

## States, Cities Adopting Tall Mass Timber Provisions

*A Variety of Approaches*

By Kenneth Bland, P.E.

States and municipalities eager to allow taller mass timber buildings are considering adopting the mass timber provisions in the 2021 *International Building Code* (IBC). Many have recently finished the adoption of the 2018 I-codes and would otherwise wait several more years to incorporate construction types IV-A, IV-B, and IV-C into their building codes to allow mass timber buildings up to 18 stories tall.

The American Wood Council's (AWC) staff of engineers and former building code officials has been approached by several of these states and localities for technical support and, thus far, California, Georgia, Idaho, Oregon, Utah, Virginia, Washington, and the city of Denver are either in the process of enacting the provisions or are finalizing the process.

### Approaches to Early Adoption

There have been three main approaches to incorporating the 2021 IBC tall mass timber provisions into state and local building codes. All have the same effect and have been chosen by the State or local jurisdiction based on the most efficient approach to maintain consistency with the rest of the building code.

- **Incorporate directly into the code.** Washington and California are examples where the provisions were incorporated directly into the state code, much like they appear in the 2021 IBC. The International Code Council (ICC) has begun posting statewide amendments adopting the 2021 tall mass timber provisions to its Digital Code website, providing an important resource for other jurisdictions considering adoption. State codes, such as the Washington state building code based on the 2018 IBC, are available for free viewing on the site, where it seamlessly adds the 2021 tall mass timber provisions into the current edition of the code.
- **Mandatory appendix.** The city of Denver added a mandatory appendix for incorporating tall mass timber provisions into the city code. The appendix adds specific provisions to the current building code, allowing designers to use the 2021 IBC tall mass timber criteria. The appendix provisions are identical to the mass timber provisions in the 2021 IBC but are consolidated in one place rather than scattered throughout the code based on the section number. While this example is from a city, a state could undertake the same approach.
- **Reference the 2021 IBC.** Virginia elected to amend the 2018 code by adding a simple reference to the 2021 IBC for the types of tall mass timber construction in Chapter 6. This approach offers a succinct alternative and is consistent with how the state already recognizes the latest changes approved by the



ICC membership. The added section contains a note that sends the code user to a state-issued supplement containing the consolidated tall mass timber provisions. In many respects, it is similar to the approach used in Denver. However, in AWC's experience assisting Building Code Boards undertaking the early adoption process, some states may find this approach attractive for its brevity but find it is inconsistent with the rest of the building code.

### Amendments to the 2021 Provisions

Most states that have incorporated the 2021 IBC tall mass timber provisions into their codes have done so through direct adoption. However, there are a few that amended portions of the model building code.

The Oregon Statewide Alternate Methods (SAM) approach was adopted in 2015 and updated in 2019, as the approval process for tall mass timber provisions was underway at ICC and well before the 2021 IBC was finalized. To facilitate the approval of tall mass timber buildings, Oregon added an amendment addressing seismic design coefficients and factors that was eventually replaced with reference to the AWC/ANSI 2021 *Special Design Provisions for Wind and Seismic* (SDPWS). The 2021 SDPWS provisions apply to buildings less than or equal to 65 feet in height in Seismic Design Category (SDC) A and B. AWC recommends that states and municipalities that have not adopted the 2021 IBC allow the use of 2021 SDPWS, which provides criteria for the design of CLT diaphragms and shear walls.

The State of Washington has approved a substantive but straightforward change to their 2021 IBC mass timber provisions based on a code change proposal introduced in the 2024 Code Development Cycle. ICC proposal G150-21 clarifies that noncombustible materials that line concealed spaces are not required to be protected in Type IV-HT. AWC is the proponent of the change, which clarifies existing provisions and was recommended for approval by a unanimous vote of the committee.



## 2024 Code Change Proposals

In addition to G150-21, several other code change proposals are being considered in ICC's 2024 Development Cycle, which are important to tall mass timber code users. For example, a proposal, G147-21, supported by AWC to increase the allowable area of exposed mass timber ceilings from 20% to 100% in buildings up to 12-stories in height, was recommended for approval by the ICC code development committee and during the public comment hearing. Testing conducted by the Research Institute of Sweden (RISE) and sponsored by AWC through a USDA Wood Innovation Grant provided compelling evidence for the committee's recommendation.

An AWC change proposal, F174-21, to delay the installation of the noncombustible topping on CLT floors during construction was also recommended for approval. This proposal was also supported by two mass timber builders that spoke to the challenges of sequencing installation of the topping during construction and the cost savings associated with providing the builder with greater flexibility.

G142-21 has been proposed to permit CLT in the exterior walls of Type III construction but was recommended for disapproval. Similarly, FS 34-21 proposes to allow CLT firewall construction in certain combustible construction buildings but was recommended for disapproval, despite strong testimony in support. AWC sought approval of both proposals through the ICC Online Governmental Consensus Vote which closed November 1, 2021.

### Conclusion

Once a governmental entity takes action to enact ICC's family of model codes as law, all construction must be designed, constructed,



and inspected for compliance. Adopting the new construction types IV-A, IV-B, and IV-C will allow designers to use strong, low-carbon alternatives to engineer safe, efficient, and sustainable buildings.

For additional information on tall mass timber, the 2021 code development process, and the rigorous fire testing performed at the ATE, please refer to [www.awc.org/tallmasstimber](http://www.awc.org/tallmasstimber).



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*Kenneth Bland is the Vice President, Codes & Regulations for the American Wood Council. AWC is committed to ensuring a resilient, safe, and sustainable built environment on behalf of the industry it represents.*

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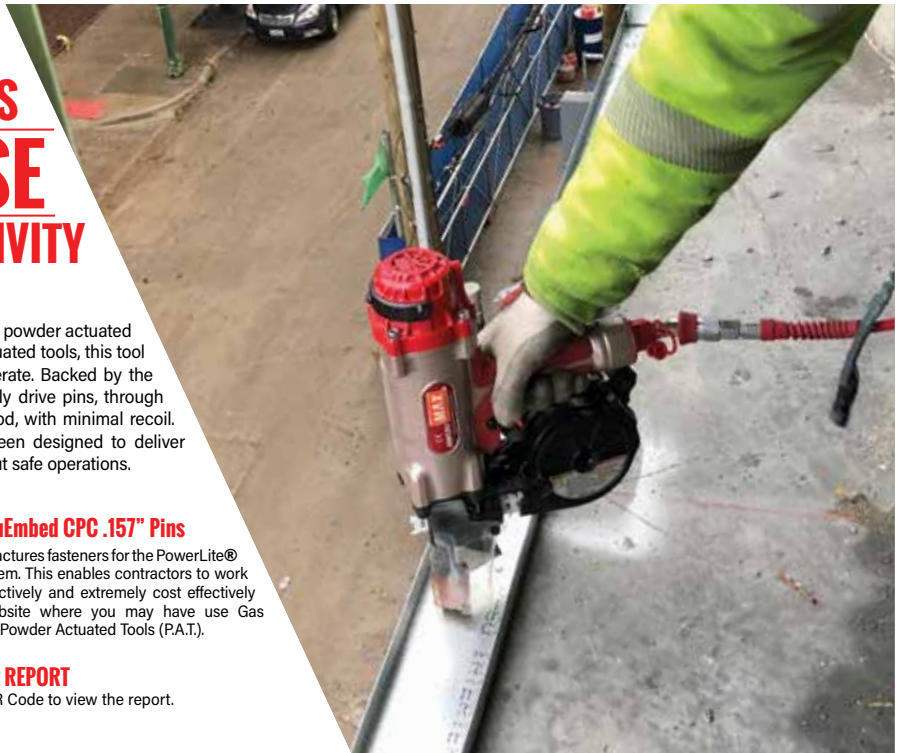


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