Unit 326: Produce complex mosaic and stone surface finishes

# Delivery guide

Unit information

This unit is about fixing wall and floor tiles to produce complex ceramic designs and surfaces, interpreting information, adopting safe, healthy and environmentally responsible work practices, selecting and using materials, components, tools and equipment.

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

* How will I work out how many tiles I need for a specific job?
* What types of adhesives will I be using?
* What do I need to consider when setting out for a window?
* How do I cut tiles for a curved design?

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

British Standards

* BS 5385‑1:2018 – Wall and floor tiling – Part 1: Design and installation of ceramic, natural stone and mosaic wall tiling in normal internal conditions – Code of practice.
* BS 5385-2:2015 – Wall and floor tiling – Part 2: Design and installation of external ceramic, natural stone and mosaic wall tiling in normal conditions – Code of practice
* BS 5385-3:2014 – Wall and floor tiling – Part 3: Design and installation of internal and external ceramic and mosaic floor tiling in normal conditions – Code of practice
* BS 5385-4:2015 – Wall and floor tiling – Part 4: Design and installation of ceramic and mosaic tiling in specific conditions – Code of practice
* BS 5385-5:2009 – Wall and floor tiling – Part 5: Design and installation of terrazzo, natural stone and agglomerated stone tile and slab flooring – Code of practice
* BS 8000-11:2011 – Workmanship on building sites – Part 11: Internal and external wall and floor tiling – Ceramic and agglomerated stone tiles, natural stone and terrazzo tiles and slabs, and mosaics – Code of practice

Website

* [The Tile Association | Homepage](https://www.tiles.org.uk)

| **Learning outcomes** | **Criteria** | **Delivery guidance** |
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| 1. Understand resource selection | * 1. Characteristics of the resources | * Learners will understand the characteristics, quality and limitations of   resources when undertaking wall and floor tiling activities including:   * wall and floor tiles: ceramic, porcelain, stone; sizes: standard, large format, mosaic, natural stone, specialist tiles, shapes * adhesives: ready mixed, cement-based, flexible, fast setting, specialist tiles, shapes * grouts: ready-mixed, cement-based, resin-based, coloured * wall tile profiles (trims): metal, plastic, various shapes, specialist * spacers: plastic, pegs * membranes: decoupling, separating * movement joints: purpose, specialist trims, location, size * additives: primers, bonding agents, sealants, impregnators * manufactured boards: wood (timber-based products) and proprietary products * (non-wood) to include: OSB (Orient Strand Board), tile backer boards (glass reinforced cement, foam-cored, fibre cement, magnesium oxide, insulated) * plasterboards (moisture, fire, sound, foil, thermal). * Learners will understand how these materials complement each other and the importance of picking the correct materials for a given task i.e. wet room. * Learners will be aware of the importance of British Standards and manufacturer’s instruction when selecting the correct resources when undertaking wall and floor tiling activities. * Learners can demonstrate understanding by completing a resource checklist for an activity such as the undertaking of a wet room environment. Learners to be able to identify what is needed and why. |
| * 1. Use of resource | * Learners will know when to use resources and their suitability in relation to tiling walls and floors. * Learners will understand the importance of compatibility between substrates and materials and securely fixing tiling resources. * Via the workshop and/or working environment, learners will be shown how to use resources correctly. This will include using the correct amounts of materials for the given task. For example, gauging the right amount of adhesive or grout to ensure there is limited waste. * Learners will be aware of the requirements of British Standards to   ensure the compatibility between substrates and materials when fixing securely wall and floor tiles. |
| * 1. Organisational procedures to select resources | * Learners will understand organisational procedures and the process for selecting and using materials, and how to interpret and extract technical information from different sources: * drawings * specifications * method statements * schedules * work programmes * manufacturer’s information * industry standards. * Learners will be aware of the importance of technical information when interpreting this info i.e. designing and installing wall and floor tiles within a kitchen setting. * Learners to demonstrate understanding by completing a specification for a wet room. |
| * 1. Hazards | * Learners will understand hazards and identify suitable control measures related with the work schedule and materials associated with setting out, fixing and finishing complex wall and floor tiling surfaces. * Learners will understand how to protect the work and its surrounding area from damage in accordance with the given specification including protection against damage from general workplace activities, other occupations and adverse weather conditions. * Learners will understand how to follow method statements and risk assessments to identify correct Personal Protective Equipment/clothing and carry out the work safely and competently in accordance with health and safety legislation. * Learners will understand their responsibility for reporting accidents, hazards and near misses within the workplace to the correct level of authority. * Learners will be aware when undertaking wall and floor tiling activities for example, ensuite bathroom that the working and surrounding area needs protecting from damage and unauthorised access. * Learners will be aware when undertaking wall and floor tiling tasks the importance of protecting work from adverse weather for example when undertaking wall and floor tiling tasks externally. * Via the workshop and/or working environment, learners will be shown how to complete risk assessments and methods statements i.e. cutting tiles. * Learners will be aware of the importance of identifying hazards and the implementation of suitable control measures. * Learners will be aware via the workshop and/or working environment the selection and use of the correct PPE/C when undertaking wall and floor tiling activities. * Learners can demonstrate understanding by completing a risk assessment and method statement of hazards found in a wet room and record suitable control measures required. * Learners will be aware of RIDDOR requirements and the reasons why it is important to report accidents, hazards and near misses and the likely repercussions if not reported. |
| 1. Understand working to a contract specification | * 1. Methods of work | * Learners will know how to set out using sources of technical information, to include focal points, levels and falls from datums, centre line, radius, tile pattern, 3: 4: 5 method, when undertaking wall and floor tiling activities. * Learners will know the methods for and purpose of setting out complex wall and floor tiles designs. * Learners will know the methods for and purpose of fixing and finishing tiles to include: patterns, motifs, irregular shaped designs, obtuse/acute angles, arches, curves, circles, treads and risers and landings. * Learners will know the different methods for and purpose of fixing wall and floor tiles. * Learners will understand their responsibility when undertaking wall and floor tiling activities regarding: * completing set work tasks to the required industrial standard and time frames set by a planned work programme * the effects of not meeting planned deadlines * reporting identified problems, communicating in line with organisational procedures. * Learners will know what tools and equipment to use when setting out levels for accuracy and correct transfer of levels when undertaking wall and floor tiling activities. * Learners can demonstrate understanding by completing a variety of tasks in college or the workplace to demonstrate they know how to set out, fix and use tools and equipment for a variety of complex methods of work i.e. circle cuts. |
| * 1. Tools and equipment | * Learners will know how to carry out pre-checks on hand and power tools to ensure they are fit for use and purpose when undertaking wall and floor tiling activities. * Learners will know how to use tools and equipment in line with the method of work and how to store and maintain them during and after use. * Hand tools: hand operated tile cutter, tiling trowels (serrated, gauging/bucket trowel), tile wheel cutting nippers/nippers, sealant gun, tile saws, hammer(s), carborundum stone/rubbing block, scribers, mitre block, spirit level, laser level, chisels, files, trimming tools, hacksaws, screwdrivers, retractable knives, tape measure/rule, chalk line, straight edge, square, squeegee, grout float, wash boy and sponge float, scraper, carbide tipped scoring tool, radius cutters, dividers, compass * Power tools: electric tile cutter, mixing paddle and drill, cordless drill and core hole cutter, tile cutters, portable angle grinder * Ancillary equipment: sponge, roller and tray, brushes, fixing batten/rule, nails/screws, polishing cloths, buckets, moving and handling aids and protective and sheets. * Via the workshop and/or working environment, learners will know how to use, maintain and store tools (hand and power) correctly to ensure they are fit for purpose for a wide variety of wall and floor tiling tasks. * Learners can demonstrate understanding by completing a variety of tasks in college or the workplace to demonstrate they know how to use tools and equipment correctly. |
| 1. Comply with the given contract information to carry out the work safely and efficiently to the required specification | * 1. Demonstrate the work skills to measure, set out, cut, apply, position, secure and finish | * Learners will be able to carry out pre-checks for background preparation for producing flat, curved and plumb/level and rigid surfaces. * Learners will comply to British Standards to ensure background preparation is to set requirements. * Learners will be able to select the suitable resources to tile wall and floor surfaces. * Learners will be able to set out tiling to different wall and floor surfaces using appropriate measuring and levelling equipment. * Learners will be able to fix tiles to wall and floor surfaces to include: * vertical, horizontal, curved and inclined. * Learners will be able to fix tiles to wall and floor designs to include: * soffits (heads), reveals, cills, patterns, columns, motifs and arches. * Learners will be able to cut straight, curved and angled tiles. * Learners will be able to install tile profiles (trims) and movement joints to wall and floor tiling surfaces. * Learners will be able to grout (cement and resin-based) and finish tiles to completion of wall and floor areas to include soffits (heads), reveals, cills, silicone sealants. * Via the workshop (simulated task) and/or working environment, learners will know how to complete tasks as detailed above to meet British Standards and manufacturer’s instruction. * Learners will be able to carry out remedial repairs to defective backgrounds and material breakdown to include: * dusting, * cracking * separation * loss of strength * poor quality materials and accessories * inadequate preparation and bonding * incorrect position of reinforcements, membranes and components. * Learners can demonstrate understanding by completing a variety of tasks in college or the workplace to evidence their work skills when tiling regarding measuring, setting out, cutting, applying adhesive, fixing tiles and grouting. |
| * 1. Use and maintain hand tools, portable power tools and associated equipment to: * mix and apply materials * fix tiles to complex surfaces, using two types from ceramic, mosaic and natural stone, to given working instructions for: arches; reveals; cills; soffits (door and/or windows); staircases and landings * fix tiles to complex designs using two types from ceramic, mosaic and natural stone, to given working instruction for at least two from the following: patterns; motif; curves and circles | * Learners will be able to select, safely use and maintain hand tools, power tools and ancillary equipment to: * mix, gauge * set/mark out * cut complex tiles to include patterns, irregular shaped designs, obtuse/acute angles, arches, curves, circles, treads and risers, landings * apply, position, secure tiles * finish * clean work area * use tools and equipment as listed in 2.2. * Via the workshop and/or working environment, learners will select, safely use and maintain hand tools, power tools and ancillary equipment to meet industry standards and manufacturer’s instruction for a wide variety of wall and floor tiling tasks. * Learners will be able to select, safely handle, stack and store wall and floor tiling resources using correct manual handling techniques. * Learners will be able to select appropriate personal protective equipment (PPE), when undertaking wall and floor tiling activities. * Learners will be able to protect the mixing, tiling and surrounding area from damage, when undertaking wall and floor tiling activities. * Learners will be able to maintain a clean work area and dispose waste in line with environmental guidance. * Learners will be able to report damages and defects in accordance with organisational policy, when undertaking wall and floor tiling activities. |