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

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 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. Superintendent 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.

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.

Reason for Model Implementation Success

The construction manager’s company is primarily a builder

Makeup of Ideal Construction Management Firm in CM Multi-prime

<table>
<thead>
<tr>
<th>CM Type</th>
<th>In-house BIM capabilities</th>
<th>Project Coordination</th>
<th>Building Knowhow</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM Firm</td>
<td>X</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>CM/Builder Firm</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Avoiding the Situation Altogether ★

Model the project at the beginning

- Cheap Insurance

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