Case Study

Integrated Kit for Workforce Housing
Key Learnings

- Costs controlled with pre-planned and streamlined construction.
- Faster delivery achieved through simultaneous manufacturing and site prep.
- Avoids weather delays in construction through off-site manufactured modular installation.

Assembly Kit by the Numbers

Compared to a stick frame home, our Mass Timber Model Home:

- is 44% faster to complete
- has 6.6x more carbon storage
- has an airtight building envelope: below 0.8 ACH

Solving the Utility Problem

Utility Kits consist of two utility walls, for kitchen and bathroom, overlapping for easy routing between floors.

Manufactured off-site:

- 23 hour build time for all assemblies
- Plumbing installed pre-shipping, convenient prefab subassemblies
- Pre-wired electrical load center

Streamlined construction on-site:

- 1 hour installation per wall
- 2.5 hour plumbing + mechanical time
- 50% less construction time

Project Closeout

- 30 days

Mass Timber Model Home Timeline < 100 days

<table>
<thead>
<tr>
<th>Phase</th>
<th>Duration</th>
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</thead>
<tbody>
<tr>
<td>Architectural Design</td>
<td>30 days</td>
</tr>
<tr>
<td>Panel Manufacturing</td>
<td>3 days</td>
</tr>
<tr>
<td>Site Installation + Dry In</td>
<td>2 days</td>
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<tr>
<td>Engineering + Manufacturing Validation</td>
<td>30 days</td>
</tr>
<tr>
<td>Panel Assembly</td>
<td>1.5 days</td>
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<tr>
<td>MEP Rough In</td>
<td>3 days</td>
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Our Mass Timber Model Home uses mass timber pedestals instead of truss or joist systems for subfloor support.

Benefits include:

- Reduced waste through the use of recycled mass timber scraps
- Streamlined installation, enhanced speed, and less rework with pedestal location pre-dictated by CNC
- Bypass traditional studs with wires running directly under the floor

GOAL

A prefabricated building system that allows developers to deliver housing for reduced costs, reduced timeline, and can be manufactured at scale. The building system needs to enable enough configurability to meet diversified project needs and be adaptable for modular or flat-pack delivery based on site requirements. Ultimately, the system must accelerate the net zero transition with a carbon negative building that integrates into the circular economy.

THESIS

Using new technologies to increase productivity, including standardizing building components, helps modernize housing and the associated workforce. Off-site manufacturing is a natural progression of sustainable development. Mass Timber is an ideal material for off-site manufacturing because of its precision manufacturability, engineered structural qualities, and carbon storage.

Innovation and manufacturing deliver sustainable housing faster.

Green Canopy NODE is building the future of housing, bringing the power of manufacturing to help regenerate communities and environments with state-of-the-art construction technologies.
The Benefits of Mass Timber

**Increased efficiency**
Faster construction times possible through manufacturing.

**Enhanced sustainability**
Reducing embodied carbon footprint and waste, while storing carbon.

**Durability and strength**
Lasts longer than standard code-built homes and can be deconstructed and reused.

Green Canopy NODE
Building simplified.