



NATIONAL ASSOCIATION OF STATE FIRE MARSHALS

Position Statement

Cross-Laminated Timber in the Construction of Tall Wood Buildings

G75-18, G80-18, G84-18, and G108-18

G28-18, G89-18, FS5-18, FS6-18, FS73-18, FS81-18, and F266-18

ISSUE: Significant changes to the ICC family of codes have been proposed to include prescriptive language for the construction tall wood buildings (TWB). The proponents of these proposals are attempting to validate, and codify, various changes to the tables regarding height, area, and stories based, in part, on “professional judgment.” This concern is exacerbated by the understanding that the historic basis for the underlying table values were themselves somewhat arbitrary. Continued consideration of the TWB concept deserves a continuation of testing, evaluation, an abundance of caution, and always a default to the side of safety.

- **VOTE: NASFM recommends a cdpACCESS Vote to Disapprove on proposals G75-18, G80-18, G84-18 and G108-18 during the ICC Online Governmental Consensus Vote.**
- **NASFM recommends a cdpACCESS Vote to Approve on the accompanying safety proposals G28-18, G89-18, FS5-18, FS6-18, FS73-18, FS81-18, and F266-18.**

BACKGROUND: NASFM submitted a public comment on tall wood buildings opposing the height and area tables. This action was taken on direction from NASFM leadership to ensure we are on the record with our concerns about the significant changes proposed by the TWB Ad Hoc Committee. While NASFM doesn’t dismiss the concept out of hand, we do feel the current proposals go too far, too fast, in an area of significant and long-lasting importance. These concerns are based on a significant amount of work by members of the NASFM Model Codes Committee, who have been involved with, and observed, the development of these proposals, participating in various meetings and TWB test burns.

Unfortunately, we were unsuccessful at the Public Comment Hearings in modifying the height and area tables to levels acceptable to NASFM, leaving us with no choice but to recommend the total disapproval of tall wood buildings. At the same time, there are numerous accompanying proposals designed to provide acceptable safeguards should the proposed height and area levels be approved in cdpACCESS. These accompanying proposals are crucial to ensuring the safest possible buildings should the tall wood building concept gain approval in this final voting process. In support of our opposition, consider the following aspects of the proposals:

- There is no scientific basis for increasing height and area limits beyond what is currently allowable in code.
- There has been no live fire testing at the limits being proposed.
- There has been no "wind aided" fire testing conducted.
- There is incomplete data regarding the fire loading of test burn buildings.
- "Professional Judgement" is insufficient justification for a change of this magnitude.
- No indication that any seismic testing has been performed or evaluated which goes to the issue of resiliency and sustainability.
- To allow a proliferation of larger, taller wood buildings without proper testing and justification is premature and would impact the fire suppression environment significantly.

In the “Reason” section of each of the proposals, the proponents state the performance objectives for TWB are:

- “No collapse under reasonable scenarios of complete burn-out of fuel without automatic sprinkler protection being considered.
- No unusually high radiation exposure from the subject building to adjoining properties to present a risk of ignition under reasonably severe fire scenarios.
- No unusual response from typical radiation exposure from adjacent properties to present a risk of ignition of the subject building under reasonably severe fire scenarios.
- No unusual fire department access issues.
- Egress systems designed to protect building occupants during the design escape time, plus a factor of safety.
- Highly reliable fire suppression systems to reduce the risk of failure during reasonably expected fire scenarios. The degree of reliability should be proportional to evacuation time (height) and the risk of collapse.”

No live fire testing has been conducted in buildings constructed to the limits being proposed in conjunction with the limited application of external influences to fire behavior. It is extremely difficult to accept that these proposals meet the committee’s own stated objectives. We are left with “professional judgment” as the only substantiation. The reason statements for these proposals places an over reliance on the presence of fire sprinklers. NASFM steadfastly supports the use of fire sprinklers, however, we are cognizant of the fact that sprinklers can never be 100% effective given the impact of human behavior on design, installation, maintenance, and intentional disabling.

NFPA *Sprinklers in Reported U.S. Fires during 2010 to 2014 Fact Sheet*, July 2017, states:

- Sprinklers operated effectively in 88% of the fires large enough to activate them.
- Reported sprinkler failures (660 per year) were twice as common as reported fires in which sprinklers were ineffective and did not control the fire.
- 40% of the combined sprinkler problems were due to system shut-offs.
- In three of every five (59%) incidents in which sprinklers failed to operate, the system had been shut off.
- In half (51%) of the fires in which sprinklers were ineffective, the water did not reach the fire.”

The term “highly reliable”, as used by the TWB committee, is subjective at best. While it is agreed that sprinklers provide a valuable life-saving service, it is speculative to base a major part of justification on this one item. Code committees, fire service organizations, and fire safety advocates have rightly demanded data to support decisions related to code changes. NASFM feels the limited testing, in conjunction with a proposed commitment to conduct additional tests, is insufficient currently to warrant changes of this magnitude.

Recommended Actions:

- **NASFM recommends a cdpACCESS Vote to Disapprove of proposals G75-18, G80-18, G84-18 and G108-18 during the ICC Online Governmental Consensus Vote.**
- **NASFM recommends a cdpACCESS Vote to Approve on the accompanying safety proposals G28-18, G89-18, FS5-18, FS6-18, FS73-18, FS81-18, and F266-18.**

Who Are State Fire Marshals?

State Fire Marshals are the senior fire officials in the United States. State Fire Marshals' responsibilities vary from state to state, but they are primarily responsible for fire safety code adoption and enforcement, fire and arson investigation, fire incident data reporting and analysis, public education, and advising Governors and State Legislatures on fire protection policy issues. Some State Fire Marshals are responsible for fire fighter training, hazardous materials incident responses, wildland fire response and the regulation of natural gas and other pipelines.