



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 [energy code forms](#)

**Section(s): 706.3**

**Title:** Materials used in fire walls

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

**Proponent:** Department of Construction and Inspections

**Title:** Micah Chappell, Technical Codes Development Manager

**Date:** May 24, 2021

**3. Designated Contact Person:**

**Name:** Micah Chappell

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#### 4. Proposed Code Amendment.

Amend section to read as follows:

**706.3 Materials.** *Fire walls that separate a building of Type I or II construction from a building of any construction type shall be of any approved noncombustible materials. Other fire walls shall be built of materials consistent with the types permitted for the type of construction of the building.*

~~((Exception: Buildings of Type V construction.))~~

**706.4 Fire-resistance rating.** *Fire walls shall have a fire-resistance rating of not less than that required by Table 706.4.*

TABLE 706.4  
FIRE WALL FIRE-RESISTANCE RATINGS

GROUP	FIRE-RESISTANCE RATING (hours)
A, B, E, H-4, I, R-1, R-2, U	3 <sup>a</sup>
F-1, H-3 <sup>b</sup> , H-5, M, S-1	3
H-1, H-2	4 <sup>b</sup>
F-2, S-2, R-3 ( <del>(R-4)</del> )	2

a. In Type II, III, IV or V construction, walls shall be permitted to have a 2-hour fire-resistance rating.

b. For Group H-1, H-2 or H-3 buildings, also see Sections 415.7 and 415.8.

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

Type III and IV buildings are required to have fire walls made of approved non-combustible materials. Limiting the make-up of fire walls to non-combustible materials can result in problems for taller III and IV buildings. Material shrinkage and differential vertical shrinkage between dissimilar noncombustible fire wall materials and the combustible building bearing wall, may cause long term damage to the fire wall. Recent testing supporting the mass timber provisions recently approved for the Building Code suggest a different approach to these fire walls.

A three-hour load bearing E-119 test from the American Wood Council justified the fire resistance of CLT. 5 ply CLT with one layer of 5/8" type X gypsum each side was tested. In the 2021 code, the same three-hour bearing wall for Type IV-A construction would require 2/3 of the fire resistance to come from noncombustible protection on each side so the wall would have 3 layers of 5/8" type x gypsum or equivalent on each side and would be expected to last in an E 119 test for over 4 hours. Because the wall is constructed of similar materials as the remainder of the structure, differential shrinkage issues would be minimized. There is no reason why Type IV construction cannot have combustible fire walls as they would perform better than noncombustible walls based on shrinkage compatibility and fire performance.

The core of Type III and Type V buildings are identical. Two-hour combustible fire walls are allowed in Type V buildings and the allowable area is equal to half of the allowable area of Type III buildings. If double 2-hour wood frame fire walls were allowed in Type III construction the area per two-hour wall would be exactly the same. Having two two-hour walls at the fire wall location would actually provide better resistance to collapse in a fire than the current practice of a one-hour wood bearing wall on each side of the noncombustible three-hour fire wall. Differential settlement issues would also go away with this option making damage to the noncombustible fire wall due to shrinkage of the wood bearing walls less of a factor.

Another potential combustible fire wall for Type III would be CLT. The advantage of CLT fire walls in Type III would be the immediate performance once installed to minimize the danger of construction fires instead of waiting for the wall to be completed. Seattle has allowed combustible fire walls for these construction types for a number of code cycles.

Note: A similar code change proposal was made in the ICC 2021 Committee Action Hearings. Much of our proposal comes from that original code change and supporting reasoning. Our amendment is more narrowly construed as it requires that fire walls in Type III or IV can be built of materials consistent with the type of construction rather than allowing any non-combustible material.

*Note: Text from the 2021 IBC is being marked up with strike outs and underlines in this proposal.*

**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:

Depending on material prices, this code change could offer lower cost options for the construction of fire walls and would resolve issues of material shrinkage that sometimes occur at the intersection of different building materials.