

 **Durée : 4 jours**

 **Public**

Acteurs s'occupants de la stratégie d'entreprise et/ou de projet, gestion, planification, construction et l'exploitation.

 **Objectifs**

- ❖ Coopération selon le standard BuildingSMART.
- ❖ Accompagnement des équipes de projet et respect des directives B.I.M.
- ❖ Mise en perspective des objectifs B.I.M.
- ❖ Mise en place de processus qualités.
- ❖ Connaissance approfondie de l'openBIM et de l'échange de données et d'informations.
- ❖ Création de documents relatifs à la mise en place du contrôle et du suivi des processus.
- ❖ Navisworks

 **Prérequis**

- Avoir suivi une formation de coordination selon le standard openBIM du buildingSMART

 **Moyens pédagogiques et techniques**

- 1 station de travail par personne, 6 pers. max.
- Remise d'un support de cours

 **Modalités d'évaluation et CERTIFICATS**

- Attestation MuM Platinum
- Autodesk Certificate of Completion

 **Formations complémentaires**

- BIM Coordination
- buildingSMART Phase 01

Formation BIM Management

Introduction

- Qu'est-ce que le B.I.M
- Notions et concepts
- Standards et tendances
- OpenBIM vs close-BIM
- Amélioration des processus
- Opportunités et risques avec le B.I.M

Gestion de l'organisation BIM

- Stratégie de mise en oeuvre
- Directives et ressources
- Communication
- Mise en application du B.I.M
- Modèle d'entreprise autour du B.I.M
- Gestion du changement en faveur du déploiement B.I.M

Documentation BIM (I)

- La documentation en B.I.M
- Charte
- Cahier des charges
- Convention
- Plan d'Exécution B.I.M

Documentation BIM (II)

- Objectifs B.I.M
- Cas d'usages
- Prérequis B.I.M
- Planification selon éléments de mission
- Définition du processus B.I.M
- Stratégie d'échange d'informations

Management BIM

- Rôles, responsabilités et redevabilités
- Standard ISO 1650, Bâtir Digital Suisse
- Administration de CDE
- Suivi de projet
- Communication et gestion de données
- Maîtrise de la qualité

Workflow BIM

- Structure de la maquette
- Workflow pluridisciplinaire
- Coordination et supervision

 **Durée** : 1 jour

 Prérequis

Connaissance du monde la construction.

 Public

Tout professionnels de la construction souhaitant se former au BIM et obtenir la certification Internationale.

 Objectifs

- ❖ La formation respecte la terminologie et suit le contenu de la norme ISO 19650. Elle est structurée selon les acquis d'apprentissage définis par buildingSMART :
- ❖ Comprendre la définition, la terminologie et les avantages de B.I.M
- ❖ Reconnaître les avantages du B.I.M comparés aux méthodes traditionnelles de projet.
- ❖ Comprendre la gestion de l'information de projet selon la norme ISO 19650.
- ❖ Reconnaître la nécessité de solutions ouvertes et interopérables (openBIM)
- ❖ Comprendre les termes et la façon de mesurer la capacité B.I.M d'une organisation ou entreprise
- ❖ Cette formation est agréée par buildingSMART, elle répond aux exigences concernant l'openBIM

 Moyens pédagogiques et techniques

- 1 station de travail par personne, 6 pers. max.
- Remise d'un support de cours

 Modalités d'évaluation et CERTIFICATS

- Certification BuildingSMART phase 1

 Formations complémentaires

- Certification BuildingSMART phase 1
- Assistance et coaching projet

Formation BuildingSMART Phase 01

Comprendre le BIM

- ❖ Facteurs qui ont conduit au BIM
- ❖ Bases du BIM
- ❖ Terminologie BIM
- ❖ Stades de maturité BIM
- ❖ Modèle d'informations BIM

Avantages du BIM

- ❖ Collaboration
- ❖ Mauvaise gestion de l'information
- ❖ Processus et normes
- ❖ Avantages pour les professionnels de la construction
- ❖ Avantages pour les Maîtres d'Ouvrage et les exploitants

La gestion de l'information selon ISO 19650

- ❖ 3.1 Définition des exigences – Cahier des charges BIM
- ❖ 3.2 Plan d'Exécution BIM
- ❖ 3.3 Echanges d'information
- ❖ 3.4 Environnement de Données Commun (CDE)
- ❖ 3.5 Rôles clairement définis
- ❖ 3.6 Evaluation des participants au projet

openBIM

- ❖ 4.1 BuildingSMART
- ❖ 4.2 openBIM
- ❖ 4.3 IFC
- ❖ 4.4 MVD
- ❖ 4.5 IDM
- ❖ 4.6 IFD/bSDD
- ❖ 4.7 BCF
- ❖ 4.8 COBie

Capacité BIM

- ❖ 5.1 Avantages de l'adoption du BIM
- ❖ 5.2 Définir le stade de maturité BIM
- ❖ 5.3 Aligner les objectifs avec la stratégie d'entreprise
- ❖ 5.4 Bénéfices et défis du déploiement du BIM
- ❖ 5.5 Sécurité des données

Le BIM en Suisse

- ❖ Bâtir Digital
- ❖ SIA
- ❖ CRB

Examen final de validation en Ligne

buildingSMART
Professional Certification

PHASE 1: INDIVIDUAL QUALIFICATION

Overview and Sponsorship Plan



Program Sponsors



Akademie



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Informations

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CAD as CAD car

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Professional Certification Program

Phase 1: Individual Qualification Overview and Sponsorship Plan

Prepared by: Mark Baldwin, Leader,
buildingSMART International Professional Certification Committee

Reviewed by: buildingSMART International Professional Certification Committee
& Advisory Panel

Contact: professional.certification@buildingsmart.org

Draft: Version 1.0 - May 2018

Foreword

In recent years we have witnessed an accelerated adoption of Building Information Modelling (BIM) around the world. However, there is still a lot of confusion and a lack of consistency in defining processes and agreeing on basic terms and concepts. There is also a great disparity in the competence of industry professionals who manage and deliver BIM projects.

For BIM adoption to be successful, we need

- Consensus in the use of standardised terminology and processes
- A benchmarking mechanism against which the competence of individuals can be measured

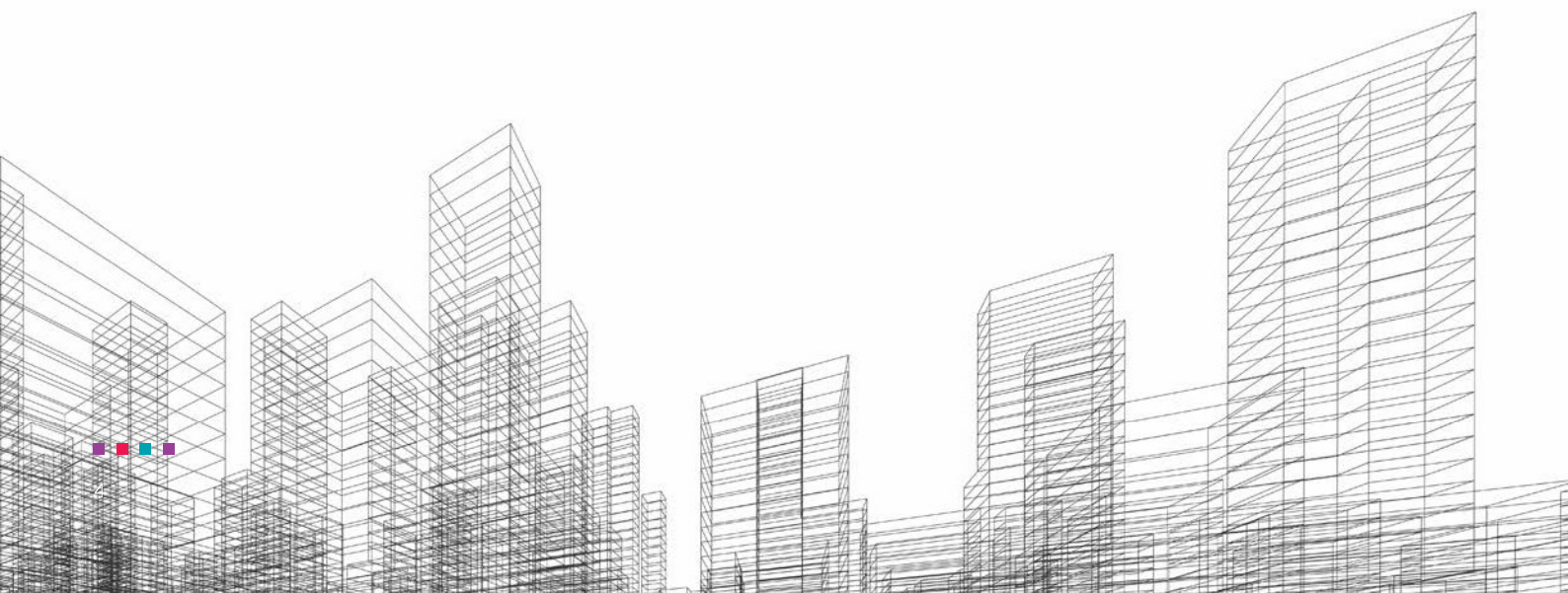
buildingSMART is a recognised leader in the development of openBIM standards and can bring clarity and consensus in the definition and application of openBIM principles. Through its Professional Certification Program, buildingSMART will provide a global benchmark for openBIM training and certification.

This Program will have a widespread impact across the global industry. It will provide a stable reference point for professionals working in the field of BIM. It will also assist employers in recruiting BIM professionals as well as provide transparency for project developers in procuring BIM competent consulting and contracting firms.

Like all buildingSMART initiatives, the success of this Program is dependent on industry participation. I encourage you to engage with this Program at the level that is most suitable for you as an international sponsor, as a local partner or training provider within your Chapter, or as an industry professional seeking a globally recognised training.



Richard Petrie
Chief Executive,
buildingSMART International



Part 1

Introduction

The Professional Certification Program exists to support training organisation to deliver internationally standardised and recognised training content. **buildingSMART is not, and will not become, a training organisation.**

However buildingSMART will, through the Professional Certification Program

- Support the standardisation of openBIM training content
- Enable the approval of training organisations
- Test and qualify individuals (who have undertaken these approved trainings)

*Individual Qualification,
is the first release
(Phase 1) of the Program*

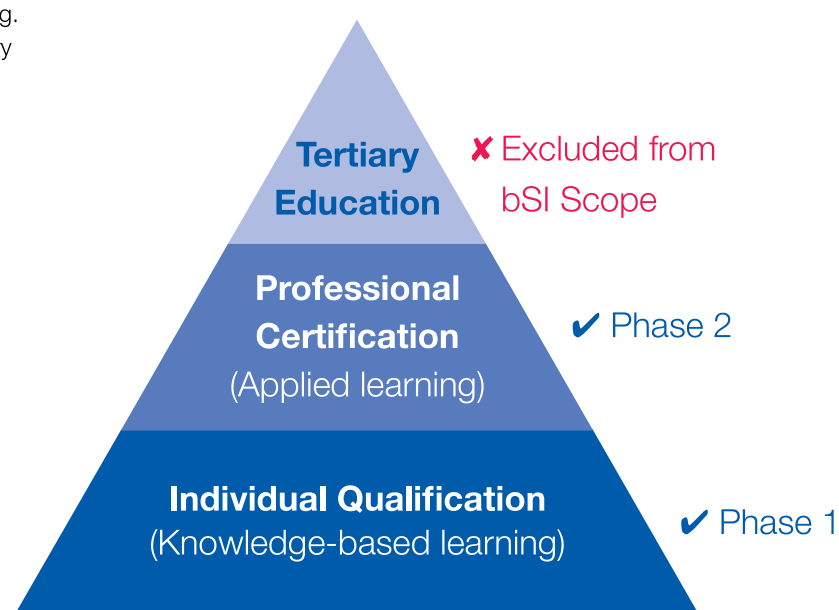
1.1 Scope

The Program is divided into two phases. Phase 1, called Individual Qualification, is the first release of the Program that focusses on knowledge-based learning. The Individual Qualification was developed based on the successful education program from buildingSMART Norway. In September 2017 this Program was officially launched by buildingSMART International and is now being adopted and implemented by Chapters around the world.

In Phase 2 a more comprehensive version of the Program will be launched that will focusses applied learning within the field. This second phase, simply labelled 'Professional Certification', is expected to be market-ready in 2021.

Tertiary education is the highest possible level of training. However, as buildingSMART is industry focused, tertiary education is not addressed within this Program.

The current focus of buildingSMART is on Phase 1: Individual Qualification, as outlined in this document.



Program Scope & Phases

Part 2

Individual Qualification

Individual Qualification delivers in three areas:

- **Content Development**
defining learning outcomes and related resources
- **Course Approval**
the procedure to review and approve candidate training
- **Individual Qualification**
the testing and qualification of individuals who have undertaken an approved training

2.1 Content Development

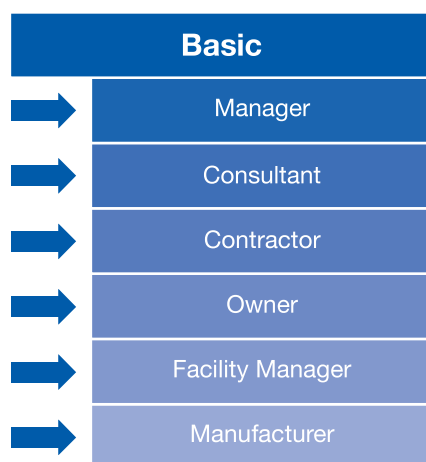
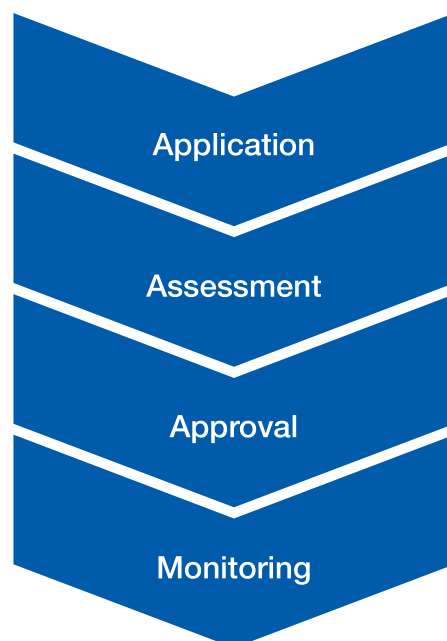
Learning content is delivered in multiple modules. There are currently seven modules planned (see below). The Basic module, which is already complete, is the foundation of the Program and is mandatory for all Chapters to adopt.

Each Module has specific learning outcomes defined by buildingSMART International (bSI). These learning outcomes are international standards. The buildingSMART Chapters who implement the Program cannot change the core learning content however, they can add additional local content to meet national standards or requirements.

2.2 Course Delivery Approval

Training providers who wish to deliver a buildingSMART approved course must apply to their local buildingSMART Chapter. The review and approval of training organisations follows a four-stage process.

Course approval is delivered by the buildingSMART Chapter, or its nominated representative. Training providers are obliged to pay a fee of between €1,500 – 2,500* for the approval process. Course approval will be valid for two years, after which time the training provider must reapply.



2.3 Individual Qualification

Individuals wishing to receive bSI qualifications must complete a buildingSMART approved course from a registered training Provider. Once the training is complete, the candidate is eligible to sit an exam and become buildingSMART Qualified.

Testing and qualification is managed via an online Qualification Platform. This is a straightforward multiple-choice exam that can be completed within 30 minutes. Directly after completing the exam, the candidate will be notified of their result. If they have passed, they will receive a digital certificate with their name, training provider, unique ID, date etc. which can be printed or shared digitally.

The cost of the individual assessment and qualification is between €75-125.*

Once the training is complete the candidate is eligible to sit an exam and become buildingSMART Qualified.



Above:
Individual Qualification Certificate

Left:
Online Qualification Program

*buildingSMART International has set a fee-range for course approval and individual qualification. This allows Chapters to determine their own fee (within this range) to best reflect their market conditions.

Part 3

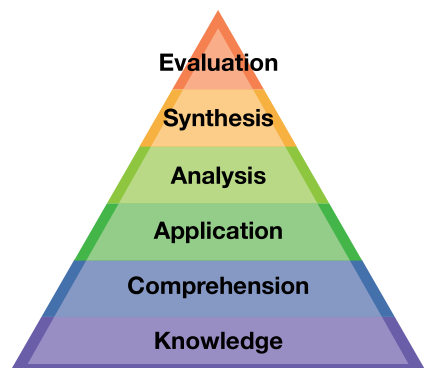
Learning Outcome Framework

3.1 Methodology and Structure

The Program utilises Bloom's Taxonomy to classify the level of learning required.

As an entry level, the Individual Qualification has been designed to satisfy only basic knowledge requirements around BIM specifically the knowledge and comprehension learning levels of Bloom's Taxonomy.

In Phase 2, the more advanced learning levels (application, analysis, synthesis and evaluation) will be addressed.



3.2 Learning Outcome Framework

The Learning Outcome Framework (LOF) is the core component of the Program. Each module is to have a minimum of 25 and maximum of 30 individual Learning Outcomes (LOs).

The LOs define the minimum learning that approved trainings must convey within their course curricula and is subsequently the framework against which applicant courses will be assessed and approved. The LOs are also the basis for the testing and qualification processes.

The Basic module contains 28 LOs.

3.3 Question Database

A question database of a minimum 150 questions is to be created for each LO module. The question database is used in the Qualification Platform to randomly select questions for each candidate test.

3.4 Body of Knowledge

A Body of Knowledge will be created for each module. This is not a learning resource, but rather a source reference for each learning objective and question content covered in a particular module. Chapters may also wish to translate this into their local language to support their local training providers in developing their course.

3.5 Purpose and Use

Training Providers are encouraged to use this LOF as a basis for developing BIM training content. However, it is not intended that the LOs alone will compose a full course curriculum. The LOF represents the minimum learning and it is expected that approved courses will cover other content in addition to the LOs described within this framework. We suggest that the time required to sufficiently cover all content within the LOF is not less than 6 hours. This is designed to be implemented into training courses with a duration of 1 – 2 days.

The LOs define the minimum learning that approved trainings must convey within their course curricula and is subsequently the framework against which applicant courses will be assessed and approved.

3.6 Basic Learning Outcome (Overview)

1 Understand what BIM is, why it is needed, and recognise its specific terminology.

- 1.1 Define the drivers that have led to BIM;
- 1.2 Define BIM;
- 1.3 Identify & define key BIM terminology;
- 1.4 Define BIM maturity levels;
- 1.5 Define what constitutes an Information Model.

2 Recognise the advantages of BIM compared to traditional project delivery.

- 2.1 Know why collaborative and new ways of working are required;
- 2.2 Identify the effects of poor information management on projects;
- 2.3 Identify the standards developed to mitigate poor information;
- 2.4 Identify the benefits of BIM to construction professionals;
- 2.5 Identify the benefits of BIM adoption to clients and facility management.

3 Understand the project information development cycle (and its key terms); specifically how project information is specified, produced, exchanged, and maintained.

- 3.1 Know why employers need to clearly define their requirements (EIR);
- 3.2 Know why the supply chain needs to agree a plan to execute BIM on the project (BEP);
- 3.3 Know why consistent exchanges of information are required;
- 3.4 Identify the key elements and benefits of using a collaborative exchange platform (CDE);
- 3.5 Know why clearly defined information management responsibilities are required;
- 3.6 Know why assessing potential supply chain members before appointment is required.

4 Recognise the need for open and interoperable solutions.

- 4.1 Define the buildingSMART community;
- 4.2 Define openBIM and its benefits compared to using proprietary products and systems;
- 4.3 Know what IFC is and its benefits;
- 4.4 Know what MVDs are and their benefits;
- 4.5 Know what IDMs are and their benefits;
- 4.6 Know what the bSDD is and its benefits;
- 4.7 Know what BCF is and its benefits.

5 Identify an organisation's capability in working with BIM.

- 5.1 Understand the potential benefits for a company in adopting BIM;
- 5.2 Understand the factors that define an organisation's level of BIM Maturity;
- 5.3 Know why BIM adoption needs to align to organisational goals;
- 5.4 Identify the benefits and challenges to BIM adoption;
- 5.5 Know what the data security implications are for adopting BIM.

Part 4

Organisation & Sponsorship

4.1 Organisational Structure

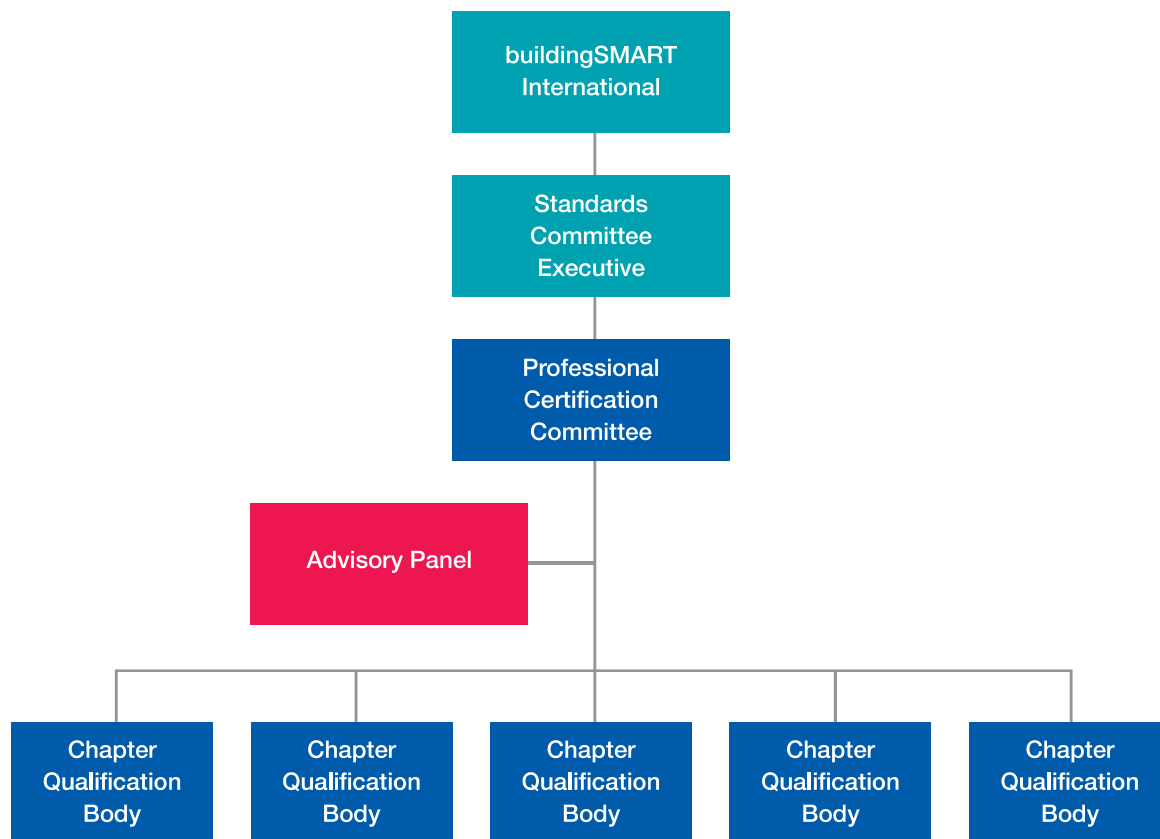
The Program is managed at an international level by the bSI Professional Certification Committee. This body, currently representing seven buildingSMART Chapters (Canada, Germany, Japan, Korea, Norway, Spain, Switzerland and UK & Ireland) reports to the bSI Standards Committee Executive (SCE) and coordinates all 'down-stream' development of the Program with the local Chapter committees. An Advisory Panel provides external input and peer review.

4.2 Sponsorship

The Program will have a huge impact on BIM education around the world. It will establish a benchmark for professional competency and will help raise the level of BIM delivery across the global industry.

We are offering a select number of organisations to partner with us at an international level. Becoming an international sponsor enables an organisation to align itself with this important initiative.

An Advisory Panel provides external input and peer review.



Program Organisation

Contact Information

For further information on our sponsorship package please contact us at:

Professional.Certification@buildingSMART.org

Or visit: <https://education.buildingsmart.org>

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International Program Sponsors:



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