CASE STUDY: CONFIDENTIAL TECHNOLOGY CLIENT

• One of the largest mass timber projects in the U.S. (36 acres, 649,000 SF)
• New and renovated office, lab and specialty space
• Located in Silicon Valley
• LEED Platinum, WELL and LBC Certification
<table>
<thead>
<tr>
<th></th>
<th>Agenda Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unique Benefits of Mass Timber</td>
</tr>
<tr>
<td>2</td>
<td>Designer and Builder Coordination Efforts</td>
</tr>
<tr>
<td>3</td>
<td>Understanding Constructability and Cost</td>
</tr>
<tr>
<td>4</td>
<td>Challenges With Design-Bid-Build</td>
</tr>
<tr>
<td>5</td>
<td>AHJ Approvals, Permitting and Learning Curves</td>
</tr>
<tr>
<td>6</td>
<td>Supply Chain Management</td>
</tr>
</tbody>
</table>
UNIQUE BENEFITS OF MASS TIMBER

• Generally, a more cost stable commodity than steel
• Time from start to finish of super structure is reduced
• Carbon negative building material
• Lighter than steel and concrete
DESIGNER AND BUILDER COORDINATION EFFORTS

• Software compatibilities and capabilities between designer and fabricator— they need to be compatible
  • Early and often constructability reviews that include MEP/FP in the design phases
  • Applied mockups
  • Understanding inspection requirements
UNDERSTANDING CONSTRUCTABILITY AND COST

- Economy of scale – standardized panel sizing
- Utility routing and penetrations
- Material handling, protection and repairs – costs after installation
- Impacts of weather on productivity
- Acclimation of trades to material – How many contractors regularly work on a wood deck?
CHALLENGES WITH DESIGN-BID-BUILD

- Design intent will likely not be attainable without change orders
- Design inquiry (RFI) process slows down productivity
- Highly discourage this procurement method
- Owners to consider Design-Build or IPD procurement methods
AHJ APPROVALS AND LEARNING CURVES

- Local AHJ – do they have a low comfort level with mass timber
- Involve the local AHJ in early and often in the design planning - make them feel involved
- Longer durations for AHJ approvals should be considered in your scheduling
SUPPLY CHAIN MANAGEMENT: FABRICATION

- Are there tooling constraints
- Efficiency of the fabrication facility – max production values
- Machining and tooling redundancy
- Commodity supply
- Environmental impacts on production
SUPPLY CHAIN MANAGEMENT: TRANSPORTATION

• This is bought out when you accept the price, know what you are buying
• Tandem drivers or Single Drivers
• Environmental impacts on the route
• Real-time tracking capabilities – Amazon.com
• Staging/storage options and capabilities
• Qualified installers
• Sun, moisture and water protection
• Approved repair procedures both cosmetic and structural
• Protection against trade damage
• Proper equipment and operators one the project
THANK YOU