment
- 6.2 describe the health and safety requirements for site operations
- 6.3 describe the health and safety requirements for particular site conditions
- 6.4 describe the **safety equipment** required during site operations and how to ensure that it is fit for purpose
- 6.5 describe **safe working practices** on site
- 6.6 describe the potential risks to site safety and the appropriate remedial action
- 6.7 describe how to leave the site in a clean and safe condition.

Evidence Requirements / Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Equipment** includes:
 - (a) hand tools – including as necessary square mouth shovel, hand pick, rake, hand rammer, reinforcing bar cutters, wire cutting tools, trowel, hand tamping beam, hard bristle broom
 - (b) powered equipment – including vibrotamper, powered concrete cutting equipment, powered concrete drill, powered saw, a proprietary vibrator.
2. **Sub-base material** includes:
 - (a) granular sub-base type 1 material
 - (b) pavement quality concrete (as described in specifications and SHW 1000)
 - (c) alternative reinstatement materials (ARMs).
3. **Specifications and procedures** include:
 - (a) Specification for the Reinstatement of Openings in Highways
 - (b) Specification for Highways Works Series 1000
 - (c) Health and Safety Guidance 150, *Health and Safety in Construction*
 - (d) manufacturers' operating procedures for powered tools and plant.
 - (e) *Safety and Street Works and Road Works – A Code of Practice*.
4. **Safe working practices** include:
 - (a) safe use of tools and equipment
 - (b) use of PPE (including, as necessary: high visibility jacket or waistcoat, hard hat, ear defenders, gloves, protective footwear, waterproof clothing, eye protection visor or goggles, dust mask)
 - (c) use of risk assessment methods to identify and control hazards on site
 - (d) precautions to minimise danger or inconvenience to road users
 - (e) precautions to minimise danger or inconvenience to site personnel
 - (f) precautions to minimise damage to equipment or apparatus.
5. The **dowel bars** are steel dowel bars of 20mm or 25mm nominal diameter.
6. The **mesh reinforcement** includes standard weights of mesh reinforcement.
7. **Joints** include:

- (a) dowel bars and their assembly
 - (b) tie bars
 - (c) supporting cradles
 - (d) contraction joints
 - (e) expansion joints
 - (f) warping joints
 - (g) construction joints
 - (h) prefabricated joint assemblies
8. The **concrete** includes:
- (a) Class 40 concrete
 - (b) air entrainment additive.
9. **Safety equipment** may include as necessary:
- (a) adequate range of signing, lighting and guarding equipment (including signs, cones, signals, lamps, footway boards, barriers, portable traffic signals)
 - (b) high visibility safety equipment
 - (c) suitable materials to construct ramps.
10. **Types of carriageway** on which concrete slab reinstatement is carried out (AC 2.1) include:
- (a) Type 0-4 concrete and bituminous overlaid concrete roads and commercial vehicle crossings.
11. **Factors that influence the selection** of materials and equipment (AC 2.2) include:
- (a) the specification options for concrete slabs
 - (b) quality control of ready mix and site-mixed concrete
 - (c) the position and spacing of dowel bars and reinforcement
 - (d) methods of curing concrete
 - (e) the treatment of commercial vehicle access.
12. **Factors that affect the quality of the finished** concrete surface (AC 4.4) include:
- (a) visual defects – transverse, longitudinal and random cracking.
13. **Checks and tests** to confirm quality of concrete (AC 4.5) include:
- (a) profile checks – finished level in respect of surrounding surface and surface texture
 - (b) concrete cube crushing test
 - (c) slump test.

Assessment Requirements

Assessment for this unit consists of practical observations and knowledge questioning to cover the requirements of the learning outcomes.

Current requirements for practical observations, including assessor and verifier qualifications and facilities requirements are provided in the joint awarding organisation centre document.