



STATE OF WASHINGTON  
**STATE BUILDING CODE COUNCIL**

May 2018  
Log No. \_\_\_\_\_

**1. State Building Code to be Amended:**

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> International Building Code | <input type="checkbox"/> International Mechanical Code   |
| <input type="checkbox"/> ICC ANSI A117.1 Accessibility Code     | <input type="checkbox"/> International Fuel Gas Code   |
| <input type="checkbox"/> International Existing Building Code   | <input type="checkbox"/> NFPA 54 National Fuel Gas Code  |
| <input type="checkbox"/> International Residential Code         | <input type="checkbox"/> NFPA 58 Liquefied Petroleum Gas Code                                  |
| <input type="checkbox"/> International Fire Code                | <input type="checkbox"/> Wildland Urban Interface Code   |
| <input type="checkbox"/> Uniform Plumbing Code                  | For the Washington State Energy Code, please see specialized <a href="#">energy code forms</a> |

**Section(s):**

602.4.1.2

**Title:** Interior Protection

**2. Proponent Name (Specific local government, organization or individual):**

**Proponent:** Washington Association of Building Officials, Technical Code Development

**Title:** WABO TCD Committee Chair

**Date:** May 24, 2021

**3. Designated Contact Person:**

**Name:** Micah Chappell

**Title:** Technical Code Development Manager, Seattle Department of Construction and Inspections

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#### **4. Proposed Code Amendment.**

**Code(s) IBC      Section(s) 602.4.1.2**

Amend section to read as follows:

**602.4.1.2 Interior protection.** Interior faces of all mass timber elements, including the inside faces of exterior mass timber walls and mass timber roofs, shall be protected with materials complying with Section 703.3.

**Exception:** Unprotected portions of mass timber ceilings, including attached beams, shall be permitted where limited to an area less than or equal to 40 percent of the floor area in a dwelling unit or fire area.

#### **5. Briefly explain your proposed amendment, including the purpose, benefits and problems addressed.**

The proposed revisions above are based upon recently completed research conducted at the Research Institute of Sweden (RISE). These fire tests demonstrated that the proposed amounts of unprotected areas on the ceiling and walls, as a function of floor area, can be safely implemented while still achieving the performance objectives specified by the ICC Tall Wood Building Ad-Hoc Committee in the development of the tall building mass timber provisions in the 2021 I-codes. Specifically, Test 1 of the test series conducted at RISE involved a ceiling in which 100% of the area was unprotected mass timber. Tests 2 and 5 had unprotected mass timber on 100% of the ceiling area, in addition to unprotected areas on the two opposing side walls, equivalent to 78% of the floor area. These tests exhibited satisfactory performance in that no significant fire re-growth was observed and temperatures within the compartment decreased continuously from the time of the fully-developed phase until the end of the four-hour test. The proposed allowable unprotected area on the ceiling is a conservative application of the configurations tested in all of RISE tests. Although the RISE data also justifies a percentage of unprotected area of the wall, this proposal leaves the walls protected for the sake of conservatism. Videos of the tests performed at RISE may be viewed at the following link:

<https://www.ri.se/en/what-we-do/expertises/fire-safety-timber-buildings>

Furthermore, all of the code proposals included in the work of the TWB were based on CLT products using an earlier edition of material standard PRG 320. During that code development process, being responsive to the concerns of the TWB, the industry demonstrated that the latest PRG-320 standard required a higher grade of adhesive to limit delamination during fire exposure. These RISE fire tests used the subsequent improvements in the code-referenced product standard for CLT (ANSI/APA PRG-320), resulting in enhancements to fire safety.

#### **6. Specify what criteria this proposal meets. You may select more than one.**

- The amendment is needed to address a critical life/safety need.
- The amendment clarifies the intent or application of the code.
- The amendment is needed to address a specific state policy or statute.
- The amendment is needed for consistency with state or federal regulations.
- The amendment is needed to address a unique character of the state.
- The amendment corrects errors and omissions.

#### **7. Is there an economic impact: Yes    No**

Explain:

The code change proposal will decrease the cost of construction. The costs will be decreased as a result of reducing the required amount of noncombustible protection on ceilings in Type IV-A Construction.