



# EXAM OBJECTIVES

## Autodesk Certified: BIM Manager in Building Design

The Autodesk Certification for a Building Information Modeling (BIM) Manager in Building Design is a role-based certification designed for industry professionals who possess advanced skillsets, mindsets, and toolsets and can solve complex challenges in workflow and design. This Autodesk certification is the industry recognized credential for users who have mastered the BIM management skills covered in this exam. This type of experience typically comes from progressive development of skills and responsibilities in the CAD/BIM multidiscipline design environment over at least 7 years. Candidates who obtain this certification demonstrate expertise in BIM Management and stand out in a competitive professional environment.

### Prerequisites

It is expected that you will:

- Have a strong knowledge of Revit and be able to update 3D models.
- Be familiar with AutoCAD and be able to update CAD files.
- Be able to read and understand multi-discipline drawings as well as building specifications.
- Be able to organize photo and turnover documentation.
- Be able to participate in laser scanning.
- Use automated scripts.
- Have knowledge of BIM 360 Design and Cloud Collaboration using Autodesk Revit.
- Have basic knowledge of Navisworks for BIM coordination and visualization.
- Have a basic understanding of ISO 19650-1 and 19650-2 standards
- Be familiar with the BIM Execution Planning Guide by Penn State. [www.engr.psu.edu/bim/PxP](http://www.engr.psu.edu/bim/PxP)

*Note: Within the context of this exam, all references to “create, select, manage, etc.” indicate “know how to create, select, manage, etc.”*

# 1. Research and Plan

## 1.1 Conduct Research

### 1.1.a Evaluate software and technology solutions

- i. *May include license management (installing and testing software, monitoring license usage); determining if the needs are met; and verifying alignment with business strategy.*

### 1.1.b Investigate new products and add-ins

- i. *May include understanding the selection process to determine which tools you should use and knowing where you would go to investigate new Autodesk software add-ins.*

### 1.1.c Determine environment setup and infrastructure

- i. *May include organizing a project folder structure and BIM project data; understanding network topology (LAN, WAN, BIM 360); identifying the stage when you should decide your common environment to avoid problems later on; and providing access to the latest sheet views.*

### 1.1.d Evaluate the platform and OS used by end users

- i. *May include identifying hardware and software system requirements; recognizing the impact of the operating system(s) being used (Windows 7, 8, 10, Mac, mobile apps for field verification); and recognizing the implications of a user trying to work on an older operating system.*

### 1.1.e Assess industry trends

- i. *May include assessing emerging technologies; evaluating and testing possible solutions; benchmarking other firms/industries; and marketing/competitor research.*

### 1.1.f Assess BIM maturity level in the firm

- i. *May include understanding BIM across all levels of the company; assessing BIM culture (risk aversion, desire and commitment); and setting the current level and plan progression to next level.*

## 1.2 Establish the BIM Execution Plan (BEP)

### 1.2.a Evaluate project conditions

- i. *Understanding that the BEP is specific to every project.*

### 1.2.b Document staff and roles

### 1.2.c Assign milestones and level of detail (LOD)

### 1.2.d Determine and enforce office standards for project deliverables

### 1.2.e Determine coordination and exchange of data

### 1.2.f Categorize model element ownership

- i. *May include determining the Model Element Author (MEA).*

### 1.2.g Identify BIM uses

# 2. Implementation

## 2.1 Determine Project Type Structure

### 2.1.a Evaluate the contract types to align implementation to project workflows

- i. *May include these methods: Integrated Project Delivery (IPD), Design Bid Build, EPC, and Design Bid.*

### 2.1.b Identify the software and tools required for the project type

- i. *May include 2D/3D Authoring Tools, AutoCAD for Schematic design, Revit for Construction documents, etc.*
- ii. *May include applying BEP determinations.*

### 2.1.c Define and document the applicable standards for the project type



- i. May include defining and documenting the software and tools required for the project.
- ii. May include creation, enforcement, and updating Internal/client standards (graphics, workflow, data structure, and deliverables).
- iii. May include content management (details, families, etc.); shared parameters; and file import/export.
- iv. May include defining and maintaining the keynote database.
- v. May include specifying the preferred Revit .ini file and understanding what parts of the Revit interface are controlled in the .ini file.

## 2.2 2.2 Prepare Technology Configurations

### 2.2.a Set up project type templates

- i. May include linking placeholder files; setting up placeholder views and placeholder sheets; phase appropriate cartoon sets; determining how you will use shared coordinates (project, acquired); defining view types in a template; using view templates; and creating family sub-categories; and knowing whether you can have worksharing enabled in a project template file.

## 3. Education

### 3.1 Conduct Individual Skills Assessment

#### 3.1.a Identify the training needed

- i. May include knowledge of onboarding new staff, staff transition software (AutoCAD to Revit, SketchUp to Revit/FormIt, ArchiCAD to Revit, etc.), and training resources.

#### 3.1.b Document skills progression

### 3.2 Manage Training

#### 3.2.a Create training programs

- i. May include training for production and senior staff, BIM lead, Project manager, team/client, task specific - Just in Time (JIT), and specialized user questions.
- ii. May include Informing and adjusting the training plan based on the firms BIM maturity level.

#### 3.2.b Deliver training

- i. May include classroom, individual, web-based, boot camp, seminars, conferences, etc.
- ii. May include deploying training on newly researched technology.

## 4. Project Execution

### 4.1 Set up the Project

#### 4.1.a Construct common data environment (CDE)

- i. May include LAN, WAN, and BIM 360.

#### 4.1.b Set up BIM 360 Design projects and teams

#### 4.1.c Generate and assign BIM 360 permissions

- i. May include low or high trust.

#### 4.1.d Create project model(s) from template

- i. May include understanding how to use point clouds provided from laser scans (using ReCap); optimizing point cloud data; purging unused data; removing links; and deleting views.

#### 4.1.e Process initial files from consultant

- i. May include linking, importing, consuming and optimizing.

#### 4.1.f Devise publish/archive strategy

#### 4.1.g Organize model data

- i. May include multiple project files; combining models for coordination; defining schedules and legends; linking to the keynote database file; importing shared parameters; and worksharing, worksets, copy/monitor, and syncing to a central file.

#### 4.1.h Scrutinize and communicate As-Built information

## 4.2 Implement Input/Output Strategy

### 4.2.a Deploy central files

- i. May include understanding that you need to sync and close to avoid locking the elements; and BIM 360 specific tasks for publishing.

### 4.2.b Archive central files

### 4.2.c Perform model software version upgrade(s)

- i. May include BIM 360, files on the network, and Revit server.

### 4.2.d Link, import, or export files

- i. May include Navisworks files, dwg, ifc, pdf, etc.

### 4.2.e Collaborate with other team members

- i. May include computing a conflict resolution and clash detection; collecting, analyzing and comparing project data for reporting; and performing coordination review.

### 4.2.f Perform quantity take-off and estimating

- i. May include extracting schedule data and material take-offs; parameter data; generating reports; and data sorting and filtering in Navisworks and Excel.

## 4.3 Perform Quality Assurance

### 4.3.a Troubleshoot project files

- i. May include critical file recovery (BIM360, LAN, WAN); common errors (family, print, coordinates, visibility, constraints, ownership issues, graphical); and Project Journal evaluation.

### 4.3.b Interpret and resolve model health issues

- i. May include Periodic Project cleanup and maintenance (Audit, Purge, etc.); warning review; and using analytics to conduct detailed model audit.

### 4.3.c Validate client requirements

- i. May include standards compliance; checking against your BEP; reading and understanding specs; and deliverables.

### 4.3.d Conduct model and documentation review

- i. May include creating 3D views of a model for reviewing design; redlining drawings; graphic standards compliance; construction documents quality; and reporting lessons learned.

### 4.3.e Conduct quality assurance review of project documents for and adherence to office standards