Unit 317: Co-ordinate and confirm the dimensional requirements of the work

# Delivery guide

Unit information

This unit is about dimensional information, its communication and how to check and use measuring and recording equipment.

Learners may be introduced to this unit by asking themselves questions such as:

* What types of drawings will I have to learn to read?
* What is a datum point?
* How does the 3–4–5 method work?
* What specialist equipment will I be using?
* How will I know if these are accurate?

Learning outcomes

1. Understand how to interpret and communicate information to position, level and line
2. Understand how to maintain dimensional control
3. Know how to set up and use measuring and recording equipment
4. Understand how to report and amend deviations
5. Record and report dimensional information, controls, checks and deviations

Suggested resources

Textbooks

* Brett, P. (2010) *Carpentry and Joinery Book One: Job Knowledge Third edition (Complete Reference Guide).* Oxford: Formerly Nelson Thornes/Oxford University Press. ISBN 978-1-4085-0650-9
* Brett, P. (2010) *Carpentry and Joinery Book Two: Practical Activities*. Oxford: Oxford University Press.

ISBN 978-1-4085-0648-6

* Burdfield, M., Jones, S., Redfern, S., Fearn, C. (2020) *The City & Guilds Textbook: Site Carpentry & Architectural Joinery for the Level 3 Apprenticeship (6571), Level 3 Advanced Technical Diploma (7906) & Level 3 Diploma.* London: Hodder Education.

ISBN 978-1-5104-5815-4

Chudley, R. (2020) *Chudley and Greeno’s Building Construction Handbook.* Oxford: Routledge. ISBN 978-0-3671-3543-0

* Jones, S., Redfern, S., Fearn, C. (2019) *The City & Guilds*

*Textbook: Site Carpentry and Architectural Joinery for the Level 2 Apprenticeship (6571), Level 2 Technical Certificate (7906) & Level 2 Diploma (6706)*. London: Hodder Education.

ISBN 978-1-5104-5813-0

* Lancashire, R., Lewis, T. (2011) *Timber frame construction 5th edition*. BM TRADA. ISBN 978-1-9005-1082-0

Websites

* [GlobalSpec | Engineering Surveying, Sixth Edition](https://www.globalspec.com/reference/43071/203279/chapter-4-distance-measurement%20%20%20Engineering%20360)
* [pcbtoday | Site checking timber frames to ensure high-quality work](https://www.pbctoday.co.uk/news/building-control-news/timber-frame-high-quality-work/62128/)

| **Learning outcomes** | **Criteria** | **Delivery guidance** |
| --- | --- | --- |
| 1. Understand how to interpret and communicate information to position, level and line | * 1. How to co-ordinate and communicate information to enable accurate position, level and line | * Learners to understand the need for accurate communication throughout the setting-out stages including the use of drawings, specifications, schedules, work restrictions, types of drawings and scales to confirm the dimensional requirements of the work. Learners to know and to be able to extract information from working drawings, schedules and specifications for position, size, level and line of components and to know how to use this documentation for communication purposes. * Using drawings and contract documents for a timber-framed building, in pairs learners should determine what information is required to set out the sole plate and calculate the diagonal measurements required to check the setting-out is accurate. |
| 1. Understand how to maintain dimensional control | * 1. How to confirm and measure dimensional controls, setting-out points, lines and profiles and maintain them to the specified work requirements | * Learners to understand how to establish dimensional accuracy and how to confirm and ensure dimensional controls that include setting-out points, lines, profiles and levels, establish corners square and at angles, in accordance with instructions, drawings, specifications and schedules. * Learners to understand how to identify fixed-level points and datums, and how to transfer datum points to establish a Temporary Benchmark (TBM) for any given task. * Learners to be able to identify any deviations in positions, alignment and level and identify the necessary corrective action. * Learners to know the relevant checks for dimensional controls   including length, width, height, diagonal checks and 3–4–5 method.   * Learners should be given all the information required (drawings and TBM values) and set tasks to set out simple rectangular structures and determine the finished floor level (FFL) of the building. |
| 1. Know how to set up and use measuring and recording equipment | * 1. How to select, set up and use measuring and recording equipment to meet the specified tolerances | * Learners to know the various types of measuring and recording equipment including water levels, dumpy level, theodolite and total stations and their limitations and uses. * In pairs, learners are to be given simple levelling exercises using each of the above levels and on completion the results should be compared for accuracy and shared with their group asking: * How easy were they to set up and use? * How accurate were the results when checked by their tutor (read in conjunction with learner activity given in Criteria 5.1 below)? |
| 1. Understand how to report and amend deviations | * 1. How to identify and report circumstances and conditions that result in any deviations in position, level and line | * Learners to know the process for reporting problems and amendments, including deviation in position, alignment and level including the understanding and use of hierarchy charts, company structure, architect’s role (variation orders/architect instruction), amendments to contract and changes to specification for any given task. |
| * 1. How to report and amend any deviations in position, level and line in accordance with the work requirements | * Learners to know how to lay to line, level and amend any deviations in position or in accordance with the work requirements and tolerances. * Learners to know how to identify any deviation in position, alignment and level and to understand how to take the necessary corrective action in accordance with the given specifications. * Learners to understand the types and limits of overhang and under-sail on slab, second sole plate, non-compressive packing and lapping. In groups, learners should discuss the consequences of the above inaccuracies and who each should be reported to. * Learners should also contribute with suggestions as to how each could be rectified. |
| 1. Record and report dimensional information, controls, checks and deviations | * 1. Record and report checks made to measuring and recording equipment | * Learners to be able to set up, check and record accuracy of measuring and recording equipment. * Using the data collected during the levelling exercises carried out for Criteria 3.1 above, analyse where any inaccuracies found by your tutor have occurred. What were the consequences of these errors? |
| * 1. Record and report the dimensional information passed to work colleagues | * Learners to understand and to be able to extract information from working drawings, schedules and specifications for position, size, level and line of components. * Learners should review the activity undertaken in Criteria 1.1 above and, in different groups, be tasked with setting out for the external and internal walls. The group should discuss whether they have been given sufficient information and what errors occurred as a consequence. |
| * 1. Record and report the dimensional controls, setting-out points, lines and profiles | * Learners to be able to record and report any deviation in position, alignment and level including positioning, datum points and levels of pads. * In pairs for the activity in Criteria 5.4 below, learners should record the errors and agree who they should be reported to. |
| * 1. Record and report the circumstances and conditions that result in deviations from the dimensional controls and the amendments required in accordance with work requirements | * Learners to be able to check and report any deviations in open- and closed-panel timber sizes, variations to resources and any amendments to wall layouts (internal and external) through the correct channels. * In pairs, learners should be given a common example of the above faults and after a given period share their thoughts as to how they can be rectified. |