

COSCCOO11 (SQA Unit Code - HA42 04)

Establish and maintain the dimensional control of construction works



Overview

This unit is about obtaining and verifying dimensional control information, selecting techniques and equipment, setting out activities and ensuring accuracy of the work. You will need to obtain, collate and verify relevant information and using appropriate techniques and equipment, set out as required, recording information needed for later use. You will need to supply the workforce with dimensional control information, ensure that the results of setting out activities are accurate and also identify and deal with deviations. You will need to check and maintain equipment as specified by manufacturers

Performance criteria

You must be able to:

Apply dimensional control criteria

- P1 obtain available survey information, check that it is up to date and resolve any **problems**
- P2 correlate **information** on construction and installation which is relevant to the setting out of the project
- P3 identify **variations** between the specified and the actual site dimensions, record them and circulate them to line manager
- P4 provide the workforce with sufficient clear and accurate information to enable them to accurately position, align and level the work using relevant setting out techniques
- P5 identify, develop and agree a method statement for setting out which will achieve the required degree of accuracy
- P6 select, check and maintain **measuring and recording equipment** which meets the specified accuracy criteria
- P7 apply relevant setting out techniques which meet the specified accuracy criteria
- P8 set out **reference markers** which are suitably placed, accurately placed, identified clearly and protected from movement or removal
- P9 record any setting out **information** which may be of later use and store it securely so that it is available when needed

Maintain the dimensional accuracy of works

You must be able to:

- P10 check **measuring and recording equipment**, and apply the manufacturer's tolerances to adjust them to maintain the specified accuracy
- P11 observe and measure **dimensional controls**, setting out points, lines and profiles accurately and record the results to meet quality standards
- P12 identify any **deviations** in position, alignment and level and take the necessary corrective action
- P13 revise work procedures and practices to minimise deviations and to allow for different **circumstances and conditions**

Knowledge and understanding

You need to know and understand:

Apply dimensional control criteria

- K1 how to obtain available survey information and check that survey information is up to date (application)
- K2 how and why to resolve any **problems** with survey information (synthesis)
- K3 how to correlate **information** on construction and installation which is relevant to the setting out of the project (application)
- K4 what to identify as **variations** between the specified and the actual site dimensions, record them and circulate them to line manager (understanding)
- K5 how to provide the workforce with sufficient clear and accurate information to enable them to accurately position, align and level the work using relevant setting out techniques (application)
- K6 what to identify as a method statement for setting out which will achieve the required degree of accuracy (understanding)
- K7 how and why to develop a method statement for setting out which will achieve the required degree of accuracy (synthesis)
- K8 how and why to agree a method statement for setting out which will achieve the required degree of accuracy (evaluation)
- K9 how to select, check and maintain **measuring and recording equipment** which meets the specified accuracy criteria (application)
- K10 how to apply relevant setting out techniques which meet the specified accuracy criteria (application)
- K11 how to set out **reference markers** which are suitably placed, accurately placed, identified clearly and protected from movement or removal (application)
- K12 how to record any setting out **information** which may be of later use and store it securely so that it is available when needed (application)

Maintain the dimensional accuracy of works

You need to know and understand:

- K13 how to check **measuring and recording equipment**, and apply the manufacturer's tolerances to adjust them to maintain the specified accuracy (application)
- K14 how to observe and measure **dimensional controls**, setting out points, lines and profiles accurately and record the results to meet quality standards (application)
- K15 what to identify as any **deviations** in position, alignment and level and take the necessary corrective action (understanding)
- K16 how to revise work procedures and practices to minimise deviations and to allow for different **circumstances and conditions** (application)

Scope/range

Apply dimensional control criteria

- 1 Problems:
 - 1.1 unclear and missing information
 - 1.2 inconsistencies between documents
- 2 Information:
 - 2.1 dimensions
 - 2.2 locations
 - 2.3 levels (including inaccuracies and deviations)
 - 2.4 grid systems
 - 2.5 templates
 - 2.6 schedules
- 3 Variations:
 - 3.1 boundaries
 - 3.2 levels
 - 3.3 locations
- 4 Reference markers:
 - 4.1 ground stations
 - 4.2 base lines
 - 4.3 benchmarks
 - 4.4 elevated target positions
- 5 Measuring and recording equipment:
 - 5.1 mechanical
 - 5.2 optical
 - 5.3 electronic

Maintain the dimensional accuracy of works

- 6 Dimensional controls:
 - 6.1 lines
 - 6.2 levels
 - 6.3 angles
 - 6.4 distances
 - 6.5 curves
- 7 Measuring and recording equipment:

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Scope/range

- 7.1 mechanical
- 7.2 optical
- 7.3 electronic
- 8 Deviations - arising from:
 - 8.1 transfer of lines and levels
 - 8.2 use of wrong lines and levels
 - 8.3 calculations
- 9 Circumstances and conditions:
 - 9.1 land
 - 9.2 water
 - 9.3 obstacles
 - 9.4 climatic variation
 - 9.5 "live" conditions (e.g. buildings and sites in use, roads, railways, runways)
 - 9.6 planned circumstances
 - 9.7 emergency circumstances
 - 9.8 vandalism

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