Unit 302: Working in the Building Services Engineering 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.

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

* What is meant by the built environment?
* What factors influence change in the built environment?
* Why is it important to have productive working relationships?

It is recommended prior to undertaking this unit learners should have been taught Unit 301.

Learning outcomes

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

Suggested resources

Textbooks

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

ISBN 978-1-3983-0647-9

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

ISBN 978-1-1190-5517-4

* Tanner, P. (2019) *Electrical Installations Book 1 for the Level 3 Apprenticeship (5357), Level 2 Technical Certificate (8202) & Level 2 Diploma (2365).* London: Hodder Education.

ISBN 978-1-5104-3224-6

Websites

* [Arbed Am Byth | Homepage](https://www.arbedambyth.wales/)
* [Banyard Solutions Ltd | Risk Assessment Method Statements](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)
* [BASEC | Homepage](https://www.basec.org.uk/)
* [BREEAM | Homepage](https://www.breeam.com/)
* [BSI | Kitemark product testing](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](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/)
* [International WELL Building Institute | WELL Building Standard](https://standard.wellcertified.com/well)
* [Passive House Institute | Passive House Requirements](https://passiv.de/en/02_informations/02_passive-house-requirements/02_passive-house-requirements.htm)
* [Well Certified | Homepage](https://www.wellcertified.com/)

Legislation

* [GOV.UK | CE Marking](https://www.gov.uk/guidance/ce-marking)
* [GOV.UK | The Building Regulations 2010 Approved Document 7: Materials and Workmanship](https://www.gov.uk/government/publications/material-and-workmanship-approved-document-7)
* [HSE | The Construction (Design and Management) Regulations 2015](https://www.hse.gov.uk/construction/cdm/2015/index.htm)
* [HSE | ROSPA: Health and Safety Legal Updates 2015](https://www.hse.gov.uk/events/rospa-legal.htm)

| **Learning outcomes** | **Criteria** | **Delivery guidance** |
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| 1. Understand the built environment in Wales | * 1. Building stock in Wales | * Learners to undertake research to be able to identify retrofit, refurbishment and development projects which bring the buildings up to current regulatory standards, including ARBED around the Welsh government warm homes initiative. * Learners to be familiar with attached and detached properties, identifying the differences in insulation and environmental properties pre-1919 and post-1919. * Learners to understand the need for energy efficient housing including: * retrofit * natural materials * Building Research Establishment Assessment Method (BREEAM) * Passivhaus * compliance with the Building Regulations. * Learners to work collaboratively to produce a project that recognises the importance of energy efficiency and embodied energy in meeting the zero-carbon target which is now required in construction projects. * Learners to research 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 demonstrate why Damp-Proof Membranes (DPM) and Damp Proof Course (DPC) are included post-1919 build and are not suitable for solid walled structures. |
| * 1. Factors influencing change in the built environment in Wales | * Learners to discuss and research political, environmental, social, technological, legal and economic (PESTLE) drivers around construction over the past 100 years to identify the key reasons for increases and decreases in housing demand and the way that this has caused fluctuations in housebuilding. * 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 twentieth century buildings with new buildings. |
| * 1. Safety of the built environment | * Learners to discuss the implications of a lack of regard to safety of users, discussing 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 the actions with regards to the ‘Road Map to Safer Buildings in Wales’. * Learners to research and discuss the role of The Construction (Design and Management) (CDM) Regulations 2015. * Learners to have an understanding of the quality assurance Conformitè Europëenne (CE) mark and the British Standards Institution (BSI) Kitemark. * Learners to research and discuss the advances in architectural design and material science and their influence on modern construction. * Learners to research long-term user safety when adapting, creating, and maintaining buildings. * Learners to know the foreseeable necessary information to be provided for future maintenance, repairs and cleaning of the building. * Learners to research and have an awareness of the WELL Building Standard. * Learners to research and understand the applicability of the Construction Products Regulations including: * The Building Regulations 2010 Approved Document 7: Materials and Workmanship * the Declaration of Conformity and * trade specific requirements for products such as British Approvals Service for Cables (BASEC) approved cables. * Learners to have awareness of other applicable guidance such as Royal Society for the Prevention of Accidents (RoSPA) safer by design. * Learners to research and discuss 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 utilisation of appropriate materials. * Learners to understand when to refer decisions to more experienced and qualified colleagues. |
| 1. Understand how to work effectively with others | * 1. How to develop and maintain productive working relationships | * Learners to engage in role play scenarios on differing communication techniques, both formal and informal, to promote effective working relationships with all stakeholders. * Learners to be familiar with a range of communication methods and to be able to use them flexibly including: * oral communication * written communication * e-mail * letter * text messages * social media. * Learners to understand effective communication methods for an individual’s needs such as disabilities, accents, dialects and language differences. * Learners to research Tuckman's team-development model (forming, storming, norming and performing). * Learners to understand Tuckman`s theory for developing positive group development to tackle problems, find solutions, plan work and deliver results which will affect how to develop and maintain productive working relationships. * Learners to understand how to resolve differences of opinion in ways which minimise offence and maintain the goodwill, trust and respect of others and why this is important. |
| * 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 produce relevant paperwork to show progress, achievements, results, on-going problems, health and safety requirements and coordination of works using documents such as Gantt Charts and Risk Assessment Method Statements (RAMS). * Learners to understand the possible impact of the work (e.g., noise and vehicles) to those in the vicinity of the work (such as residential neighbours) and recognise their customer care extends to these potential future customers. |