Unit 202: Changing practices over time

# Delivery guide

Unit information

The purpose of this unit is for learners to gain knowledge and understanding of how materials, tools and techniques have changed and adapted from pre-1919 practices to the current practices, as well as looking to the future.

Learners will develop their knowledge, understanding, and where relevant skills of:

* the changing construction and built environment sector
* the changes in construction materials, tools, and techniques over time
* the relationship between trades and the environment
* connected practice in the construction and building services engineering.

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

* What changed within Construction in 1919?
* What is an aggregate?
* How does a DPM work?
* What is BIM and how does it influence the building process?
* What is a Passivhaus?

Learning outcomes

1. Know the changes in construction pressures and materials over time
2. Know the changes in construction methods over time
3. Understand the relationship between trades and the environment
4. Understand connected practice in the construction industry

Suggested resources

Textbook

Gashe, M. and Byrne, K. (2020) *The City & Guilds Textbook in Plastering for Levels 1 and 2 Diploma (6708) and Level 2 Technical Certificate (7908)*. London: Hodder Education. ISBN 978-1-39830-647-9

Websites

* [British gypsum | The White Book](https://www.british-gypsum.com/literature/white-book)
* [Engine Shed | Traditional Mortars: Going Full Circle](https://blog.engineshed.scot/2018/08/24/traditional-mortars-going-full-circle/)
* [Elemental Green | 10 Eco Building Materials Revolutionizing Home Construction](https://elemental.green/10-eco-building-materials-revolutionizing-home-construction/)
* [gov.wales | Well-being of Future Generations (Wales) Act 2015](https://www.futuregenerations.wales/wp-content/uploads/2017/01/150623-guide-to-the-fg-act-en.pdf)
* [NBS | What is Building Information Modelling (BIM)?](https://www.thenbs.com/knowledge/what-is-building-information-modelling-bim)
* [The Worshipful Company of Plaisterers | Home page](https://plaistererslivery.co.uk/)
* [External Rendering | Modern render system vs traditional render system](https://www.externalrendering.net/modern-render-system-vs-traditional-render-system/)
* [YouTube | Knauf Drywall MP75 Projection Plaster Race](https://www.youtube.com/watch?v=gpGIVPHkZmg)
* PFT Wales | [PFT Ritmo L Plus 240v Plastering Render Sprayer machine spray plaster](https://www.pftplasteringmachines.com/product/pft-ritmo-l-plus/)
* [Passivhaus Trust | What is Passivhaus?](https://www.passivhaustrust.org.uk/what_is_passivhaus.php)
* [gov.uk | Construction near protected areas and wildlife](https://www.gov.uk/guidance/construction-near-protected-areas-and-wildlife)
* [British Gypsum | ThistlePro PureFinish](https://www.british-gypsum.com/products/thistlepro-purefinish?tab0=0)
* [JSTOR | The Story of T.D.A and T.R.A.D.A, 1934-74](https://www.jstor.org/stable/42605497)
* [[The BWF - British Woodworking Federation |](https://www.bwf.org.uk/)](https://d.docs.live.net/0654c38050dc99c9/Desktop/Just%20Content/C%5e0G%20delivery%20guides/4%20Final%20files/201-203%20Construction/About%20the%20BWF%20|%20The%20British%20Woodworking%20Federation%20%20%20%20%20%20%20https:/www.bwf.org.uk ›%20about-bwf) Homepage
* [hse.gov.uk | Control of Substances Hazardous to Health (COSHH)](https://www.hse.gov.uk/coshh/)
* [legislation.gov.uk | Environment (Wales) Act 2016](https://www.legislation.gov.uk/anaw/2016/3/contents/enacted)
* [legislation.gov.uk | Environmental Protection Act 1990](https://www.legislation.gov.uk/ukpga/1990/43/contents)
* [legislation.gov.uk | The Hazardous Waste (England and Wales) Regulations 2005](https://www.legislation.gov.uk/uksi/2005/894/contents/made)
* [legislation.gov.uk | Control of Pollution Act 1974](https://www.legislation.gov.uk/ukpga/1974/40/contents)
* [BREEAM | Homepage](https://www.breeam.com/)

| **Learning outcomes** | **Criteria** | **Delivery guidance** |
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| 1. Know the changes in construction pressures and materials over time | * 1. Pre-1919 construction | * Learners to understand how pre-1919 construction resources were sourced and used locally due to transport constraints which dominated the type and look of buildings in certain areas e.g. local quarries would produce different types and looks of aggregate from region to region. * Learners to have an understanding of binders and mortars used pre-1919. * Learners to have a knowledge of lime used pre-1919 such as quick lime and hot lime. * Learners to have a knowledge of internal and external functional and decorative finishes, stone, slate, timber and earth. |
| * 1. Post-1919 to modern construction | * Learners to know how transport systems were developed from pre-1919 to post-1919 which helped to revolutionise the construction industry and make more varied construction materials available from around the country. * Learners to understand cost implications, both good and bad, when more materials became available for purchase to construct buildings. * Learners to know that more prestigious buildings such as churches, government and commercial buildings (such as banks, hotels, etc.) would generally use more expensive materials to complete external and internal architectural finishes, which would mean more expensive build costs. * Learners to know that more modern buildings post-1919 would incorporate Damp Proof Membrane (DPM), Damp Proof Course (DPC), steel and glass into building projects and the effect this had on the types and speed of construction. * Learners to know the basic qualities of concrete slabs, bricks, blocks, steel, glass, plastics and composite materials. |
| * 1. 21st century construction | * Learners to understand what is meant by sustainable construction for modern 21st century building projects. * Learners to understand the importance of the Well-being of Future Generations (Wales) Act 2015 for the construction industry. * Learners to have a knowledge of the quality and uses of building materials used for 21st century building projects particular to achieving zero carbon footprint. * Learners to understand the role that materials such as cement, glass and steel have played in the industry and the effect that material innovations have had on the scale and speed of construction. * Learners to understand the benefits of off-site construction. * Learners to be aware of traditional methods of building surveying and design such as Computer-Aided Design (CAD) and Building Information Modelling (BIM). * Learners to understand the difference and benefits of using modern software for 2D and 3D design tools compared to traditional methods. * Learners to have some knowledge of limitations to planning and design in construction when using 2D and 3D software technologies. |
| 1. Know the changes in construction methods over time | * 1. Pre-1919 buildings construction methods | * Learners to have a knowledge of methods, applications and techniques used to apply plaster and render materials pre-1919 to internal and external substrates. * Learners to have an understanding and list the types of tools used to apply plaster and render materials pre-1919 to internal and external substrates. * Learners will research ‘the Worshipful Company of Plaisterers’ to gain a knowledge of the plastering industry pre-1919. * Learners to research and list the types of materials used to plaster and render and to produce and fix ornamental fibrous components pre-1919. |
| * 1. Post-1919 and modern construction techniques | * Learners to have a knowledge of methods, applications and techniques used to apply plaster and render materials post-1919 to internal and external substrates, including the use of plasterboard and cement products. * Learners to have an understanding and list the types of tools used to apply plaster and render materials post-1919 to internal and external substrates, including stainless steel trowels, flex trowels, speedskims, laser levels, projection plaster/render machines, etc. * Learners to research and list the types of materials used to plaster and render and to produce and fix ornamental fibrous components post-1919, including: * mechanical fixing * screws/nails * direct bond * standard and performance plasterboards * Glass Reinforced Gypsum (GRG) * various dry lining systems * modern render systems. |
| * 1. 21st century construction techniques and technologies for chosen trade | * Learners to research modern-day application techniques of internal and external plaster/render materials such as machine projection applications for airless systems, modern render systems and gypsum systems. * Learners to research beads and trims extensively used for modern internal and external finishes. * Learners to research and list performance plasterboards and render carrier boards used in 21st century applications. * Learners to have a knowledge of tools and resources used in 21st century plastering and rendering applications e.g. collated screwdrivers, telescopic board props, projection plastering/render machines, mechanical sponge floats, etc. |
| 1. Understand the relationship between trades and the environment | * 1. Industry regulation and sustainability | * Learners to research government policy on sustainability e.g. Environment (Wales) Act 2016, Environmental Protection Act, Hazardous Waste (England and Wales) Regulations, Control of Pollution Act. * Learners to research Building Research Establishment Environmental Assessment Method (BREEAM) and how it fits into 21st century construction practice. * Learners to know how design of construction projects can help with energy efficiency and the link to smart homes and smart technologies, such as sensors and controls. * Learners to know the essentials of building energy management systems and should be able to link this to the environmental technologies covered in learning outcome 2. * Learners to know the main aspects of relevant Building Regulations Part L, and Documents L1A and L1B, and the Domestic Building Services Compliance Guide. * Learners to have knowledge of Passivhaus types of construction techniques to achieve government initiative and policy on zero carbon footprint. * Learners to know what should be done when there is a discovery of protected species during the construction process, e.g. bats and newts, as required by the Conservation of Habitats and Species Regulations 2010. |
| * 1. Ecological considerations and principles | * Learners to have a knowledge of government policy and ecological considerations when undergoing any work which may affect protected wildlife and habitats e.g. nesting birds, rare plant species. * Learners to understand implications for future development to flood plains and the effect this could have on the buildings and surrounding areas. |
| * 1. Sustainable approaches | * Learners to have a knowledge of British Gypsum products which are user friendly for 21st century applications under sustainable construction e.g. ThistlePro PureFinish. * Learners to list various ways a building can offset its carbon footprint to meet 21st century building targets and expectations. |
| * 1. Waste disposal in construction | * Learners to have a knowledge of why accurately ordering materials reduces site waste and saves money on over-ordering and waste disposal costs. * Learners to have a knowledge of how storing materials in an appropriate manner and controlling stock reduces waste. * Learners to have a knowledge of the appropriate sorting of waste on site to meet current regulations. * Learners to have a knowledge of modern methods of waste disposal and recycling of construction materials. * Learners to research Waste and Resources Action Programme (WRAP) and link this to on-site construction waste disposal initiatives. * Learners to know about the disposal of hazardous waste and link this to Control of Substances Hazardous to Health (COSHH) Regulations. * Learners to know the key features of regulations including the Environmental Protection Act, The Hazardous Waste Regulations, Pollution Prevention and Control Act, Control of Pollution Act and The Waste Electrical and Electronic Equipment Regulations. |
| 1. Understand connected practice in the construction industry | * 1. Interdependencies between trades | * Learners to engage in a project scenario of a task of their choice and link this to how to communicate with all other trades within the process regarding working together collaboratively to complete a successful project. * Learners to understand how individual trades work with each other and interact. * Learners to understand first and second fix aspects of construction trades, the types of problems that can arise and how to mitigate them. |