



BIM projects: Top 10 loss prevention recommendations

Design Professional

A successful BIM project calls for detailed and comprehensive planning. Before you start, be prepared to ask the right questions and do some serious groundwork.

Design professionals who have incorporated building information modeling (BIM) into their practices tell us it has profoundly changed how they work. They say BIM enhances design quality, promotes collaboration among project team members, improves constructability and reduces changes and errors.

Still, when so many parties are using and manipulating a project's BIM model, there is the potential for problems.

When beginning any project that will involve BIM, there are a number of steps you should take. Here are 10 recommendations—and a few resources.

1 Discuss expectations with your client in the early planning stages

What type of deliverable does the owner expect at the close of the project? What does the owner plan to do with the model—for example, does the owner intend to use it for facility maintenance and operations? The owner's requirements and expectations should be fully expressed and carefully documented. *The BIM Project Planning Execution Guide* and the American Institute of Architects' (AIA) *Project Building Information Modeling Protocol* form G203 can help you think through this and the next few points. See the sidebar, "Additional Resources."

2 Consider how you'll use BIM on your project

Will it be required as part of your contract with your client? Will you use it only within your firm? Will you use the BIM model just in the design phase or will it continue through construction and beyond?

3 Determine who will collaborate on the model's development

Will only the design team share and rely on the model, or will the contractor and specialty trades also rely on and contribute to the BIM model? Are the other parties experienced in the use of BIM? In general, you'll want to confirm that all parties' software, expertise and approaches to BIM collaboration are compatible.

4 Assess whether you have the appropriate internal resources to undertake a BIM project

Do you have experienced, knowledgeable staff available? Will extra training be necessary? Although you'll develop specific hardware and software requirements when creating a BIM execution plan later (see #6), do you generally have the IT infrastructure in place to accommodate higher data volume, speed and file sizes, as well as handle data backup and recovery?

5 Assemble a BIM planning team

The team's charge is to define the overall goals and uses for BIM implementation based on the project goals. Ideally, the team will comprise representatives from all the primary project team members/users including the project owner, the prime design consultant, subconsultants, contractors, engineers, and facility manager—anyone who potentially can access the model. *The BIM Project Planning Execution Guide* can help walk team members through this process.

6 Establish a BIM execution plan and/or protocol manual

Again, the *BIM Project Planning Execution Guide* provides a good framework, as does the AIA's *Project Building Information Modeling Protocol* form G203. Also, see 201-2014: *Authorized Uses and Model Element Table*, published by the Institute for BIM in Canada (IBC).

Together or separately, BIM execution plans and protocol manuals help the owner, architect, engineers and contractor think through and agree on an overall BIM project vision. These documents often set forth protocols and procedures governing the development, transfer and use of BIM models, including:

- Software requirements
- Model management protocols
- Levels of development (LOD) for specific models and building systems
- Collaboration processes
- Access to the model, and authorship of and responsibility for model elements
- Extent to which model users may rely on model content
- Model ownership
- Clash detection and resolution processes
- Data exchange protocols
- Identification and benchmarking of each party's deliverables

Additional considerations include:

- Who's responsible for cyber security? What happens if a data breach or ransomware event occurs?
- Have those areas that don't require modeling been clearly identified?
- Who pays for any needed software upgrades?
- Have you established archiving and documentation controls so you can prove authorship of model revisions?
- What is the plan to deal with a loss of data?

7 Push for a project-wide BIM contract

It should include all parties that will contribute to and benefit from the BIM model. This document should define each party's duties and responsibilities and allocate the risks reasonably. (For example, the AIA's *Building Information Modeling and Digital Data Exhibit E203™-2013* helps parties establish how data and models will be used and relied upon, and who is responsible for each model element.) As you develop your agreement, consider the following questions:

- Does the agreement contain a mutual waiver of consequential damages attributable to errors in the model? The more complex the project or the greater number of parties collaborating on a model, the greater chance of an error. Having a mutual waiver of consequential damages can mitigate the open-ended exposure of certain types of claims.
- Who retains ownership of the models, drawings and other instruments of service?

Additional resources:

[Guide, Instructions and Commentary to the 2013 AIA Digital Practice Documents](#)

[BIM Project Execution Planning Guide Version 2.1](#)

[Canada BIM Council](#)

[Institute for BIM in Canada \(IBC\)](#)

- Are you protected against unauthorized changes or reuse of your documents? Without some contractual safeguards, you may become liable for damages (or at least have to bear the costs of your defense) that result from another party's unauthorized changes.
- Do you have the right to rely on information provided by others without excessive checking? In order to truly collaborate, there needs to be an element of delegation: each party should be able to reasonably rely on the work of the others. If not, your fee should reflect the additional effort and increased risk involved.
- What are the permissible downstream uses of the digital data?
- Which jurisdiction applies in disputes arising from the use or ownership of the data? Are multiple jurisdictions involved? In the event of a dispute, it may be best to have all of the contracts specify the same jurisdiction; discuss this with your lawyer.
- If a project team party is terminated or quits, what happens to its data? You'll want procedures in place to achieve a seamless transition to mitigate project delays.
- If one team member causes a delay, is the schedule adjusted for all others?
- Who pays for training to bring new (or less BIM-savvy) project team members up to speed?
- Are all members of the project team required to have appropriate insurance coverage?

8 If an all-party BIM contract is not possible, address the above issues in your client agreement

Make sure it's consistent with other agreements between parties on the project. The AIA's B101™–2017 requires the development of protocols for the transmission of instruments of service or other data in digital form, as well as protocols for the use of and reliance on a BIM model. Similarly, the Royal Architectural Institute of Canada's (RAIC) *Canadian Standard Form of Contract for Architectural Services – Document Six* requires that the *BIM Contract Appendix*, from the Institute for BIM in Canada, be appended to contracts for architectural services on BIM projects.

9 Address digital data licensing issues

This is important if you'll be sharing your BIM model with third parties. You can use the AIA C106™–2013 *Digital Data Licensing Agreement* when you need to send digital data to someone with whom there is no existing agreement. The agreement would require the receiving party to indemnify the transmitting party for claims arising from modification or unlicensed use of the data.

10 Schedule a BIM kick-off meeting

Schedule a meeting for all participating parties as early in the project as possible, during which you'll set the expectations and goals for the project, identify who will be responsible for the model from each discipline, and establish workflow, communication, model-sharing, and issue-resolution protocols.

Finally, talk to your professional liability insurance agent or broker to make sure you have the appropriate coverage, including cyber liability.

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