Unit 314: Install complex first and second fixing components

# Delivery guide

Unit information

This unit is about setting out and installing complex first and second fix site carpentry components including staircases with turns and complex mouldings, and knowledge of fire door frames, fire doors and complex ironmongery.

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

* What is a concealed door closer?
* How do you bend skirting boards to fit into a bow window?
* When would I need to fit an intermediate newel?
* Why do we use Cedar and Larch for external cladding?
* What can I do to prevent myself from getting Vibration White Finger?

Learning outcomes

1. Understand resource selection
2. Understand working to a contract specification
3. Comply with the given contract information to carry out the work safely and efficiently to the required specification

Suggested resources

Textbooks

* 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
* 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

Websites

* [BRE | Certification and Listings](https://www.bregroup.com/services/certification-and-listings/)
* [BWF | Homepage](https://www.bwf.org.uk/)
* [CADW | Conservation Principles in Action](https://cadw.gov.wales/advice-support/conservation-principles/conservation-principles-action)
* [Ironmongery Direct | Homepage](https://www.ironmongerydirect.co.uk/)
* [NHBC Standards | Homepage](https://nhbc-standards.co.uk/)
* [TRADA | Publications](https://www.trada.co.uk/publications/)
* [TRADA | List of British Standards June 2021](https://www.trada.co.uk/publications/british-standards-lists/list-of-british-standards-june-2021/)

British Standards

* BS 8000-5:1990 *Workmanship on building sites. Code of practice for carpentry, joinery and general fixings*.
* BS EN 13647:2021 *Wood flooring and wood panelling and cladding. Determination of geometrical characteristics*.
* ISO 19049:2016 *Timber structures. Test method. Static load tests for horizontal diaphragms including floors and roofs*.
* BS 8233:2014 *Guidance on sound insulation and noise reduction for buildings.*

Legislation

* [HSE | ACOPs](https://www.hse.gov.uk/legislation/legal-status.htm)
* [HSE | Construction dust: Cutting and Sanding Wood](https://www.hse.gov.uk/construction/healthrisks/hazardous-substances/cutting-and-sanding-wood.htm)
* [HSE | COSHH](https://www.hse.gov.uk/coshh/)
* [HSE | Health and Safety at Work etc Act (HASAWA) 1974](https://www.hse.gov.uk/legislation/hswa.htm)
* [HSE | PPE](https://www.hse.gov.uk/toolbox/ppe.htm)
* [HSE | PUWER](https://www.hse.gov.uk/work-equipment-machinery/puwer.htm)
* [HSE | RIDDOR](https://www.hse.gov.uk/riddor/)
* [GOV.UK | The Building Regulations 2010 (as appropriate to site carpentry)](https://www.legislation.gov.uk/uksi/2010/2214/contents/made)
* [GOV.UK | The Manual Handling Operations Regulations 1992](https://www.legislation.gov.uk/uksi/1992/2793/made)
* [GOV.UK | The Control of Noise at Work Regulations 2005](https://www.legislation.gov.uk/uksi/2005/1643/made#:~:text=SCHEDULE%203%20Revocations%20%20%20%20Regulations%20revoked,2%20Part%20IX%20%202%20more%20rows%20)
* [GOV.UK | Structure: Approved Document A](https://www.gov.uk/government/publications/structure-approved-document-a)
* [GOV.UK | Fire safety: Approved Document B](https://www.gov.uk/government/publications/fire-safety-approved-document-b)
* [GOV.UK | Protection from falling, collision and impact: Approved Document K](https://www.gov.uk/government/publications/protection-from-falling-collision-and-impact-approved-document-k)
* [GOV.UK | Conservation of fuel and power: Approved Document L](https://www.gov.uk/government/publications/conservation-of-fuel-and-power-approved-document-l)
* [GOV.UK | Access to and use of buildings: Approved Document M](https://www.gov.uk/government/publications/access-to-and-use-of-buildings-approved-document-m)
* [GOV.UK | Material and workmanship: Approved Document 7](https://www.gov.uk/government/publications/material-and-workmanship-approved-document-7)

| **Learning outcomes** | **Criteria** | **Delivery guidance** |
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| 1. Understand resource selection | * 1. Characteristics of the resources | * Learners to understand the characteristics and suitability of materials when selecting resources for the installation of complex first and second fix components. * Learners to understand the reasons for selecting resources (and why they are specified) by: * listing suitable ironmongery that should be specified for fire door frames and linings * discussing how intumescent products work (intumescent strips, intumescent fire sheets/hinge plates*,* fire rated foams, sealants and smoke strips) * researching why softwood and MDF are used for painted work as opposed to an economical hardwood for internal mouldings, and in what circumstances standard grade MDF is not suitable. * Learners to know how to identify defects that can affect the structural integrity, i.e., knots, splits, shakes, grain direction, and those that only affect the aesthetics. Learners should research how these defects reduce the strength of structural components. * Learners to know the uses and limitations of resources, including fire ratings (30-/60-/90-/120-minute protection). * Learners to know which materials and fixings to use in specific locations, and their suitability to fix, join and secure: * stairs to walls and floors * door frames and linings to masonry (metal and timber studs). * Learners should prepare a list of the fixings required for each of the above. * In pairs, learners to discuss the procedures for reporting problems with selected resources, including defective materials found at the point of delivery and during the construction process, then discuss their findings with the wider group. |
| * 1. Use of resources | * Learners to know the process for selecting materials using technical information sources including drawings, specifications, schedules and manufacturer’s information. |
| * 1. Organisational procedures to select resources | * In small groups, learners to complete requisition orders for resources for the following tasks: * a double-action fire door * external cladding to a timber-framed building. |
| * 1. Hazards | * Learners to understand the hazards and risks associated with the installation of complex first and second fix components. * Hazards and risks include: * muscular/skeletal injuries from lifting, carrying and poor working posture * impact from tools and entrapment * repetitive strain * cuts, bruising, lacerations * vibration white finger (VWF, or secondary Raynaud’s syndrome) from using vibrating handheld machinery * irritants affecting the eyes, nose and throat * carcinogenic dusts * hearing impairment from machine noise. * In pairs, learners to write a risk assessment for erecting a hipped-ended roof. The completed assessment should be compared against the work of other pairs to identify any gaps. |
| 1. Understand working to a contract specification | * 1. Methods of work | * Learners to know: * how to write a method statement for the installation of complex first and second fix carpentry components * the procedure to follow to report a problem found, ensuring all relevant parties are informed. |
| * 1. Tools and equipment | * Learners to know how to: * safely sharpen, maintain and store hand and power tools * check, store and maintain equipment required to install complex first and second fix carpentry components * record any faults found. * Learners to research the safe working use of commonly used adhesives and sealants. * Components to include: * staircases with turns * timber and MDF decorative mouldings * fire door frames * fire door linings * rebated door ironmongery. * Tools and equipment to include: * measuring equipment * levels * straight edges * squares * saws (hand and portable power) * drill/driver pilot bits * screwdriver bits * nails * planes * drill/driver hammers * nail guns * adjustable bevels * string lines * access equipment. |
| 1. Comply with the given contract information to carry out the work safely and efficiently to the required specification | * 1. Demonstrate work skills to measure, mark out, cut, fit, finish, position and secure materials | * Learners to undertake exercises to fit and install staircases with: * quarter turns * half turns * kite winders. * Learners to undertake exercises to cut and fit a range of decorative mouldings with internal and external angles (obtuse and acute angles) and returns, including: * corner blocks * plinth blocks * curved skirting * dado rails * frieze rails * cornices. * Learners to undertake exercises to install a range of commercially available door ironmongery, including: * non-standard hinges (rising butt, parliament, fire) * rebated door sets * concealed door closers * surface-mounted door closers * emergency exit panic bolts. |
| * 1. Select, use and maintain hand and power tools to install at least two of the following to given working instructions: * staircases with turns (at least one from quarter turn, half turn, kite winder) * complex mouldings (at least three from curved skirting, dado rail, frieze rail, cornice, corner blocks, plinth blocks) * complex ironmongery (at least two from non-standard hinges, rebated door sets, concealed door closers, surface mounted door closers, emergency exit panic bolts) |