Office of the State Fire Marshal

Tall Wood Buildings Workgroup

Disclaimer: This presentation was developed by a third party and is not funded by WoodWorks or the Softwood Lumber Board.
Mass Timber Construction

Mass Timber

Conventional Light Frame

Photo courtesy of the American Wood Council
ICC Adopted 3 new types of construction for Tall Wood Buildings

- 2021 International Codes
  - Type IV–A
    - CLT Fully covered
  - Type IV–B
    - up to 40% of the walls can have exposed wood
    - up to 20% of the ceilings can have exposed wood
  - Type IV–C
    - Exposed wood

Photo courtesy of the American Wood Council
# Type of Construction IV–A

<table>
<thead>
<tr>
<th>Building Element</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Height</td>
<td>270’</td>
</tr>
<tr>
<td>Number of Stories</td>
<td>18 maximum</td>
</tr>
<tr>
<td>Exposed Mass Timber?</td>
<td>No exposed MT, full NC protection including floors</td>
</tr>
<tr>
<td>Sprinklers</td>
<td>Yes</td>
</tr>
<tr>
<td>Primary Frame FRR</td>
<td>3 hours</td>
</tr>
<tr>
<td>Floor FRR</td>
<td>2 hours</td>
</tr>
<tr>
<td>Primary Frame FRR coming from NC protection</td>
<td>120 minutes</td>
</tr>
<tr>
<td>Stair Towers (if over 120 feet)</td>
<td>Non-combustible</td>
</tr>
<tr>
<td>Concealed Spaces</td>
<td>Permitted but protected</td>
</tr>
</tbody>
</table>
### Type of Construction IV–B

<table>
<thead>
<tr>
<th>Building Element</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Height</td>
<td>180’</td>
</tr>
<tr>
<td>Number of Stories</td>
<td>12 maximum</td>
</tr>
<tr>
<td>Exposed Mass Timber?</td>
<td>Up to 20% Ceiling or 40% of floor area for walls; floors protected</td>
</tr>
<tr>
<td>Sprinklers</td>
<td>Yes</td>
</tr>
<tr>
<td>Primary Frame FRR</td>
<td>2 hours</td>
</tr>
<tr>
<td>Floor FRR</td>
<td>2 hours</td>
</tr>
<tr>
<td>Fire Resistance from Non-com</td>
<td>80 minutes</td>
</tr>
<tr>
<td>Stair Towers</td>
<td>Mass Timber or NC</td>
</tr>
<tr>
<td>Concealed Spaces</td>
<td>Permitted but protected</td>
</tr>
</tbody>
</table>
# Type of Construction IV–C

<table>
<thead>
<tr>
<th>Building Element</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Height</td>
<td>85’</td>
</tr>
<tr>
<td>Number of Stories</td>
<td>9 maximum</td>
</tr>
<tr>
<td>Exposed Mass Timber?</td>
<td>Full exposed (except both sides of stair and shaft enclosures, outside of exterior walls protected)</td>
</tr>
<tr>
<td>Sprinklers</td>
<td>Yes</td>
</tr>
<tr>
<td>Primary Frame FRR</td>
<td>2 hours</td>
</tr>
<tr>
<td>Floor FRR</td>
<td>2 hours</td>
</tr>
<tr>
<td>Stair Tower</td>
<td>Mass Timber or NC</td>
</tr>
<tr>
<td>Concealed Spaces</td>
<td>Permitted but protected</td>
</tr>
</tbody>
</table>
Type IV A–C

- Exterior wall surface – Non-combustible
- Occupied floor 75 ft+ up to 12 stories
  - Noncombustible protected (2-layers 5/8 gyp)
- Over 12 stories or 180ft +
  - Noncombustible exit stairs & elevator hoistway enclosures.
- Over 120 ft. Fire pump supplied by 2 water sources
- Mass Timber – Special Inspections required (CBC 1705.5.7)
Governor’s Executive Order B–52–18

Supporting Wood Products Innovation

13. The Office of the State Fire Marshal, the Department of Housing and Community Development, the Division of the State Architect, the California Building Standards Commission, and the Office of Statewide Health Planning and Development shall review the approved Tall Wood Building Proposal of the International Code Council's Ad Hoc Committee on Tall Wood Buildings and shall consider proposing its adoption into the California Building Standards Code in the subsequent intervening code cycle.
Resolved by the Assembly of the State of California, the Senate thereof concurring, That the Legislature hereby urges the Office of the State Fire Marshal to adopt rules for the use of mass timber products for residential and commercial building construction that consider applicable national and international standards, including the 14 tall mass timber code change proposals that were adopted by the International Code Council for the 2021 International Building Code
Code Development & Analysis Program formed and lead the Tall Wood Workgroup.

26 Members representing: SFM, HDC, DSA, CBSC, CBIA, BOF, OSHPD, Government Operations, Cal Chiefs FPOs, CALBO, SFPE, ICC, AWC, American Iron and Steel Institute & Concrete Masonry Association.

Over 150 interested parties.
The Tall Wood Building Workgroup

- Reviewed:
  - ICC ADHOC methodology
  - Fire Tests
  - Safety Requirements
  - Structural Requirements
ICC ADHOC methodology

The ADHOC was formed after the discussions from the ICC Code Hearings for 2018 ICC Codes.

- Reviewed the test
- Compared type of construction
  - Rating match Type I
  - Height and area of Type IV–A was based on consensus of 1.5 times of Type IB.
  - Exhaustive work to include Type IV–A, B & C through the code.
Fire Tests

Watched, Reviewed date, Discussed the fire tests and the standards.
The Tall Wood Building Workgroup

- Safety Requirements
  - Reviewed Height and Area
  - Exterior coverings
  - Stairways
  - Sprinkler requirements
  - Concealed spaces
  - Assemblies
  - Training
  - Repairs
The Tall Wood Building Workgroup

- Structural Requirements

- Presentations from
  - DSA–Structural
  - Structural Engineers

- Nothing is given away.
- The same structural requirements remain

- Many of the systems are proprietary
Tall Wood and the California Code

- 2019 Intervening Code Cycle

- The Tall wood buildings are part of the Office of the State Fire Marshals Proposals

- Same as the ICC with minor changes to match the California formatting (Height & Area)
OSFM Workgroup

- Stakeholder involvement

- Issues
  - ICC Group B proposed – not done
  - Special Inspection
  - Seismic & Structural concerns
  - Fire Testing
  - Construction fires
  - Other issues?

Photo courtesy of the American Wood Council
2019 Intervening Code Cycle

- State Agency’s Workgroups – Completed (4 meetings)
- Agency submittals – Completed (including ICC Group B)

- Code Advisory Committee – March 2020
- California Building Standards Commission Meeting
  - Final Approval – June/July 2020

- Publication – January 1, 2021
- Effective date – July 1, 2021
Thank you!!
Questions??

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