

Unit 12: Developing Construction Drawing Skills

Unit reference number: D/502/3689

QCF level: 1

Credit value: 4

Guided learning hours: 40

Unit aim

This unit introduces learners to drawing equipment and techniques. Learners will develop the skills needed to produce basic construction drawings, and will use these skills to produce a typical vertical section.

Unit introduction

This unit introduces learners to the drawing equipment and materials used to construct a basic construction drawing.

Emphasis is placed on the correct selection and safe use of the equipment used to produce construction drawings.

Learners will be given the opportunity to practise drawing techniques and they will use these techniques to produce a basic construction drawing in an acceptable time.

Although learners will work independently when producing the drawing, they will also function as effective members of a team by contributing to the maintenance of a clean and tidy classroom/drawing office, and by working responsibly with others.

When preparing for work in the construction industry it is important that learners are able to seek and respond to guidance from colleagues and tutors during the learning process. This unit will help learners to develop an understanding of the personal qualities that are valued by employers.

Learning outcomes, assessment criteria and unit amplification

To pass this unit, the learner needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes		Assessment criteria		Unit amplification
1	Know the basic equipment used to produce construction drawings	1.1	Select the drawing equipment required to produce a construction drawing	<ul style="list-style-type: none"> □ <i>Drawing equipment:</i> e.g. drawing board, 45° set square, 30/60 set square, T-square, pencils, eraser, drawing board clips, masking tape, ruler, compass
2	Be able to prepare a sheet of drawing paper	2.1	Create the border and a completed title panel for a construction drawing	<ul style="list-style-type: none"> □ <i>Conventions:</i> 10 mm border; title box to include name, date and title of drawing
3	Be able to produce a basic construction drawing	3.1	Draw a vertical section through a cavity wall, the strip foundation to the wall and a concrete ground floor	<ul style="list-style-type: none"> □ <i>Drawing:</i> vertical section; through cavity wall, strip foundation and concrete ground floor
4	Be able to work responsibly with others	4.1	Demonstrate good team working skills by working responsibly and cooperatively	<ul style="list-style-type: none"> □ <i>Behaviour:</i> e.g. responsibility, recognition of strengths and skills of self and other team members, cooperation, tidying 'as you go'
5	Be able to seek and respond to guidance when working as part of a team	5.1	Follow instructions when working with others	<ul style="list-style-type: none"> □ <i>Attitudes:</i> e.g. enthusiasm; approachability; communication skills, e.g. listening, questioning, speaking clearly; following instructions
		5.2	Communicate appropriately with others	

Information for tutors

Delivery

This unit will give learners their first experience of the practical drawing skills associated with the production of a construction drawing, together with any job knowledge required to underpin such practical drawing skills. Learners must be given opportunities to develop their knowledge and practical drawing skills through supervised classroom/drawing studio activities, group teaching and demonstrations of the equipment and techniques involved.

The unit has been designed to provide the basic knowledge, understanding and skills needed to produce a simple construction drawing. The emphasis is on manual drawing techniques; computer aided design (CAD) techniques are not a requirement of the unit. By developing manual drawing techniques learners will improve their hand-to-eye coordination.

The use of parallel action drawing boards is encouraged, although drawing boards and traditional T-squares and set squares may be substituted where parallel action boards are unavailable.

Tutors should demonstrate the various techniques and skills to produce a construction drawing and learners must practise these techniques. Tutors will need to deliver the skills and techniques associated with correct paper alignment, accurate line drawing, lettering and hatching.

The most important requirement of the unit is that learners are given opportunities to practise construction drawing techniques and procedures. To do this they must be able to recognise and select the drawing equipment and materials. Tutors will therefore need to demonstrate correct selection and use of the appropriate drawing equipment and materials. They must also demonstrate the practical drawing skills required, monitor learners' performance as they practise their skills, correct poor practice and commend good practice. Tutors must encourage learners to ask for help and advice when it is needed. Tutors should encourage the reliable, positive and enthusiastic response to learning that employers value in prospective employees. All of the evidence required to satisfy the assessment criteria can be achieved in the drawing assignment.

Learners and tutors are encouraged to view the unit as a 'taster', in that it gives the learner an opportunity to experience the type of work involved in construction drawing.

Outline learning plan

The outline learning plan has been included in this unit as guidance.

Topic and suggested assignments/activities
<p>Know the basic equipment used to produce construction drawings. Whole-class, tutor-led discussion about drawing equipment. Individual work on drawing equipment identification sheets.</p>
<p>Be able to prepare a sheet of drawing paper. Practical demonstration (group or individual) of how to fix and mark out sheets of drawing paper. The hand-to-eye motor skills associated with this task are best taught by demonstration by the tutor, followed by learners practising the skills. The tutor should monitor learners as they practise their skills and provide guidance, advice, correction or praise, as needed.</p>
<p>Be able to produce a basic construction drawing. Practical demonstration (group or individual) of how to use the equipment to produce a drawing. The hand-to-eye motor skills associated with using technical drawing equipment are best taught by demonstration by the tutor, followed by learners practising the skills. The tutor should monitor learners as they practise their skills and provide guidance and advice, and correction or praise, as appropriate.</p>
<p>Be able to produce a basic construction drawing. Assessment – A maximum of four hours to produce the drawing on A3 paper.</p>
<p>Be able to work responsibly with others. Use of health and safety videos to demonstrate the benefits of maintaining a tidy workspace. Discussion of important role played by behaving towards others in a cooperative and responsible manner. Constant encouragement from tutors to do work neatly and maintain a tidy work space.</p>
<p>Be able to seek and respond to guidance when working as part of a team. Tutors should encourage learners to ask questions about their work. This could be prompted by tutors asking learners to explain what they are doing, and why they are doing it, or to name a piece of drawing equipment or discuss their drawing as they produce it. Learners should be aware that their attitude, and the nature of their responses to any advice provided, will comprise part of the evidence required to achieve the unit. This requires no formal allocation of time and should occur during practice and assessment.</p>

Assessment

The evidence can be provided by a single practical assignment covering all of the assessment criteria for the unit. Achievement of assessment criteria should be evidenced through vocationally related practical drawing experiences with tasks specifically designed with the assessment criteria in mind. Many criteria will need to be assessed directly by the tutor during practical drawing activities. Where this approach is used, suitable evidence from guided activities would require observation records and/or witness statements. However, many assessment criteria may be assessed directly through learners' assessment work, which must be presented in the form of a portfolio.

For 1.1, learners must select the drawing equipment required to produce a construction drawing. This will be evidenced most clearly by completion of appropriate drawing equipment worksheets.

For 2.1, learners must create the border and a completed title panel for a construction drawing. This will be evidenced most clearly by the learner's assessment work.

For 3.1, learners must draw a vertical section through a cavity wall, the strip foundation to the wall and a concrete ground floor. There is no requirement for the work to comply with a specific drawing scale. This will be evidenced most clearly by the learner's assessment work.

For 4.1, learners should work responsibly when producing a construction drawing in the classroom/drawing studio. The evidence could take the form of a witness statement.

For 5.1 and 5.2, learners must be able to seek guidance from tutors and other experienced people. The learner must follow instructions and communicate appropriately with other learners and with their tutors and/or instructors. The evidence could take the form of a witness statement.

Suggested resources

Books

BSI – *Construction Drawing Practice, BS1192 Part 5* (British Standards Institute, 1999) ISBN 0580295141

Ching F D K – *Architectural Graphics* (John Wiley & Sons, 2002) ISBN 9780471209065

Huth M W – *Understanding Construction Drawings* (Delmar, 2005) ISBN 9781401862695

Reekie F – *Reekie's Architectural Drawing* (Architectural Press, 1995) ISBN 9780340573242

Thompson A – *Introduction to Construction Drawing* (Butterworth-Heinemann, 1993) ISBN 9780340568231

Topliss S and Murray-Smith J – *BTEC Entry 3/Level 1 Construction Student Book* (Pearson, 2010) ISBN 9781846909207

Website

The materials section of the National League for Nursing (NLN) website at www.nln.ac.uk contains a drawing symbols database.