SPEAKERS

Melissa Kroskey, AIA, SE
Technical Director
WoodWorks

Noel Johnson
Oregon Developer
Old i // Cairn

Michael J. Heller
California Developer
Heller Pacific
Environmental

- Climate change
- Greenhouse gas (GHG) emissions
- Resource depletion
- Waste & pollution

Social

- Working conditions
- Impact on local communities
- Health & safety
- Employee relations & diversity

Governance

- Executive pay
- Bribery & corruption
- Political lobbying & donations
- Board diversity & structure
Sustainable Forestry supports

ALL 17 UN SDG Goals

Source: Building with Wood – Proactive Climate Protection, Dovetail Partners, Inc.
Environmental Social Governance
UN Sustainable Development Goals

Sources: Sustainable Wood for a Sustainable World global meeting (SW4SW) hosted by UN FAO
Forests and the Sustainable Development Goals, NYDF Global Platform
ESG
UN Sustainable Development Goals

Sources: Sustainable Wood for a Sustainable World global meeting (SW4SW) hosted by UN FAO, Forests and the Sustainable Development Goals, NYDF Global Platform
Mass Timber Cost & Design Optimization Checklists

Overview

- Aid in design & cost optimization of mass timber projects
- Guiding discussions between:
  - Designers (architects & engineers)
  - Builders (general contractors, estimators, fabricators & installers)
  - Owners (developers & construction managers)

Pre-Design Checklist:
- Design & Builder Team
- Cost Estimating Considerations
- Contractual Considerations
- Design Goals
- Contact WoodWorks

Download Checklists at www.woodworks.org

<table>
<thead>
<tr>
<th>Potential Benefits</th>
<th>Project Goal</th>
<th>Value Add</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast construction</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Aesthetic Value (Leasing velocity/ premiums)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy Building / Biophilia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lightweight structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor shortage solution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- small crews</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- entry level workers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Just-in-time delivery (ideal for dense urban sites)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmentally friendly (low carbon footprint)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy forests/ wildfire resiliency &amp; support rural economies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Aesthetic Value
Healthy Buildings
Productivity

The JLL 3-30-300 formula:
“…the average order of magnitude for a company’s cost per square foot:”

$3 utilities
$30 rent
$300 payroll

10% energy increase = $0.30/ sf
10% rent reduction = $3/ sf
10% productivity improvement = $30/ sf

Source: JLL,

Photo: Rocky Mountain Institute by ZGF Architects
INSTITUTIONAL OFFICE: STAKEHOLDERS

RELATIVE POWER IS CHANGING
THE CONSUMER of THE PRODUCT
THE FIRM AND/OR THEIR LABOR QUESTION:

HOW TO ATTRACT & RETAIN TALENT?

HOW TO DRIVE PRODUCTIVITY?

DOES THE PRODUCT (A MASS TIMBER BLDG) HELP?
CAPITAL FLOWS

TRADERS KNOW THIS

LABOR ECONOMISTS KNOW THIS

<table>
<thead>
<tr>
<th></th>
<th>Invesco QQQ</th>
<th>SPDR S&amp;P 500 ETF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Cap Growth Equities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>YTD Return</td>
<td>27.37%</td>
<td>2.94%</td>
</tr>
<tr>
<td>1-Year Return</td>
<td>37.71%</td>
<td>9.77%</td>
</tr>
<tr>
<td>3-Year Return</td>
<td>21.95%</td>
<td>10.38%</td>
</tr>
</tbody>
</table>

Source: BPS (2017), processed.

COMPARISON BETWEEN THE TOTAL NUMBER OF WORKERS AND NUMBER OF HIGH-EDUCATED WORKERS (HL)
Humans as a factor of production
(creativity not needed)
PRODUCT
Business Case for Mass Timber
Business Case for Mass Timber

Substantively communicate the business case of mass timber buildings in relevant and relatable fashion through case studies across six property sub-types.
Audiences

- Investors: resilient **asset**
- Occupants: desired **experience**
- Community: social **contribution**
Investor Stakeholders

- Institutional equity investors
- ESG equity investors
- Local investors / firms
- Sources of debt, large and small
- Real Estate Developers
Selection Criteria

- Scale
- Impetuses
- Location
- Perspective
- Asset Class
- Status

Considering mass timber for a project?
Ask us anything.

For free project support, contact:
help@woodworks.org
woodworks.org/project-assistance
# Asset Categories

<table>
<thead>
<tr>
<th>Six Property Sub-Types</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional Office</td>
<td>Commercial</td>
</tr>
<tr>
<td>Purpose-Built / Owner Occupied</td>
<td>Commercial</td>
</tr>
<tr>
<td>Institutional For-Rent</td>
<td>Residential and/or Mixed Use</td>
</tr>
<tr>
<td>For-Sale Housing</td>
<td>Condo, Townhome &amp; Detached Homes</td>
</tr>
<tr>
<td>Purpose-Built Affordable / Dorms</td>
<td>Gov't-related housing</td>
</tr>
<tr>
<td>Redevelopment/ Vertical Additions</td>
<td>Commercial, Mixed-Use or Housing</td>
</tr>
</tbody>
</table>
BUSINESS CASE

CAN MASS TIMBER BE A USEFUL TOOL?

TO RESPOND TO:

OCCUPANT:
A SOCIALLY-RESPONSIBLE, HEALTHY, INSPIRING, PRODUCTIVE EXPERIENCE

INVESTOR:
AN ESG, LOWER-VOLATILITY, DIFFERENTIATED CASH FLOWING ASSET

SOCIETY:
A LOCALLY-SOURCED, LOWER-CARBON, PROVEN, JOB-CREATING ‘CHANGE’
INDICATIVE TRENDS

1. A PRUDENT INVESTMENT?
   EARLY EXAMPLES SUGGEST YES

2. POSITIVE SOCIAL IMPACTS?
   BEING RECOGNIZED & VALUED... CONFUSIONS REMAIN

3. INNOVATION BEING REWARDED?
   MKT: YES, VIA A PREMIUM AND/OR A TENANT
   A&E: WHAT IS OPTIMAL STILL A WORK IN PROGRESS

4. IT SEEMS SIMPLE; IS IT?
   TOUGHER THAN IT LOOKS, NEED TO LOVE CHALLENGES
Mass Timber Business Case Studies

Developers & Investors, contact:
Melissa Kroskey, AIA, SE
Technical Director, WoodWorks
Melissa.Kroskey@woodworks.org
(858) 527-9340

Questions?