Case Study: Implementing a Working BIM Model Halfway through a Public CM Multi-prime Project

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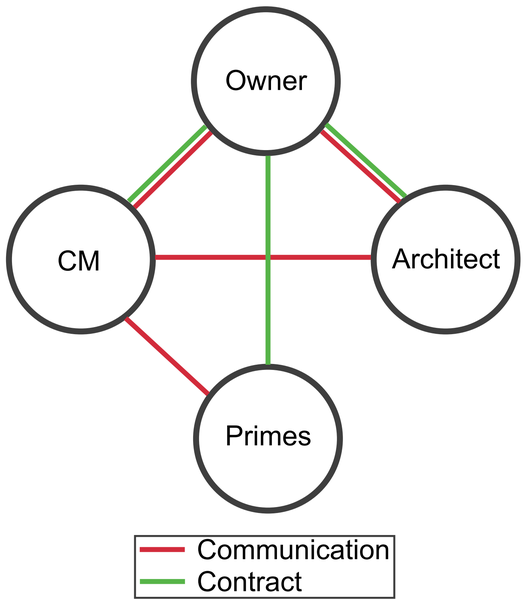
The development of a BIM model is a standard practice in today's construction world. While the process of model adoption nearly has a written formula, implementing a BIM model in the midst of a project is a rare occurrence. This paper will examine the implementation of a working BIM model halfway through a public multiple-prime contractor project managed by a construction manager in California. The project cost is roughly $20 million and of moderate complexity. The excessive amount of RFI's and drastic MEP coordination clashes left the team no choice but to create a model after weighing the cost of the model against potential change orders. Since the CM was also a company that performs general contracting works, their in-house BIM capabilities, project coordination skills, and building knowhow provided the means to escape this potentially costly situation.

Key Words: CM Multiple Prime, BIM, Implementation, Model Adoption

CM Multiprime Organization Chart



Red Flags

- Excessive RFI count: 300 in 6 months, relative to job size and type.
- Lack of coordination between drawings. Ex: plumbing mains clashing with steel beams.
- The Revit model was strictly aesthetic.

Steps to Implementing the Model

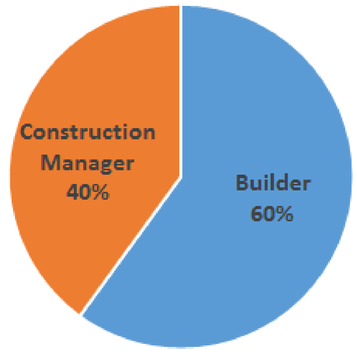
1. **Get the main players on board.**
The owner must understand the cost of the potential changes versus the model development cost. The architect may defend their design, so the case for a working model will need the backup of multiple large clashes in a meeting with the owner.

2. **Assign a deadline.**
Utilize a BIM expert from the CM team as sole point of contact for the model. Have an all-hands meeting to see what Tekla models people may have have and what needs to be done. The 'neutral' BIM expert to propose deadlines for each primes respective model.

3. **Assemble.**
After the models have been submitted to the BIM expert to be assembled, a clash detection meeting addressing the major clashes should be performed with all involved parties. Superintendents and foreman are vital. Issues requiring consultants to be the only remaining clashes.

4. **Create new 2D drawings for field use.**
The model has received its final update and is ready for in-field use. Tekla's 2D drawing capabilities should be utilized to create new drawings for updated scopes.

Reason for Model Implementation Success → The construction manager's company is primarily a builder



Makeup of Ideal Construction Management Firm in CM Multi-prime

CM Type	In-house BIM capabilities	Project Coordination	Building Knowhow
CM Firm	X	✓	X
CM/Builder Firm	✓	✓	✓

→ **Outsourcing the model further complicates the situation**
→ **Typical skill of construction manager**
→ **Staffing of superintendents to understand field and prime contractor challenges**

★ Avoiding the Situation Altogether ★

Model the project at the beginning

- Cheap Insurance

Up Front

VS.

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