



National Unit Specification: general information

UNIT Forming Structural Concrete: An Introduction (SCQF level 5)

CODE F6LG 11

SUMMARY

This Unit provides an introduction to the key principles and techniques of forming structural concrete in a construction environment. It will develop the candidate's understanding and practical skills in forming structural concrete. On completion of this Unit, the candidate will learn how to correctly prepare the specified work area, selecting the appropriate materials and tools with which to carry out the work. They will be able to place structural concrete to meet the needs of a specification, whilst complying at all times with statutory workplace and legislative requirements. This Unit is suitable for candidates working towards a Modern Apprenticeship in the Construction Operative and Specialist suite.

OUTCOMES

- 1 Prepare the work area for placement of a concrete structure.
- 2 Mix, place and finish structural concrete.

RECOMMENDED ENTRY

While entry to this Unit is at the discretion of the centre, candidates undertaking a National Progression Award at SCQF level 5, as part of a Modern Apprenticeship, must meet the necessary criteria which includes being employed in the relevant industry.

CREDIT VALUE

1 credit at SCQF level 5 (6 SCQF credit points at level 5*).

**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.*

Administrative Information

Superclass: TG

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National Unit Specification: general information (cont)

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CORE SKILLS

There is no automatic certification of Core Skills in this Unit.

This Unit provides opportunities for candidates to develop aspects of the following Core Skills:

- ◆ *Numeracy* (SCQF level 3)
- ◆ *Working with Others* (SCQF level 3)
- ◆ *Communication* (SCQF level 3)
- ◆ *Problem Solving* (SCQF level 3)

National Unit Specification: statement of standards

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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

Prepare the work area for placement of structural concrete.

Performance Criteria

- (a) Interpret accurately the drawings and/or work specification for the task.
- (b) Confirm the quantity and type of concrete required for the task.
- (c) Identify hazards, underground and overhead utilities apparatus to avoid.
- (d) Select the appropriate tools and equipment for use during the task.
- (e) Select appropriate personal protective equipment (PPE) for the specified task, in accordance with organisational requirements.

OUTCOME 2

Mix, place and finish structural concrete.

Performance Criteria

- (a) Mix concrete to consistency required.
- (b) Place concrete to the correct level.
- (c) Vibrate, compact and finish the concrete correctly.
- (d) Cure the concrete correctly.
- (e) Comply with all current workplace safety and legislative requirements.
- (f) Dispose of waste in accordance with legislative requirements.

National Unit Specification: statement of standards (cont)

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EVIDENCE REQUIREMENTS

Candidates are required to produce evidence to confirm that they have achieved all Outcomes and Performance Criteria outlined in this Unit.

Performance evidence is required to demonstrate the candidate has achieved the standard specified in the Outcomes and Performance Criteria for Outcomes 1 and 2. Performance evidence must be supplemented with an assessor observation/operational checklist and produced at an appropriate interval in training, under supervised conditions, once the candidate has developed the necessary skills and knowledge required to carry out the work.

Performance evidence should be demonstrated by the candidate forming structural concrete in relation to at least two of the following placements:

- ◆ Chute
- ◆ Elephant's trunk
- ◆ Skip
- ◆ Pump
- ◆ Mono-rail

As part of the assessment for this Unit, the candidate will also submit written product evidence such as a works checklist or completed risk assessment form. Oral evidence of knowledge and understanding may be demonstrated by the candidate during practical assignments set for Outcomes 1 and 2 and noted at the time by the observer.

National Unit Specification: support notes

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

While the exact time length allocated to this Unit is at the discretion of the centre, the notional design length is 40 guided learning hours.

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

The Outcomes and Performance Criteria for this Unit can be demonstrated by the candidate forming structural concrete in relation to at least two of the following placements:

- ◆ Chute
- ◆ Elephant's trunk
- ◆ Skip
- ◆ Pump
- ◆ Mono-rail

The content and context of this Unit has been set at an introductory level so that the candidate can develop a basic knowledge and ability in forming structural concrete within a construction environment.

Health and Safety are vital to working practices within the construction industry and therefore, emphasis will be placed wherever appropriate during the delivery of this Unit on the correct application of Health and Safety principles and processes, in accordance with current codes of practice and legislation.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

These notes are for guidance purposes only, and are not to be considered as a complete training package for centres to follow.

Opportunities for integrated delivery of this Unit may be possible if candidates are also taking the Unit in *Laying and Finishing Concrete*. Delivery may also be integrated with mandatory Units.

The introductory training for this Unit should take place in a separate training area independent of the productive work environment and using dedicated equipment and resources. This should cover underpinning and practical principles before any practical application of knowledge is carried out by candidates.

Delivery of this Unit will be focused on enabling candidates to develop the knowledge and practical skill required for forming structural concrete safely before they are given the opportunity to do so within the workplace environment. This will include ensuring candidates learn about the necessary procedures in preparing the designated work area before any work is carried out. Emphasis will also be placed on the importance of candidates accurately understanding and interpreting the information provided within work specifications and drawings.

National Unit Specification: support notes (cont)

UNIT Forming Structural Concrete: An Introduction (SCQF level 5)

During delivery of the practical components of this Unit, candidates should understand the importance of avoiding damage to underground or overhead utilities apparatus, and finishing and curing concrete to the required standards. Candidates should know to adhere to relevant Health and Safety regulations and legislation relating both to working practices within the construction environment, as well as those specific to any practical task they are requested to carry out (such as emphasising the importance of selecting and using the correct PPE at all times).

E-learning approaches may be appropriate to help tailor delivery to suit the individual needs or learning styles of candidates. This might include, for example, encouraging learners to use electronic resources to conduct research into a specific knowledge area.

OPPORTUNITIES FOR CORE SKILL DEVELOPMENT

Throughout this Unit, candidates will be expected to develop the Core Skill of *Communication* (SCQF level 3) within the work environment, for example to inform others of any safety considerations, using the correct terminology and a tone appropriate to the workplace. In addition, assessment processes for Outcome 1 may enable candidates the opportunity to develop their Written Communication skills.

Opportunities for the Core Skill of *Working with Others* (SCQF level 3) will be provided as candidates ensure the safety of others as they comply with codes of practice and working regulations, and as they carry out the task as described in Outcome 2.

Performance Criteria as set out under Outcome 1 will enable candidates to apply and develop the Core Skill of *Numeracy* (SCQF level 3) such as measuring the work area and calculating the quantity of resources required to complete the work to the necessary standard. Candidates will also be provided the opportunity to extract numerical information presented in diagrammatic form when interpreting work specifications and drawings. Likewise, the interpretation of work specifications and drawings will require candidates to think critically, plan and organise the task accordingly (Outcome 1) — key aspects of the Core Skill of *Problem Solving* (SCQF level 3).

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

Centres may use the Instruments of Assessment they consider to be most appropriate, and the following notes are given as guidance only.

Opportunities for integrated assessment of this Unit may be possible if candidates are also taking the Unit in *Laying and Finishing Concrete*. Delivery may also be integrated with mandatory Units.

Underpinning and practical knowledge of forming structural concrete should be assessed before any practical assignments are carried out by candidates. This will include assessment of a candidate's ability to prepare the work area for a specified task. Assessment of practical performance should take place under supervised conditions and confirm a candidate's ability to form basic structural concrete using any machinery or equipment correctly and safely, whilst adhering to Health and Safety regulations and legislation.

National Unit Specification: support notes (cont)

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Outcomes 1 and 2 may be assessed by centres setting candidates a series of appropriate practical assignments carried out under supervised conditions and recorded in an assessor observation/operational checklist. Practical assignments undertaken by a candidate will be assessed according to their ability to carry out the task safely, using appropriate machinery according to manufacturer's guidelines.

Adherence to appropriate working regulations and Health and Safety procedures will be observed during the practical exercise carried out by the candidate towards both Outcomes 1 and 2.

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 e-checklists. 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)*.

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