

Autodesk Certified Professional in BIM Management for Building Design Certification Prep

Instructor guide

Course duration if teaching with this material in class: ~8 hours, depending on lecture time

Recommended level: Professionals/students in architecture or construction programs, 4-year and graduate level

Product: Revit, Autodesk Forma

This instructor guide is a comprehensive tool for facilitating this course in the classroom. Prepare to teach the course by thoroughly reviewing this document, as well as all related course materials and resources. You may also share this document with your students to guide them in their assignments. It's always recommended that you work through the course yourself in preparation for each module.

Learning objectives:

- Establish and maintain BIM standards, templates, and execution plans.
- Analyze project requirements and align multidisciplinary workflows.
- Coordinate and manage Common Data Environments (CDEs) and 3D models.
- Audit, troubleshoot, and maintain model health and quality control.
- Conduct structured project closeout and deliver accurate, compliant handovers.
- Apply best practices to improve collaboration, efficiency, and long-term BIM maturity.

The overall course contains the following resources:

- Four video modules covering all the topics in the course.
- Quiz questions with timecodes for remedial knowledge check.
- Exam-style final test questions at the conclusion of the course.
- Four practice exercises with exercise files and solutions.
- One challenge assignment with recommended assessment criteria.

Pre-requisites:

The Autodesk Certified Professional (ACP) certification is designed for candidates who have a diverse understanding of BIM project planning, workflows, and delivery tools. Candidates typically have 4 or more years of professional BIM administrative experience, with a recommended 2,000 hours or more of

Autodesk software experience, on a variety of project typologies which include multidisciplinary project design, management, and collaboration; quality assurance; and toolset expertise.

It's expected that candidates will already know how to:

- Use Autodesk AEC authoring tools.
- Manage access and permissions in Forma Data Management and have familiarity with Project Hub roles within Autodesk Forma.
- Conduct model coordination and clash detection (Autodesk Forma, Autodesk Navisworks, etc.).
- Organize files and align documentation with standards and client requirements.
- Work with point clouds.
- Create and enforce a BIM Execution Plan.
- Demonstrate basic knowledge of national and international BIM standards (e.g. ISO 19650 standards and their use in BIM projects).
- Assess team capabilities and building curricula to support user knowledge and skills.
- Evaluate technology (e.g. add-ins, hardware, and software, AI tools).
- Monitor and address model health issues.

Structure of the course:

The course is split into 4 modules and is designed to cover the specific topics that are covered on the Autodesk Certified Professional in BIM Management for Building Design certification exam. You'll get an overview of the knowledge and skills that you need to review in order to prepare for it.

Videos:

Each video begins with a list of learning objectives covered in the video. The video matches with the order found in the exam objectives.

Dataset:

This course has one dataset folder for the practice exercises, including Revit files in Imperial and Metric units. There is also a dataset Revit file for the course challenge included.

Practice exercises:

There are 4 practice exercises included, each exploring a different set of topics. The practice exercises are designed to give learners an opportunity to test their knowledge and apply what they have learned. Each practice exercise is accompanied by a dataset and video solution.

Challenge exercise:

One challenge assignment is included, focusing on a set of topics covered in the course. Students are presented with a challenge in an applicable real-world situation, and they apply their skills and the techniques learned to solve the challenge. A grading rubric is provided for the instructor, giving guidelines on assessment criteria. You can also encourage students to work in small groups, first discussing the desired outputs and working collectively to derive the best process and execution in the software.

Video quiz questions:

Knowledge check questions are included with each video of the course and the timecodes are included so that students can review the related sections in the video for questions they have answered incorrectly.

Final test questions:

A cumulative set of exam-style questions are included at the conclusion of the course for students to measure what they have learned against realistic multiple-choice questions.

Using the course in the classroom or self-paced

This course can be implemented as an independent, self-paced project, or can be completed in the classroom in a team setting. A couple of options are outline below:

Option 1: Self-paced

Each student will log into Autodesk.com/learn using their Autodesk Account credentials and follow along with the project instruction. (Alternatively, you may choose to assign the material through your LMS). Students can work through the projects on their own by following the project steps and challenge instructions, and by exploring any supporting assets. This is a great way to allow students to move through the learning materials at their own pace and explore additional learning opportunities or increase shop time. The self-paced option can also be used for out of classroom or remote assignments. A certificate of completion is awarded once the course is completed.

Option 2: Instructor-led

In this option, instructors will log into Autodesk.com/learn using their Autodesk Account credentials and download the learning materials. Instructors can then guide the students through each project, using the accompanying practice exercises as handouts. This option allows for guided, step-by-step classroom engagement. This approach works well in a more traditional classroom setting and will allow instructors to easily keep students on the same pace. The challenge exercise can be used as a learning opportunity for students who complete their work early or are looking for additional hands-on opportunities.

Course contents

Each module is listed below along with suggested time allocations for instruction. Review the video tutorials for the detailed instruction in each module.

Module 1-01 Establish BIM standards to align with organizational requirements

Total time required for module: 35 minutes

Discuss objectives: 1 minute

Exam objectives:

1.1 Establish BIM standards to align with organizational requirements

- 1.1.a Create model health thresholds
- 1.1.b Research, interpret, and apply industry data standards

Demonstrate: 8 minutes

- Establish and maintain BIM model health thresholds.
- Explore methods to enhance model performance and graphical consistency.
- Research and apply relevant industry BIM data standards.
- Develop Autodesk Forma templates aligned with standards.
- Apply best practices for continuous improvement in BIM documentation.

Hands-on time: 25 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes

Module 1-02 Create project and content templates

Total time required for module: 35 minutes

Discuss objectives: 2 minutes

Exam objectives

1.2 Create project and content templates

- 1.2.a Create Autodesk Forma project template
- 1.2.b Create multidisciplinary model templates
- 1.2.c Customize content creation template
- 1.2.d Support graphic standards via authoring tools (e.g., create view templates, customize annotations)

Demonstrate: 12 minutes

- Create and manage standardized Autodesk Forma project templates.
- Define folder structures with access permissions aligned to roles.
- Standardize key elements like title blocks, units, view templates, and parameters.
- Enforce graphic standards using templates, filters, and settings.
- Maintain visual consistency and align with office standards.

Hands-on time: 20 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes
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Module 1-03 Develop BIM Execution Plan (BEP) templates

Total time required for module: 35 minutes

Discuss objectives: 2 minutes

Exam objectives

1.3 Develop BIM Execution Plan (BEP) templates

- 1.3.a Establish risk management system template
- 1.3.b Define mobilization plan templates
- 1.3.c Establish information delivery plan templates (e.g., TIDP, MIDP, AIA, or ConsensusDocs)

1.3.d Define project team roles and responsibilities

Demonstrate: 12 minutes

- Use BIM templates to ensure structure and consistency across projects.
- Apply templates to improve team coordination, manage risks, and streamline information flow from design to handover.
- Implement a unified framework to improve project control and clarity.
- Define clear roles to enhance accountability and collaboration.
- Integrate information needs with standards to improve quality, efficiency, and asset management.

Hands-on time: 20 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes
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Module 1-04 Evaluate digital tools that improve the consistency and efficiency of deliverables

Total time required for module: 25 minutes

Discuss objectives: 2 minutes

Exam objectives:

1.4 Evaluate digital tools that improve the consistency and efficiency of deliverables

- 1.4.a Establish a standard process for evaluating tools
- 1.4.b Evaluate and build a business case

Demonstrate: 6 minutes

- Establish a consistent process for evaluating tools fairly and efficiently.
- Apply clear, evidence-based criteria to ensure objective and unbiased assessments.
- Build measurable business cases supported by data to justify decisions.
- Align tool evaluations and outcomes with organizational goals and strategic priorities.

Hands-on time: 15 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes
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Module 1-05 Document best practices at the corporate level

Total time required for module: 25 minutes

Discuss objectives: 2 minutes

Exam objectives:

1.5 Document best practices at the corporate level

- 1.5.a Define the QA/QC process for milestone review
- 1.5.b Review BIM standards
- 1.5.c Perform post-project evaluation

Demonstrate: 7 minutes

- Define the QA/QC process for milestone reviews.
- Identify how BIM standards shape project consistency.
- Perform effective post-project evaluations.
- Apply best practices across all BIM phases.
- Strengthen collaboration and quality assurance.

Hands-on time: 20 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes

Module 1-06 Develop training and learning paths

Total time required for module: 25 minutes

Discuss objectives: 2 minutes

Exam objectives:

1.6 Develop training and learning paths

- 1.6.a Aggregate and evaluate current staff competencies against requirements
- 1.6.b Create training and provide resources to support career pathways

Demonstrate: 7 minutes

- Use BIM templates to ensure structure and consistency across projects.
- Apply templates to improve team coordination, manage risks, and streamline information flow from design to handover.
- Implement a unified framework to improve project control and clarity.
- Define clear roles to enhance accountability and collaboration.
- Integrate information needs with standards to improve quality, efficiency, and asset management.

Hands-on time: 15 minutes

Review objectives: 1 minute

Assignments (additional):

- **Practice Exercise 1: Perform a model health check:** 10 min
 - **Quiz:** 2 minutes
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Module 2-01 Analyze project requirements

Total time required for module: 25 minutes

Discuss objectives: 2 minutes

Exam objectives:

2.1 Analyze project requirements

- 2.1.a Determine clients' BIM requirements
 - i. May include identifying expectations, milestones, and deliverables, and assessing BIM goals and uses.
- 2.1.b Strategize ecosystem of tools for project execution
- 2.1.c Assess each task team capability and capacity and determine training requirements

Demonstrate: 10 minutes

- Effectively determine client BIM requirements.
- Employ strategies for setting up tools and workflows for efficient project execution.
- Evaluate team capability and capacity to identify training needs.
- Apply best practices to ensure effective, coordinated BIM delivery.

Hands-on time: 10 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes
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Module 2-02 Develop and implement project-specific BIM Execution Plan (BEP)

Total time required for module: 35 minutes

Discuss objectives: 2 minutes

Exam objectives:

2.2 Develop and implement project-specific BIM Execution Plan (BEP)

- 2.2.a Establish BIM goals and uses (e.g., define and support project-specific templates and content, establish the mobilization plan, etc.)
- 2.2.b Establish the delivery team's risk management system (e.g., quality control procedures, access control, model use limitations, communication breakdown)
- 2.2.c Establish information delivery plans

2.2.d Distribute BIM Execution Plan (BEP)

i. May include confirming the delivery team's BEP and implementing custom project conditions to include in the BEP.

2.2.e Establish level of development (LOD) or Level of Information Need

Demonstrate: 15 minutes

- Define and align BIM goals and uses.
- Establish team risk management frameworks.
- Develop information delivery and coordination strategies.
- Manage BEP distribution and version control.
- Determine levels of development (LOD) and information needs.

Hands-on time: 15 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes
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Module 2-03 Initialize project setup

Total time required for module: 20 minutes

Discuss objectives: 2 minutes

Exam objectives:

2.3 Initialize project setup

2.3.a Establish project datums (e.g., Shared Coordinates, Levels, Grids)

2.3.b Assemble interdependent models

2.3.c Implement project-specific BIM processes

i. May include Shared Parameters, Worksets, Phases, Autodesk Forma folders and permissions, and model coordination workflow

2.3.d Initialize or participate in internal and external project kickoff meetings

Demonstrate: 8 minutes

- Establish project datums and shared coordinates.
- Assemble and manage federated BIM models.
- Implement project-specific BIM processes effectively.
- Participate in productive project kickoff meetings.

Hands-on time: 10 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes
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Module 2-04 Implement quality control procedures

Total time required for module: 20 minutes

Discuss objectives: 2 minutes

Exam objectives:

2.4 Implement quality control procedures

2.4.a Analyze project models for performance and model health and identify areas of improvement

2.4.b Check model information for completeness and compliance with specified requirements according to project standards

Demonstrate: 5 minutes

- Identify and resolve performance issues within project models.
- Apply effective model health checks to maintain efficiency.
- Use data validation tools for completeness and compliance.
- Implement systematic quality control procedures across BIM projects.

Hands-on time: 10 minutes

Review objectives: 1 minute

Assignments (additional):

- **Practice exercise 2: Create a project in Autodesk Forma**
 - **Quiz:** 2 minutes
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Module 3-01 Manage Common Data Environment (CDE) process

Total time required for module: 20 minutes

Discuss objectives: 1 minute

Exam objectives:

3.1 Manage Common Data Environment (CDE) process

- 3.1.a Share BIM data files and models with third parties
- 3.1.b Manage data security
- 3.1.c Implement issue tracking

Demonstrate: 10 minutes

- Share BIM data safely and appropriately.
- Apply secure permission structures.
- Support compliant external collaboration.
- Implement consistent issue tracking.
- Ensure alignment with project standards.

Hands-on time: 10 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes

Module 3-02 Coordinate and maintain geolocation

Total time required for module: 25 minutes

Discuss objectives: 2 minutes

Exam objectives:

3.2 Coordinate and maintain geolocation

- 3.2.a Extend coordinates across multidisciplinary project models
- 3.2.b Implement a building location change using shared coordinates
- 3.2.c Reconcile geolocation issues (e.g., resolving differences in project units, addressing unintentional changes, etc.)

Demonstrate: 7 minutes

- Extend shared coordinates correctly across discipline models.
- Implement building location changes with minimal disruption.
- Troubleshoot and resolve common geolocation issues.
- Apply best practices to maintain accurate model alignment.

Hands-on time: 14 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes
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Module 3-03 Manage 3D coordination

Total time required for module: 20 minutes

Discuss objectives: 2 minutes

Exam objectives:

3.3 Manage 3D coordination

- 3.3.a Manage clash detection processes using model coordination tools
- 3.3.b Set up focused clash-detection reports and analytics in line with the clash matrix
- 3.3.c Allocate resolution responsibilities

Demonstrate: 8 minutes

- Manage clash detection using model coordination tools.
- Create focused clash reports aligned with the clash matrix.
- Allocate and track resolution responsibilities effectively.
- Apply best practices for consistent model coordination.

Hands-on time: 10 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes
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Module 3-04 Manage 3D models

Total time required for module: 25 minutes

Discuss objectives: 2 minutes

Exam objectives:

3.4 Manage 3D models

- 3.4.a Assemble multi-building and/or multidisciplinary model scenarios
- 3.4.b Map phases of multi-disciplinary linked models
- 3.4.c Implement stakeholders' shared parameters (e.g., Parameter Service)

Demonstrate: 10 minutes

- Assemble multi-building and multidisciplinary model environments.
- Coordinate phase mapping across linked models.
- Implement shared parameters from project stakeholders.
- Maintain consistency in federated model workflows.

Hands-on time: 12 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes
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Module 3-05 Review consultant and/or subcontractor BIM deliverables

Total time required for module: 20 minutes

Discuss objectives: 2 minutes

Exam objectives:

3.5 Review consultant and/or subcontractor BIM deliverables

- 3.5.a Validate QA standards and LOD/Level of Information Need requirements
- 3.5.b Evaluate received geometry and content
- 3.5.c Mandate standards compliance

Demonstrate: 8 minutes

- Validate consultant deliverables against QA and LOD requirements.
- Evaluate geometry, content, and data quality in received models.
- Confirm compliance with project standards and naming conventions.
- Manage deliverable reviews to maintain coordination consistency.

Hands-on time: 10 minutes

Review objectives: 1 minute

Assignments (additional):

- **Practice Exercise 3: Validate shared coordinates:** 10 min
 - **Quiz:** 2 minutes
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Module 4-01 Manage model creation according to project standards

Total time required for module: 20 minutes

Discuss objectives: 2 minutes

Exam objectives:

4.1 Manage model creation according to project standards

- 4.1.a Ensure naming and numbering compliance (e.g., ISO 19650, client/company standards)
- 4.1.b Control output visibility (e.g., templates, filters, overrides)

Demonstrate: 7 minutes

- Apply naming and numbering conventions aligned with project standards.
- Maintain consistent documentation compliant with standards such as ISO 19650.
- Control output visibility using templates, filters, and overrides.
- Ensure models are organized for predictable downstream use.

Hands-on time: 10 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes
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Module 4-02 Audit and resolve model issues

Total time required for module: 25 minutes

Discuss objectives: 2 minutes

Exam objectives:

4.2 Audit and resolve model issues

- 4.2.a Educate the team in response to model issues (e.g., warnings, journal files, and subdivision strategy)
- 4.2.b Troubleshoot project files

i. May include Revit journal file, review warnings, rollback file versions, fix corrupt families, manage supporting files, visibility graphics, and external references and links management

4.2.c Periodically review internal models for compliance with project data structure and overall health

i. May include workset strategy, browser organization, and layer management

4.2.d Check and validate compliance with project or industry standards

Demonstrate: 10 minutes

- Understand how to identify issues affecting model health.
- Apply troubleshooting techniques that enhance performance.
- Improve consistency through internal review practices.
- Strengthen team capability in managing model warnings.
- Validate compliance with project and industry standards.

Hands-on time: 12 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes
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Module 4-03 Conduct project closeout

Total time required for module: 20 minutes

Discuss objectives: 2 minutes

Exam objectives:

4.3 Conduct project closeout

4.3.a Archive project data

4.3.b Facilitate data handover as per project requirements

Demonstrate: 8 minutes

- Archive project data securely and completely for long-term retention and compliance.
- Prepare and export models in interoperable formats for future phases or tool changes.
- Organize, validate, and structure deliverables for accurate, contract-ready data handover.
- Remove proprietary or sensitive information to create clean, reusable, client-safe models.

Hands-on time: 10 minutes

Review objectives: 1 minute

Assignments (additional):

- **Practice Exercise 4: Upload a model and assign an issue:** 10 min
 - **Quiz:** 2 minutes
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Next steps: End of course (additional)

Challenge exercise – Estimate costs of structural components: 30 minutes

Datasets: *Snowdon Towers Sample Architectural.rvt*

End-of-course exam questions: 120 minutes