



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

# 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



<u>Building Element</u>	
Maximum Height	270'
Number of Stories	18 maximum
Exposed Mass Timber?	No exposed MT, full NC protection including floors
Sprinklers	Yes
Primary Frame FRR	3 hours
Floor FRR	2 hours
Primary Frame FRR coming from NC protection	120 minutes
Stair Towers (if over 120 feet)	Non-combustible
Concealed Spaces	Permitted but protected

# Type of Construction IV-B



<u>Building Element</u>	
Maximum Height	180'
Number of Stories	12 maximum
Exposed Mass Timber?	Up to 20% Ceiling or 40% of floor area for walls; floors protected
Sprinklers	Yes
Primary Frame FRR	2 hours
Floor FRR	2 hours
Fire Resistance from Non-com	80 minutes
Stair Towers	Mass Timber or NC
Concealed Spaces	Permitted but protected

# Type of Construction IV-C



<u>Building Element</u>	
Maximum Height	85'
Number of Stories	9 maximum
Exposed Mass Timber?	Fully exposed (except both sides of stair and shaft enclosures, outside of exterior walls protected)
Sprinklers	Yes
Primary Frame FRR	2 hours
Floor FRR	2 hours
Stair Tower	Mass Timber or NC
Concealed Spaces	Permitted but protected

# 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)

# CAL FIRE/Office of the State Fire Marshal's Role

- ▶ 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.

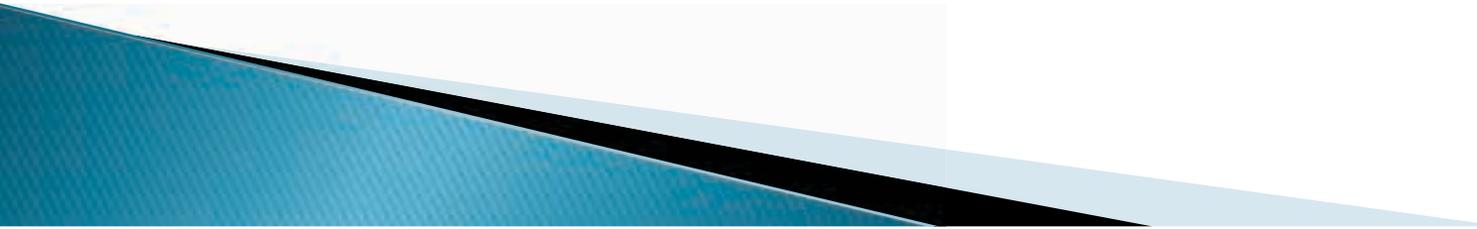
# CAL FIRE/Office of the State Fire Marshal's Role

- ▶ **ASSEMBLY CONCURRENT RESOLUTION (ARC) 102**
- ▶ ...
- ▶ 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

# CAL FIRE/Office of the State Fire Marshal's Role

- ▶ 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
- 

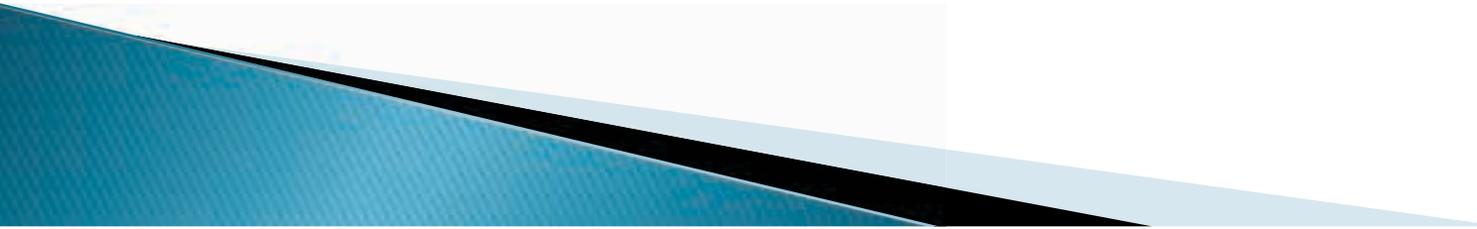
# The Tall Wood Building Workgroup

- ▶ 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.

# The Tall Wood Building Workgroup

- ▶ 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

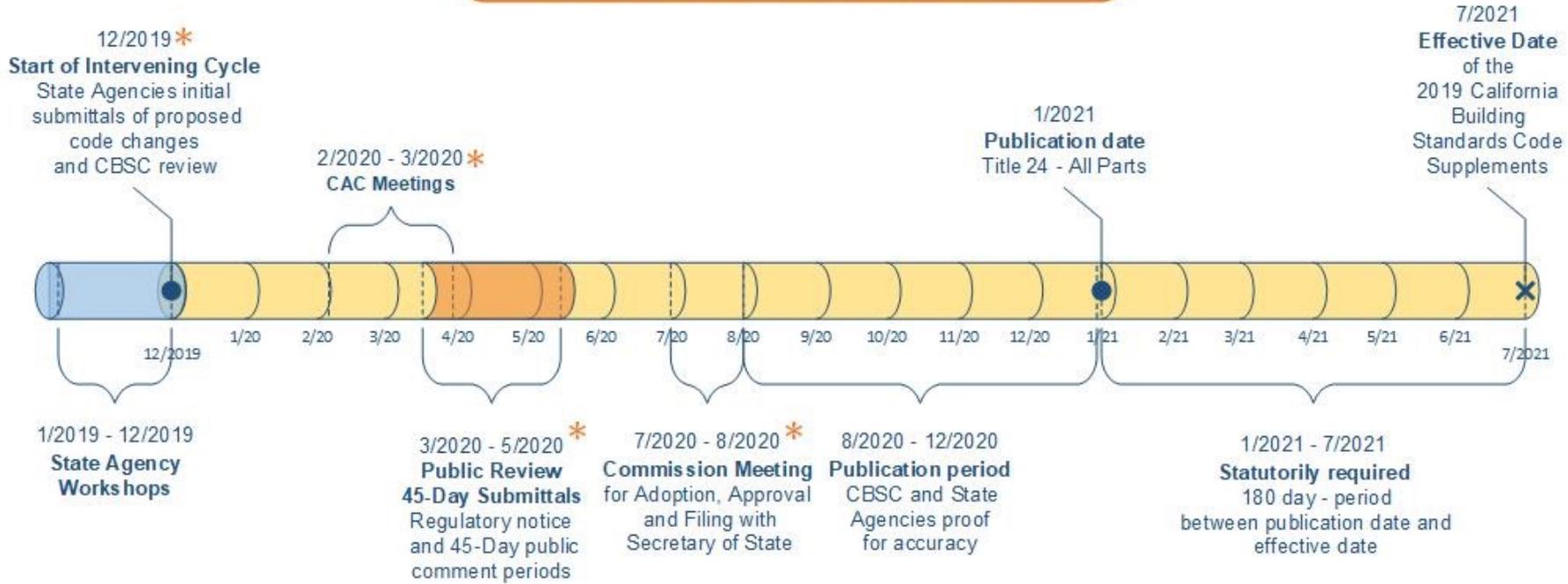
- ▶ Structural Requirements
- ▶ Presentations from
  - DSA-Structural
  - Structural Engineers
- ▶ Nothing is given away.
- ▶ The same structural requirements remain
- ▶ Many of the systems are proprietary

# 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)
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# 2019 Intervening Code Adoption Cycle

Amendments to the 2019 California Building Standards Code,  
Title 24 Supplement July 1, 2021 Effective Date



**Code Advisory Committees:**

- SDLF – Structural Design/ Lateral Forces
- PEME – Plumbing, Electrical, Mechanical & Energy
- HF – Health Facilities
- GREEN – Green Building
- BFO – Building, Fire & Other
- ACCESS – Accessibility

\* Public Participation Opportunity  
All dates are subject to change

**California Building Standards Commission**



(916) 263-0916  
www.dgs.ca.gov/bsc  
Rev. March 2019

# 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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