

## Occupational Specialist Content

Specialist content is structured into different Occupational Specialisms, which correspond to the apprenticeship standards listed on the relevant occupational map. The Occupational Specialism content below relates to the Construction Support Technician apprenticeship standard.

Occupational Specialisms ensure students develop the knowledge and skills necessary to achieve a level of competence needed to enter employment and are organised around 'Performance Outcomes' that indicate what the student will be able to do, as a result of learning and applying the specified knowledge and skills.

Each Performance Outcome sets out the knowledge and skills required to meet that Performance Outcome. As a result, the same content areas may appear in more than one Performance Outcome where it would be contextualised to that Performance Outcome.

There are some content areas that are included in both the Core and Occupational Specialism sections; this is intentional. Where in Core, it is because it is content that is applicable to all Design, surveying and planning students, regardless of the Occupational Specialism. If the same content area is also in the Occupational Specialism, it is because the knowledge is needed to achieve the relevant Performance Outcome. In the Occupational Specialism, it is therefore likely to require different content to reflect the Performance Outcome.

There are always fewer skills than knowledge. Skills do not include tasks that demonstrate the application of knowledge. For example, producing a method statement or risk assessment is a task that calls on knowledge of health and safety and how a task is completed, but the skills are in organising that knowledge in a logical way and communicating that effectively through choice of language and also digital skills in presenting.

# Occupational Specialist Content

## Occupational Specialism: Construction operations

### Performance Outcome 1: Plan for construction and built environment projects

Knowledge Specific to Performance Outcome	Skills
<p><b>Health and safety (K2, K3)</b></p> <p>Key requirements of health and safety legislation and regulations (e.g. Construction (Design and Management) Regulations 2015, Building Safety Act 2022) and the respective duties imposed.</p> <p>Key requirements of Approved Codes of Practice (ACoP) (e.g. Managing Health and Safety Construction) and how they are applied when planning for construction and built environment projects.</p> <p>Safe systems of work including company management systems, risk assessments, method statements and permits for work and their application to construction and built environment projects.</p> <p><b>Sustainability</b></p> <p>Principles of sustainable procurement and the environmental social and economic consequences of different approaches to procurement.</p> <p>Key requirements of environmental legislations and UK and United Nations Sustainable Development Goals (SDGs) and the challenges and opportunities they present to construction and built environment projects e.g. carbon, net zero, biodiversity.</p>	<p>Assess health and safety risks associated with a project.</p> <p>Assess commercial risks associated with a project.</p> <p>Assess operational risks associated with a project.</p> <p>Create and edit documents using digital software.</p> <p>Apply software functions to enter, collate, analyse and display information and data.</p> <p>Interpret information and data presented in different formats.</p> <p>Collate, organise and present data in different formats.</p> <p>Create secure document storage systems for a project.</p> <p>Summarise information and data to meet audience needs.</p> <p>Create documents appropriate to purpose and audience.</p> <p>Apply appropriate vocabular, grammar, form and structure to reflect audience, purpose and context.</p> <p>Identify discrete steps and activities</p>

<p>Potential positive and negative environmental effects of construction and built environment projects</p> <p>Sustainability measures (including the use of technology, environmental impact assessments, Building Research Establishment Environmental Assessment Method (BREEAM)) that can be incorporated into construction and built environment projects and the project management processes used to mitigate for negative impacts of construction and built environment projects on environments (including biodiversity, carbon) and communities and gain operational efficiencies.</p> <p>The concept of the circular economy and the lifecycle of a construction and built environment project and its contribution to achieving sustainability goals and targets.</p> <p><b>Information and data</b></p> <p>Types of documentation required to plan for construction and built environment projects eg land registry, maps, approval forms.</p> <p>Key requirements of legislation (e.g. relating to intellectual property, privacy, data protection), relating to creating, sharing and maintaining information and data.</p> <p>Types of data required to support plan for construction and built environment projects:</p> <p>how this is collected and measured</p>	<p>required to achieve required outcomes.</p> <p>Determine the critical path for a project.</p> <p>Sequence and prioritise project activities.</p> <p>Estimate quantities, costs and timescales for materials and labour for a project.</p> <p>Allocate resources to project activities.</p> <p>Apply appropriate mathematical techniques to the preparation of a project.</p>
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how data is recorded, presented and interpreted

how data is used to inform decision-making.

Factors to consider when using information and data including confidentiality, privacy, interoperability, intellectual property and security.

Techniques involved in management of data including classification, organisation, use of metadata and other tags, storage, protection, accessibility, interoperability, sharing.

Conventions of construction drawings and associated terminology.

### **Digital technology**

Principles, protocols and standards of digital engineering to support construction and built environment project information management, including reference to the 'golden thread'.

Digital engineering techniques and technologies used to plan for construction and built environment projects (e.g. simulation, modelling, workflows), their relevance and application.

Digital technologies (e.g. machine learning, smart buildings, asset identification) used to support construction and built environment projects, their benefits, limitations, opportunities, challenges and applications.

Internet of Things (IoT) and its

contribution to planning for construction and built environment projects.

### **Project management**

Stages involved in construction and built environment projects and activities required at each stage (including reference to Royal Institution of British Architects (RIBA) Plan of Work).

Constraints in construction and built environment projects (e.g. logistics, site location, hours of work) that can impact on project management success.

Factors that can affect the critical path of construction and built environment projects and the actions that can be taken when planning for projects to mitigate risks.

Project governance, the roles and responsibilities of key stakeholders (e.g. site managers, quantity surveyors) and how they can contribute to effective project management.

Techniques for value engineering and how these are used when planning for construction and built environment projects.

Project management tools for planning of different types of construction and built environment projects, including digital (e.g. use of spreadsheets to develop Gantt charts) and non-digital tools, their applications, benefits and limitations.

Principles and techniques associated with asset management and their application when planning for the build and lifetime

operation of construction and built environment projects.

**Business**

Costs associated with construction and built environment projects and the challenges and opportunities for optimising value.

Techniques for cost / benefit analysis.

Principles of quantification and costing and associated standards e.g. New Rules of Measurement (NRM), Civil Engineering Standard Method of Measurement 4 (CWSMM4).

Industry valuation standards, guidance and practice and how these are used to plan for construction and built environment projects.

Methods of procurement for construction and built environment projects; processes involved and implications for stakeholders.

The construction supply chain and different ways the supply chain operates for different types of construction and built environment projects.

types of contracts provided

associated quality standards

quality assurance requirements e.g. audits.

Commercial and operational risk associated with different construction and built environment projects, risks held by

different stakeholders, techniques used to assess potential risks of projects.

Methods used to measure the success of construction and built environment projects.

Factors (e.g. economic, environmental, legal, social, technological, political) likely to impact on success of construction and built environment projects.

Key principles of contract law, types of construction contracts, typical contract terms.

### **Relationship management**

Principles and policies of equity, diversity and inclusion and how these are used in planning for construction and built environment projects.

Ethical principles and implications for planning for construction and built environment projects.

Expectations and interrelationships of different stakeholders during the planning for a construction and built environment projects.

Principles of effective communication, the methods and styles that can be applied in different situations and their suitability for different audiences and situations.

Technical and non-technical vocabulary to achieve particular effects and for different purposes.

Conventions for written documents including formal reports.

**Construction principles**

Design process from conception to completion with consideration for building safety including human factors (e.g. heat, air quality).

Construction methods including traditional and modern methods of construction (including different categories).

Forms of construction (including infrastructure, substructures, superstructures, foundations and external works) and how the various elements of a building or structure work together.

Roles, functions and responsibilities of different occupations involved in construction and built environment projects, order of works and time required for different activities.

Operational and maintenance processes post construction.



**Performance Outcome 2: Monitor progress of construction and built environment projects**

<b>Knowledge Specific to Performance Outcome</b>	<b>Skills</b>
<p><b>Health and safety</b></p> <p>Key requirements of health and safety legislation and regulations (e.g. Construction (Design and Management) Regulations 2015, Building Safety Act 2022) and the respective duties imposed on employees and employers including those relating to the safety of visitors.</p> <p>Methods used to ensure all stakeholders are aware of health and safety requirements on site e.g. site inductions, toolbox talks.</p> <p>Key requirements of Approved Codes of Practice (ACoP) (e.g. Managing Health and Safety Construction) and how they are applied when monitoring construction and built environment projects.</p> <p>Safe systems of work including company management systems, dynamic risk assessments, method statements and permits for work and their application to construction and built environment projects.</p> <p>Types of Personal Protective Equipment (PPE) worn by site users and visitors to minimize exposure to hazards that cause serious workplace injuries and illnesses.</p> <p><b>Sustainability</b></p> <p>Key requirements of environmental legislations.</p> <p>Sustainability measures (including the use</p>	<p>Assess health and safety risks of observed on-site activities.</p> <p>Apply PPE appropriate to an activity.</p> <p>Edit documents using digital software.</p> <p>Enter data into digital software.</p> <p>Apply software functions to create spreadsheet templates, including linking worksheets, drop down menus, conditional formatting, inclusion of formula.</p> <p>Manage data effectively to support information flows.</p> <p>Consolidate information and data to support effective information access and sharing.</p> <p>Problem-solving (defining a problem; determining the cause of the problem; identifying, prioritizing, and selecting alternatives for a solution).</p> <p>Summarise information and data to meet audience needs.</p> <p>Adapt language to meet audience needs.</p> <p>Apply oral communication techniques to obtain and clarify information and data.</p> <p>Apply oral communication skills to clearly articulate a message.</p> <p>Apply non-verbal communication skills to</p>

<p>of technology, environmental impact assessments, Building Research Establishment Environmental Assessment Method (BREEAM)) that can be used to monitor the progress of construction and built environment projects.</p> <p><b>Information and data</b></p> <p>Types of documentation required to monitor construction and built environment projects.</p> <p>Key requirements of legislation (e.g. relating to intellectual property, privacy, data protection), relating to collecting, maintaining and sharing information and data.</p> <p>Types of data required from and shared with key stakeholders to support monitoring of construction and built environment projects.</p> <p>how this is collected and measured</p> <p>how data is recorded, presented and interpreted</p> <p>how data is used to inform decision-making.</p> <p>Factors to consider when using information and data including confidentiality, privacy, interoperability, intellectual property and security.</p> <p>Techniques involved in management of data including classification, organisation, use of metadata and other tags, storage, protection, accessibility, interoperability, sharing.</p>	<p>support communication.</p> <p>Apply communication techniques to secure audience understanding.</p> <p>Engage in discussion, listening to and responding to feedback.</p> <p>Show respect for others' views and opinions.</p> <p>Interpret information and data presented in different formats.</p> <p>Collate, organise and present data in different formats.</p> <p>Assess risks to a critical path.</p> <p>Sequence and prioritise project activities.</p> <p>Allocate resources to project activities.</p> <p>Assess risks to cash flow.</p> <p>Assess budget risks.</p> <p>Manage data effectively to support information flows.</p> <p>Consolidate information and data to support effective information access and sharing.</p> <p>Determine quantities, costs and timescales for materials and labour for a project.</p> <p>Apply appropriate mathematical techniques to the monitoring of a project.</p> <p>Problem-solving (defining a problem; determining the cause of the problem;</p>
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<p>Conventions of construction drawings and associated terminology.</p> <p><b>Digital technology</b></p> <p>Principles, protocols and standards of digital engineering and their use in exchanging construction and built environment project information and data with key stakeholders, including reference to the 'golden thread'.</p> <p>Digital engineering techniques used to monitor construction and built environment projects (e.g. workflows), their relevance and application.</p> <p>Digital technologies (e.g. machine learning, smart buildings, asset identification) used to support construction and built environment projects, their benefits, limitations, opportunities, challenges and applications.</p> <p>Internet of Things (IoT) and its contribution to monitoring construction and built environment projects.</p> <p>Digital software techniques and applications and their suitability for liaising with key stakeholders at different stages in a construction and built environment project.</p> <p>Online collaboration tools and their application when liaising with key stakeholders of a construction and built environment project.</p> <p><b>Project management</b></p> <p>Stages involved in construction and built environment projects and activities</p>	<p>identifying, prioritizing, and selecting alternatives for a solution).</p> <p>Determine variances in actual and predicted project outcomes.</p> <p>Reference digital works appropriately in different contexts.</p> <p>Encrypt and decrypt digital media.</p> <p>Migrate data from a collection of already identified trusted sources.</p> <p>Manipulate (e.g. blend, link) and analyse data to help solve problems.</p> <p>Verify the quality of information and data obtained online.</p> <p>Adapt digital media (e.g. documents, photos) to different formats (e.g. .pdf) to make it easier to exchange documents with colleagues.</p> <p>Represent patterns of (complex) data using visualisation tools.</p> <p>Source / migrate data from a collection of already identified trusted sources.</p>
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required at each stage (including reference to Royal Institution of British Architects (RIBA) Plan of Work).

Constraints in construction and built environment projects (e.g. logistics, site location, hours of work) that can impact on project management success and actions that can be taken to mitigate negative impacts.

Factors that can affect the critical path of construction and built environment projects and the actions that can be taken when monitoring projects and contributions that can be made by stakeholders to mitigate negative impacts.

Project governance, the roles and responsibilities of key stakeholders (e.g. site managers, quantity surveyors) and their involvement with construction and built environment projects

Techniques for value engineering and how these are used when monitoring construction and built environment projects to enable project success.

Project management tools for monitoring of construction and built environment projects, including digital and non-digital tools, their applications, benefits and limitations for different types of construction and built environment projects.

Principles and techniques associated with asset management and their application when monitoring construction and built environment projects.

**Business**

<p>Costs associated with construction and built environment projects and techniques used to monitor and control them throughout the lifecycle of a project.</p> <p>Types of budgets and factors considered in the development of budgets for construction and built environment projects (e.g. business objectives and values, type and purpose of project), implications of budgets to construction activities and decision-making including accountabilities, responsibilities and authorities for different budgets and construction and built environment projects.</p> <p>Principles of quantification and costing and associated standards e.g. New Rules of Measurement (NRM), Civil Engineering Standard Method of Measurement 4 (CWSMM4).</p> <p>Industry valuation standards, guidance and practice and how these are used to monitor construction and built environment projects.</p> <p>The construction supply chain and how different ways the supply chain operates can be used to support the success of construction and built environment projects.</p> <p>Potential risks associated with different construction and built environment projects, risks held by different stakeholders, techniques used to assess risk in projects including dynamic risk assessment.</p> <p>Methods used to measure the success of</p>	
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construction and built environment projects.

Contract terms and their implications for challenges, opportunities and risks arising during implementation of construction and built environment projects.

### **Relationship management**

Principles and policies of equity, diversity and inclusion and how these are used when monitoring construction and built environment projects.

Ethical principles and implications for monitoring construction and built environment projects.

Expectations and interrelationships of different stakeholders during stages of a construction and built environment project.

Principles of effective collaboration and team-working, techniques that can be applied and tools available to support success.

Principles of customer service and their use in setting and meeting expectations and managing relationships.

Negotiation techniques and their application for different situations.

Conflict management techniques and their application in different situations.

Principles of effective communication, the methods and styles that can be applied in different situations and their suitability for different audience and situations.

Technical and non-technical vocabulary to achieve particular effects and for different purposes.

Techniques for application of non-verbal communication including the use of body language and images to support audience understanding and engagement.

Pitch, tone and intonation used in oral communication and their impact on how a message is received.

Techniques for establishing and developing rapport with an audience in different situations and in different contexts.

### **Construction principles**

Construction methods including traditional and modern methods of construction (including different categories).

Forms of construction (including infrastructure, substructures, superstructures, foundations and external works) and how the various elements of a building or structure work together.

Roles, functions and responsibilities of different occupations involved in construction and built environment projects, order of works and time required for different activities.

Operational and maintenance processes post construction.

### **Maths**

Data analysis and techniques used to identify patterns and variances, trends,

<p>correlation and causation.</p> <p>Standard units of measurement including length, area, volume, time, temperature, mass, weight, capacity; conversion between units.</p> <p>Numbers and the number system including techniques for application of the four operations (addition, multiplication, division, subtraction), working with whole numbers, fractions, decimals, percentages.</p> <p>Techniques for checking calculations including estimation, approximation</p>	
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**Performance Outcome 3: Handover construction and built environment projects to clients**

<b>Knowledge Specific to Performance Outcome</b>	<b>Skills</b>
<p><b>Health and safety</b></p> <p>Methods used to ensure all stakeholders are aware of health and safety requirements on site e.g. site inductions, toolbox talks.</p> <p>Key requirements of Approved Codes of Practice (ACoP) (e.g. Managing Health and Safety Construction) required for construction and built environment project handovers.</p> <p><b>Sustainability</b></p> <p>Key requirements of environmental legislations and UK and United Nations Sustainable Development Goals (SDGs) and how they have been incorporated into construction and built environment projects.</p> <p>Sustainability measures (including the use of technology, environmental impact assessments, Building Research Establishment Environmental Assessment Method (BREEAM)) that can be incorporated into construction and built environment projects to mitigate for negative impacts of projects on environments (including biodiversity, carbon) and communities and gain operational efficiencies.</p> <p><b>Information and data</b></p> <p>Types of information, data and documentation required for a construction and built environment project handover.</p>	<p>Assess health and safety risks of a completed project.</p> <p>Create and edit documents using digital software.</p> <p>Enter data into digital software.</p> <p>Codify information and data to support effective knowledge management.</p> <p>Engage an audience.</p> <p>Summarise information and data to meet audience needs.</p> <p>Adapt language to meet audience needs.</p> <p>Apply oral communication skills to clearly articulate a message including data.</p> <p>Apply non-verbal communication skills to support communication.</p> <p>Apply communication techniques to secure audience understanding.</p> <p>Show respect for others' views and opinions.</p> <p>Collate, organise and present data in different formats.</p> <p>Collate information and data for archiving.</p> <p>Determine variances in actual and predicted project outcomes.</p>

<p>Key requirements of legislation (e.g. relating to intellectual property, privacy, data protection), relating to collecting, maintaining and sharing information and data.</p> <p>Factors to consider when using information and data including confidentiality, privacy, intellectual property and security.</p> <p>Techniques involved in management of data including classification, organisation, use of metadata and other tags, storage, protection, accessibility, interoperability, sharing.</p> <p>Conventions of construction drawings and associated terminology.</p> <p><b>Digital technology</b></p> <p>Principles, protocols and standards of digital engineering and their use in exchanging construction and built environment project information and data with key stakeholders, including reference to the golden thread.</p> <p>Digital technologies (e.g. machine learning, smart buildings, asset identification) used to support construction and built environment projects, their benefits, limitations, opportunities, challenges and applications.</p> <p>Digital software techniques and applications and their suitability for the handover of construction and built environment projects.</p> <p><b>Project management</b></p>	
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<p>Stages involved in construction and built environment projects and activities required at each stage (including reference to Royal Institution of British Architects (RIBA) Plan of Work).</p> <p>Processes, roles and responsibilities of key stakeholders involved in construction and built environment project handovers.</p> <p>Project management tools for handover of construction and built environment projects, including digital and non-digital tools, their applications, benefits and limitations for different types of construction and built environment projects.</p> <p>Principles and techniques associated with knowledge management and their application when handing over construction and built environment projects.</p> <p><b>Business</b></p> <p>Principles of quantification and costing and associated standards e.g. New Rules of Measurement (NRM), Civil Engineering Standard Method of Measurement 4 (CWSMM4).</p> <p>Potential post-construction risks associated with different construction and built environment projects, risks held by different stakeholders, techniques used to assess risk in projects including dynamic risk assessment.</p> <p>Methods used to measure the success of construction and built environment projects.</p>	
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## **Relationship management**

Principles and policies of equity, diversity and inclusion and how these are used when handing over construction and built environment projects.

Ethical principles and implications for handing over construction and built environment projects.

Expectations and interrelationships of different stakeholders during handover of construction and built environment projects.

Principles of customer service and their use in setting and meeting expectations and managing relationships during the handover of a construction and built environment project.

Conflict management techniques and their application in different situations.

Principles of effective communication, the methods and styles that can be applied in different situations and their suitability for different audience and situations.

Technical and non-technical vocabulary to achieve particular effects and for different purposes.

Techniques for application of non-verbal communication including the use of body language and images to support audience understanding and engagement.

Pitch, tone and intonation used in oral communication and their impact on how a message is received.

Techniques for establishing and developing rapport with an audience in different situations and in different contexts.	
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