

## Preconstruction management

### Instructor guide

Course duration if teaching with this material in class: ~5 hours, depending on lecture time

Recommended student level: Students in construction programs, 4-year and graduate level

Product: Revit, Autodesk Construction Cloud

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:

- Explain why preconstruction management matters and how a BIM Execution Plan (BEP) defines BIM uses, roles, information exchanges, naming conventions, and shared coordinates.
- Set up projects and organize documents in Autodesk Construction Cloud to support coordination, traceability, and decision-making.
- Federate multidisciplinary models in ACC and prepare saved views to support coordination reviews.
- Review constructability using Model Coordination, group clashes, and manage Issues to resolution.
- Build and interpret a high-level cash-flow model tied to schedule milestones and subcontractor commitments.
- Assemble bid packages, translate bid results into contract scope, and support collaborative contract review and award.
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The overall course contains the following resources:

- Three video modules covering all the topics in the course.
- Dataset files for use when following the video modules.
- Quiz questions with timecodes for remedial knowledge check.
- Exam-style final test questions at the conclusion of the course.
- Two practice exercises with exercise files and solutions.

- One challenge assignment with recommended assessment criteria.
- Lecture slides that introduce topics and themes covered in the course.

**Pre-requisites:**

After completing this course, you will understand how effective preconstruction management integrates BIM coordination, information management, and commercial controls into a single, aligned process. You will gain hands-on experience using Autodesk Construction Cloud to support coordination, document decisions, and maintain transparency across stakeholders.

**Structure of the course:**

The course is split into 3 modules and is designed to cover preconstruction concepts in the Autodesk Construction cloud.

**Videos:**

Each video begins with a list of learning objectives covered in the video. The dataset mentioned throughout all the videos are available if students wish to follow along or practice after the video.

**Dataset:**

This course has one dataset folder including Revit files in Imperial and Metric units.

**Practice exercises:**

There are 2 practice exercises included, each exploring a different set of topics. The practice exercises are designed to give students 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:**

Quiz 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.

**Lecture slides:**

Lecture slides are offered to help facilitate in-class discussion.

**Using the course in the classroom or self-paced**

The Preconstruction management 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 lecture slides for instruction and step-by-step guides and 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 What is preconstruction management?

**Total time required for module:** 10 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

- Define the purpose of preconstruction and the primary services involved.
- Identify the core stakeholders and their responsibilities in preconstruction.

**Hands-on time:** 0 minutes

**Review objectives:** 1 minute

**Datasets:**

NA

**Assignments (additional):**

- **Quiz:** 2 minutes
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### Module 1-02 Align BIM Coordination with a BIM Execution plan (BEP)

**Total time required for module:** 10 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

- Explain how model coordination supports cost-effective problem solving and risk mitigation.
- Describe the purpose and common use of a BEP.

**Hands-on time:** 0 minutes

**Review objectives:** 1 minute

**Datasets:**

NA

**Assignments (additional):**

- **Quiz:** 2 minutes
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## **Module 2-01 Use ACC for preconstruction**

**Total time required for module:** 20 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

- Describe how project set-up in ACC supports preconstruction processes.
- Explain how the BEP governs project set-up in ACC to support information availability.

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*BEP example*

*Revit models*

**Assignments (additional):**

- **Quiz:** 2 minutes
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## **Module 2-02 Coordinate building information models**

**Total time required for module:** 20 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

- Federate models in ACC

- Create saved views and issues, and describe how they support coordination.

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*Revit models*

**Assignments (additional):**

- **Quiz:** 2 minutes
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## **Module 2-03 Review constructability**

**Total time required for module:** 20 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

- Review constructability using a federated model and ACC Issues-based coordination.
- Create and manage saved views, run clash detection, and export results.
- Identify key factors that affect constructability.

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*Revit models*

**Assignments (additional):**

- **Practice Exercise 1 Coordinate building information models:** 15 min
  - **Quiz:** 2 minutes
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## **Module 3-01 Assemble documentation to package bids**

**Total time required for module:** 20 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

- Define the purpose and typical contents of a subcontractor bid package.
- Assemble documentation to package bids in ACC.

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*Bid package*

**Assignments (additional):**

- **Quiz:** 2 minutes
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## **Module 3-02 Create and manage contracts**

**Total time required for module:** 20 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

- Identify common subcontractor contract types and their use in construction projects.
- Manage contracts in ACC.
- Explain what a schedule of values is and why it is important in managing contracts.

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*Bid package*

**Assignments (additional):**

- **Quiz:** 2 minutes

### **Module 3-03 Forecast cash flow**

**Total time required for module:** 20 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

- Define the purpose of cash flow analysis and typical cost timing in construction.
- Forecast cash flow against the project budget and schedule in ACC.

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*Budget and schedule*

**Assignments (additional):**

- **Quiz:** 2 minutes
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### **Module 3-04 Work with permits**

**Total time required for module:** 20 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

- Define the purpose of permitting and the documents typically required.
- Explain how permitting timelines and reviews impact schedule and risk.

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*N/A*

**Assignments (additional):**



- **Practice Exercise 2: Forecast cash flow for subcontracts:** 10 min
  - **Quiz:** 2 minutes
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**Next steps: End of course (additional)**

**Challenge exercise – Develop a project using preconstruction workflows in ACC:** 60 minutes

**Datasets:** *dataset files-course challenge*

**End-of-course exam questions:** 15 minutes

Discover more course content in the Construction Management collection at  
<https://www.autodesk.com/learn/ondemand/collection/autodesk-construction-cloud-education>