

# Professional Certification - Foundation

## Basic Curriculum

### UK Module 6

### Learning Outcomes

Authors: UK BIM Alliance/buildingSMART Professional Steering Committee

Date: February 2022

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## Terms and Abbreviations

The following definitions and abbreviations are used in this document:

### **buildingSMART**

The worldwide authority driving the transformation of the built asset industry through the creation and implementation of open standards. This refers to both the international organisation (see buildingSMART International) as well as its regional Chapters.

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### **buildingSMART International (bSI)**

The central parent body that coordinates, manages and directs the worldwide buildingSMART organisation.

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### **buildingSMART International (bSI) UKI**

The regional Chapter representing the United Kingdom and Ireland and the Chapter responsible for the development of this Module 6 Body of Knowledge

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### **Body of Knowledge**

A document that provides content guidance to approved training providers and buildingSMART Chapters. It supports the Learning Outcomes for the buildingSMART Professional Certification – Foundation (Basic).

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### **Chapter**

A national (or regional) membership body representing the interests of buildingSMART at a local level.

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### **Committee**

The international committee mandated by bSI to develop the Professional Certification program.

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### **Curriculum**

A product of the Foundation level that represents the learning content for a specific domain (e.g. Basic, or Facility Managers). Each curriculum is defined by a set of 25-30 Learning Outcomes, a Body of Knowledge and Question Database.

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### **Foundation**

The first level of buildingSMART Professional Certification, representing a basic level of understanding, specifically in the form of 'Knowledge and Comprehension'.

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### **Learning Outcome (LO)**

An individual learning objective that forms part of a Topic, within a Module, within the Foundation Qualification Learning Outcome Framework.

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**Learning Outcome Framework (LOF)**

The entire learning structure (comprised of all modules, topics and individual learning outcomes) upon which the Foundation Qualification is based.

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**Module**

A subset of a curriculum, containing five to seven individual Learning Outcomes.

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**Practitioner**

The second level of buildingSMART Professional Certification, representing a comprehensive level of competency including applied learning and practical expertise.

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**Professional Certification**

The buildingSMART Program for individual learning and qualification. Also referred to as the 'Program'.

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**Program**

See Professional Certification.

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**Provider**

A training organisation, specifically one registered by buildingSMART to deliver approved training.

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**Qualification Platform**

The online platform to be used by students to take the qualification exam.

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**Question Database**

A list of questions and answers used in a Foundation qualification exam.

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**Student**

Individual intending to sit the Foundation qualification exam.

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## PART 1: Introduction

### Purpose of Document

This document provides an overview of the ‘UK Learning Outcomes’ for the localization of the buildingSMART “Professional Certification – Foundation (Basic)” Programme in the United Kingdom. It defines the Learning Outcomes and is supported by an additional Body of Knowledge to help training providers to build high quality and appropriate national content. Together they form an additional 6th Module to complement the 5 modules already embedded in the buildingSMART “Professional Certification – Foundation (Basic)”.

### Background

BuildingSMART Professional Certification is an international programme to provide a global benchmark for openBIM competency assessment and certification. As of January 2020, it is being adopted in over 20 countries in Europe, North America and Asia.

The programme has the following objectives:

1. Support the standardisation of openBIM training content;
2. Enable the approval of training organisations; and to
1. Enable the testing and qualification of individuals (who have undertaken these approved trainings).

Professional Certification is active in two areas. The **Foundation** level addresses knowledge and comprehension around openBIM principles (knowledge-based learning). The **Practitioner** level, which is currently in development, addresses practical expertise through the individual’s ability to apply, analyse and evaluate in activities at work.

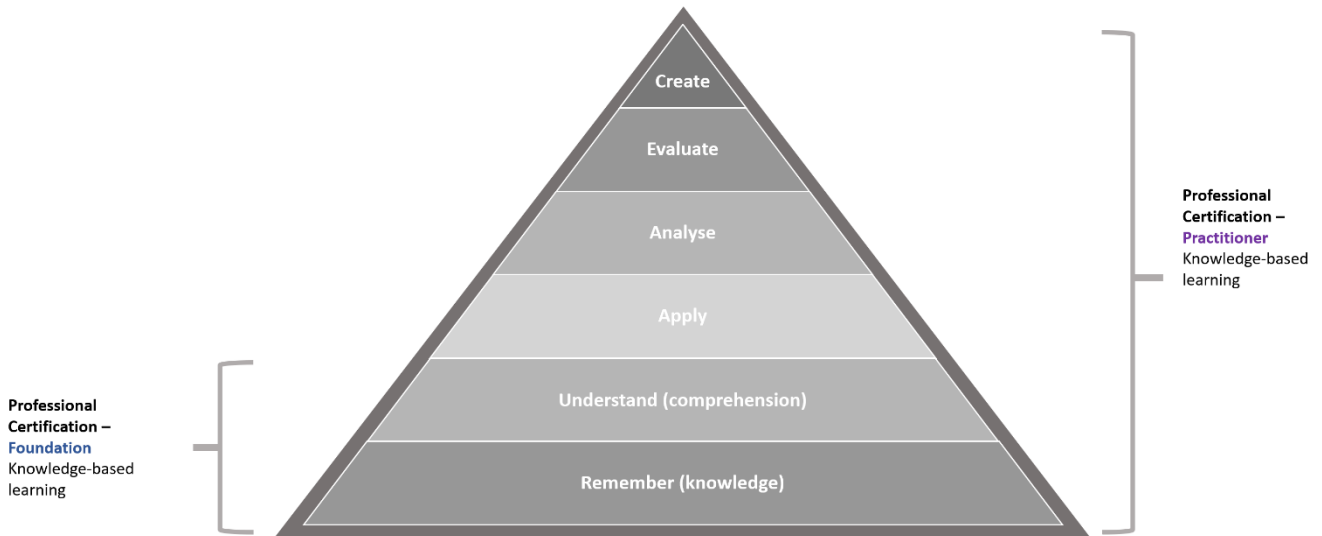


Figure 1: buildingSMART Professional Certification two skill levels, in reference to Bloom’s Taxonomy

### Programme Structure

**Professional Certification – Foundation** is structured around nine curricula, although new curriculum may be added as required. The Basic curriculum is the foundation of the Programme and is a prerequisite for an individual wishing to participate in any other extension curricula.



Figure 2: buildingSMART Professional Certification – Foundation Curriculum plan

For each curriculum, buildingSMART defines the following three components:

1. The **Learning Outcome Framework (LOF)**; the learning objectives which students on approved courses will be assessed against;
2. A **Body of Knowledge (BoK)**; a resource for Training Provider’s;
3. A **Question Database**, containing a pool of multiple-choice questions to populate the examination tool.

## **PART 2: UK Module 6 - Learning Outcomes**

### **Learning Outcomes Overview**

The remainder of this document defines the learning outcomes that form the core of Module 6, which highlights the key learning outcomes specific to the UK that are not currently covered in Modules 1-5 of the buildingSMART International Professional Certification Foundation (Basic).

In summary, the Learning outcomes are as follows (each one is expanded upon further in the Body of Knowledge).

buildingSMART UKI Module 6 Learning Outcomes	
<b>6</b>	<b>Understand the national standards and guidance with regards to the management of information on UK projects, within the context of the UK BIM Framework</b>
<b>6.1</b>	<b>Recognise the contextual requirements for the UK BIM Framework and its connection to the UK Government Construction and UKI Industrial Strategies, including any Government Mandates.</b>
	6.1.1 Describe the roles and responsibilities of the 'parties' and teams as part of the UK BIM Framework delivery (cultural / behavioural/ contractual) and the implications on Scopes of Services.
	6.1.2 Define the external context for information management using BIM, nationally and globally including support communities.
	6.1.3 Define the scope of the UK BIM Framework; the standards, guidance and supporting documentation, and the context in which it is delivered, including its relationship with the Construction Playbook (8 <sup>th</sup> December, 2020) and the Transforming Infrastructure Performance, (6 <sup>th</sup> December, 2017).
	6.1.4 Outline the challenges and barriers to successful adoption of the UK BIM Framework and how to create the conditions for success through project or business performance measures
	6.1.5 Recall the concepts of Soft Landings / Government Soft Landings (GSL) as part of project delivery including creating and maintaining an accurate and up to date Golden Thread record of information.
	6.1.6 Recognise the structure of the UK BIM Framework and the participating organisations (Centre for Digital Built Britain, bSI, UK BIM Alliance) and their involvement in the international BIM standards supported within the UK BIM Framework, including anticipated changes to current guidance.
<b>6.2</b>	<b>Understand UK specific information requirements for the management and exchange of information and the associated localised annex information (Capital Delivery)</b>
	6.2.1 Describe the scope of the information management requirements as described in BS EN ISO 19560-2:2018 & UK National Annex
	6.2.2 Recognise the requirements for information model exchange in a collaborative manner as described in BS EN SO 19560-2:2018 National Annex NA.5.1
	6.2.3 Recognise the requirements for the organisation of information meeting a standardised classification system in accordance with National Annex NA.4.4 and Uniclass 2015.
	6.2.4 Define information delivery milestones within principal work stages as described in BS EN SO 19560-2:2018 National Annex NA.6.1



6.2.5	Describe how a Common Data Environment (and its components as described in the BS EN ISO 19560-1:2018 & BS EN ISO 19560-2:2018) can be managed and controlled using the functions illustrated in the UK National Annex naming requirements NA.2, NA.3 and NA.4
6.2.6	Recall the technologies and methods for creating, using and maintaining structured information and the value and benefits of Open data formats to support the successful exchange of information with other technologies
6.2.7	Explain how the Incorporation of project and discipline specific UK professional bodies scopes of works (RIBA, ACE, BSRIA etc.) are part of the continued development of standardised processes and methodologies for information management, delivery and operational use.

<b>Understand additional UK information requirements in relation to whole lifecycle management (including organisational and asset management) and the application of relevant project handover deliverables, including ISO55000 requirements (Operational Management)</b>	
6.3.1	Outline the scope of the information management requirements as described in BS EN 19650-1:2018, BS EN ISO 19650-3:2020 and supported by BS 8536 and ISO 55000:2014.
6.3.2	Recognise the importance of competence within an organisation and its supply chain to deliver information in a collaborative manner. Include the understanding of the value in the assessment of technology and the interoperability of the organisation and the supply chain (IT systems, data security, accessibility etc).
6.3.3	Describe the purpose and communication of level of information need as described in BS EN ISO 19560-2:2018 using the principles of BS EN 17412-1:2020.
6.3.4	Explain the technical, technology and interoperability requirements of the UK BIM Framework (Information Management/CDE, model-based design and analysis) including UK naming conventions and UK classification systems.
6.3.5	Recognise the value in Digital delivery of information between supply chain members and with clients in context of BS 1192-4:2014 (COBie) and information delivery planning.
6.3.6	Recognise the value, benefits and investment associated with the implementation the UK BIM Framework within an organisation including the value of high-quality structured data and information using industry standards
<b>Understand the nature of UKI contractual and legal requirements including the usage of the Information Protocol in the built environment.</b>	
6.4.1	Recall the contractual documents and key terms required to support the UK BIM Framework and the implications of the UK BIM Framework on existing forms of contract.
6.4.2	Explain the ownership and permitted use of information and related issues of intellectual property, copyright, insurance and potential liabilities.
6.4.3	Understand the role of the UK BIM Framework Information Protocol in the parties' appointments.

	6.4.4	Recognise the legal and commercial contractual implementation implications for of the introduction of the UK BIM Framework and its Information Protocol on an organisation and its supply chain (e.g. commercial stakeholders)
<b>Understand the need and delivery of security and secure data requirements within the UKI built environment.</b>		
6.5	6.5.1	Recall the policies and processes which enable the implementation of mitigation measures to address identified security risks in a consistent and holistic manner in accordance with BS EN ISO 19650-5:2020.
	6.5.2	Understand the potential security threats to physical and digital assets, and the need for the development of security-minded approach as set out in BS EN 19650-5:2020
	6.5.3	Understand the controls required to reduce the risk of the loss, misuse or modification of sensitive information, that can impact on the safety, security and resilience of:- assets; products; the built environment; or the services provided by, from or through them
<b>Understand the requirements for the inclusion of Health and Safety information in the UK and CDM regulations within a managed project information exchange.</b>		
6.6	6.6.1	Understand the requirements for inclusion of data management and incorporation of CDM deliverables into the information model environment in line with PAS 1192-6 guidance from the UK BIM Framework
	6.6.2	Understand the importance of the Incorporation of project specific risk assessments including requirements set out within ISO19650 regarding information risk assessments and reviews.