Unit 302: Working in the construction sector in Wales

# Delivery guide

Unit information

This unit provides the learner with a holistic understanding of the built environment in Wales, how it has changed, and the need for a safe built environment and delivering safe projects/work.

Learners will also appreciate the importance of planning and reviewing work, and how to carry out effective planning and evaluation. Learners will understand the importance of working and communicating effectively with others.

It is recommended prior to undertaking this unit learners should have been taught the Understanding Construction Practice in Wales unit.

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

* What are PESTLES?
* How will the CDM regulation affect my working practices?
* How can we develop and maintain a high-performance team?
* How do you get a good reputation as a tradesperson?

Learning outcomes

1. Understand the built environment in Wales
2. Understand how to work effectively with others

Suggested resources

Textbooks

* 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

* Charles J., Kibert, C. J. (2016) *Sustainable Construction: Green Building Design and Delivery*. London: Wiley.

ISBN 978-1-1190-5517-4

* Gashe, M., Byrne, K. (2020) *The City & Guilds Textbook: Plastering for Levels 1 and 2.* London: Hodder Education.

ISBN 978-1-3983-0647-9

* 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

Websites

* [Arbed am Byth | Warm Homes Scheme](https://arbedambyth.wales/eng/home.html)
* [Banyard Solutions Ltd | RAMS Explained](https://www.banyardsolutions.co.uk/risk-assessment-method-statements-explained/#:~:text=RAMS%20are%20sometimes%20referred%20to,%E2%80%9Cnot%20required%20by%20law%E2%80%9D).
* [Breeam | Homepage](https://www.breeam.com/)
* [Warm Wales | Past Projects - Arbed](https://www.warmwales.org.uk/past-work/arbed/)
* [YouTube | Installation of Physical Damp Proof Membrane](https://www.youtube.com/watch?v=2JaqEKJx5qA)
* [YouTube | Install a remedial physical damp proof course](https://www.youtube.com/watch?v=kIfW3NwXykk)
* [Skills Platform | Fire Safety Regulations Since Grenfell: The New Regime](https://www.skillsplatform.org/blog/fire-safety-regulations-since-grenfell-the-new-regime/)
* [BSI group | BSI Kitemark™ for products](https://www.bsigroup.com/en-GB/kitemark/product-testing/)
* [Building | Countdown to zero: how can the UK meet its 2050 carbon targets?](https://www.building.co.uk/focus/countdown-to-zero-how-can-the-uk-meet-its-2050-carbon-targets/5109420.article)
* [Construction Blueprint | Key report available to understand the construction industry context](https://constructionblueprint.eu/2019/12/27/key-report-available-to-understand-the-construction-industry-context/)
* [FIS | Welsh Roadmap to Safer Building in Wales](https://www.thefis.org/2019/10/17/welsh-roadmap-to-safer-building-in-wales/)
* [Gantt Excel | Construction Gantt Chart Excel Template](https://www.ganttexcel.com/construction-gantt-chart-excel-template/)
* [Passivehouse | Homepage](https://passivehouse.com/)
* [RoSPA - Safer by design](https://www.rospa.com/home-safety/advice/safer-by-design)

Legislation

* *Building Regulations 2010 Approved Document 7: Materials and workmanship*. London: RIBA Bookshops.
* [GOV.UK | CE marking](https://www.gov.uk/guidance/ce-marking)
* [GOV.UK | The Pressure Systems Safety Regulations 2000](https://www.legislation.gov.uk/uksi/2000/128/contents/made)
* [HSE | Construction - Construction Design and Management Regulations 2015](https://www.hse.gov.uk/construction/cdm/2015/index.htm)
* [HSE | Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) - Work equipment and machinery](https://www.hse.gov.uk/work-equipment-machinery/loler.htm)
* [HSE | Provision and Use of Work Equipment Regulations 1998 (PUWER) - Work equipment and machinery](https://www.hse.gov.uk/work-equipment-machinery/puwer.htm)

| **Learning outcomes** | **Criteria** | **Delivery guidance** |
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| 1. Understand the built environment in Wales | * 1. Building stock in Wales | * Learners to be able to identify retrofit, refurbishment and development projects which bring the buildings up to current regulatory standards, including the Welsh Government Warm Homes (ARBED) initiative. * Learners to visit the Warm Wales website and working in small groups discuss past projects and The Green Deal initiatives (see suggested resources). * Learners to know houses, attached and detached pre-1919 including: * solid stone * solid brick * traditional timber frame. * cavity wall; brick and block, modern timber frame and timber with block outer * prefabrication and mass housing booms; post WWII war housing (including short term pre-fabricated designs), off-site modern prefabrication, flats and high-rise apartments. * Learners to understand the reasons behind pre-fabrication, largely economies of scale and the ability and need to provide better quality housing within a short timeframe. * Learners to have tutor led sessions to discuss and collaborate in groups all aspects of The Building Stock in Wales. * Learners to understand attached and detached properties and to be able to identify the differences in insulation and environmental properties pre-1919 and post-1919. * Learners to understand the need for energy efficient housing and the exacting quality assurance process required including: * retrofit * natural materials * Building Research Establishment’s Environmental Assessment Method (BREEAM) and Passivhaus * the need for compliance with Building Regulations. * Learners to work collaboratively to produce a project to enable the understanding and importance of energy efficiency and embodied energy in meeting the zero-carbon target which is now required in construction projects. * Learners to understand The ‘WELL’ Building Standard. * Learners to understand the requirements to meet energy saving targets for industrial units and factories including: * historic factories and warehouses * 20th century * modern industrial units including shopping centres. * Learners to know what the reuse of buildings and building materials includes and to know the types of buildings available for multiple/adaptable purposes. * Learners to understand the importance of energy efficiency and embodied energy in meeting the zero-carbon target. * Learners to understand the sustainability and carbon saving value of maintaining and repairing the current housing stock compared to replacing existing 20th century buildings with new buildings. * Learners to understand the changes that occurred from the introduction of the standardisation of materials and what effect this has had on the construction industry. * Learners to research the role of standardisation in relation to safety in the industry and the availability of materials for quality and performance, particularly with the development and manufacture of new materials and their use in modern construction. * Learners to know the role that materials such as cement, glass and steel have played in the industry and on their own trade, and the effect that material innovations have had on the scale and speed of construction. * Learners to demonstrate why Damp Proof Membranes (DPM) and Damp Proof Course (DPC) are included post-1919 build and are not suitable for solid walled structures. * Learners to watch and discuss YouTube videos on the installation of DPM and DPC and with tutor and group collaboration discuss the merits of these applications. * Learners to be able to identify the characteristics, quality, uses, sustainability and limitations associated with DPC and DPM and the defects that can occur by wrong selection. Types of resources and the knowledge required include: damp-proof barriers, know the uses of DPC, vertical DPC, membranes and barriers. |
| * 1. Factors influencing change in the built environment in Wales | * Learners to understand Political, Environmental, Social, Technological, Legal and Economical (PESTLE) drivers around construction: * Political: how government initiatives/changes in government affect the construction sector and the built environment, laws, taxes how this affects demand. * Environmental: targets to cut emissions, preserving the natural/built environment. * Social: age of population/demographic, cultural requirements, population growth. * Technological: new technologies and application of technology, changes in materials and innovations. * Legal: new/changes to regulations etc. such as the Building Regulations, consent/planning permissions, safety of buildings and building services. * Economic: affordability, unemployment/employment, the economy. * Learners to identify the key reasons for increases and decreases in housing demand over the past 100 years and the way that this has caused fluctuations in housebuilding. * Learners to have a tutor led session to discuss the many factors that have influenced changes in the built environment in Wales over the last 100 years drawing on tutor resources to enable up-to-date information. |
| * 1. Safety of the built environment | * Learners to know the advances in architectural design and material science and their influence on modern construction, whilst also recognising the requirement for a focus on long term user safety when adapting, creating and maintaining buildings including building materials, products and services. * Learners to understand the role of The Construction (Design and Management) (CDM) Regulations 2015 and the foreseeable necessary information to be provided for future maintenance, repairs and cleaning of the building. * Learners to understand quality assurance marking of products (such as the CE mark) and the applicability of the Construction Products Regulations including: * the Building Regulations Approved Document 7: Materials and workmanship * the BSI Kitemark * the Declaration of Conformity and trade specific requirements for products such as BASEC Approved Cables. * Learners to know of other applicable guidance such as Royal Society for the Prevention of Accidents (RoSPA) Safer by Design. * Learners to know the Provision and Use of Work Equipment (PUWER) Regulations 1998 and to know that work equipment, including installations, is so constructed or adapted as to be suitable for the purpose for which it is provided. * Learners to know that relating requirements that apply such as lifting equipment must also meet the requirements of Lifting Operations and Lifting Equipment (LOLER) Regulations 1998 and that pressure equipment must meet the Pressure Systems Safety Regulations (PSSR) 2000. * Learners to know the implications of a lack of regard to safety of users through examples such as asbestos and the Grenfell Tower disaster. * Learners to have an awareness of the Welsh Government’s plan to reform regulations and fire safety in high rise buildings, and their actions with regards to the ‘Road Map to Safer Buildings in Wales’. * Learners to research in groups with tutor guidance the ramifications of the Grenfell Tower disaster and the impact this has had nationwide on making high rise buildings safer places to live in. * Learners to understand the considerations and implications of making changes to buildings and the responsibilities of the customer/client and the contractor and how this relates to the Building Regulations and relevant Approved Documents and technical guidance. * Learners to know that there are different applicable requirements in Wales and England e.g., the requirement for automatic fire suppression in Wales. * Learners to understand the need for relevant consent/permissions for work to be carried out (which could be required for minor work on a listed building in Wales), complying with Building Regulations (following Approved Documents) and using appropriate materials. * Learners to understand it is incumbent on the contractor to carry out safe work and deliver safe projects for the customer/client. * Learners to understand the consequences of not carrying out safe work/delivering unsafe projects/work. * Learners to understand the importance of using suitable materials, parts and products that are appropriate for the building task and that maintain the safety of buildings for building users for the long term. * Learners to understand the importance of deferring to qualified colleagues, when and if necessary, to check or complete work to ensure that the safety of building/premises users is maintained. * Learners to engage in tutor led session to identify buildings which are inaccessible or highways which have no pedestrian access or cycle paths. |
| 1. Understand how to work effectively with others | * 1. How to develop and maintain productive working relationships | * Learners to engage in role-play scenarios for differing communication techniques e.g., face to face, active/passive listening, written, oral, and electronic, formal and informal, to promote effective working relationships with all stakeholders. * Learners to understand the importance of the needs of individuals by applying the principles of equality and diversity. * Learners to research ‘Tuckman's team-development model’ as: * forming * storming * norming * performing. * Learners to understand how to discuss proposals with relevant people and to discuss alternative suggestions, appreciating that they should encourage questions and requests for clarification and comments. * Learners to know the benefits of a high-performance team. * Learners to understand how to resolve differences of opinion in ways which minimise offence and maintain the goodwill, trust and respect and why this is important, including keeping promises and undertakings, being honest, co-operating and having appropriate dialogue. |
| * 1. How to communicate effectively with clients, employers, colleagues and with other stakeholders throughout built environment projects | * Learners to know how to confirm and communicate the work method to relevant people e.g., colleagues, employers, customers, contractors, suppliers of products and services and those affected by the work/project with the right level of detail and with an appropriate degree of urgency. * Learners to share collaboratively workplace experience of good and bad communication in the workplace. Tutor to give good examples of good and bad communication in the workplace. * Learners to produce relevant paperwork to show progress, achievements, results, ongoing problems, health and safety requirements and coordination of works using documents such as Gantt Charts and Risk Assessment Method Statements (RAMS). * Learners to recognise the benefits of good customer care to current and potential future customers (such as referrals, repeat business, good feedback, satisfied customers, more revenue opportunity). |