

**Submit a comment**

## Proposed Change 1781

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**Code Reference(s):** **NBC25 Div.B 3.1.8.3.(2) (first printing)**  
**NBC25 Div.B 3.1.8.3.(4) (first printing)**  
**NBC25 Div.B 9.10.9.2.(4) (first printing)**

**Subject:** Fire Protection Systems

**Title:** Fire Test Method for Firestops at Perimeter Joints

**Description:** This proposed change replaces the referenced standard for fire test method, ASTM E2307, "Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus," with CAN/ULC-S115:2023, "Standard Method of Fire Tests of Firestop Systems."

This change could potentially affect the following topic areas:

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| <input type="checkbox"/> Division A                                | <input checked="" type="checkbox"/> Division B             |
| <input type="checkbox"/> Division C                                | <input type="checkbox"/> Design and Construction           |
| <input type="checkbox"/> Building operations                       | <input type="checkbox"/> Housing                           |
| <input checked="" type="checkbox"/> Small Buildings                | <input checked="" type="checkbox"/> Large Buildings        |
| <input checked="" type="checkbox"/> Fire Protection                | <input type="checkbox"/> Occupant safety in use            |
| <input type="checkbox"/> Accessibility                             | <input type="checkbox"/> Structural Requirements           |
| <input type="checkbox"/> Building Envelope                         | <input type="checkbox"/> Energy Efficiency                 |
| <input type="checkbox"/> Heating, Ventilating and Air Conditioning | <input type="checkbox"/> Plumbing                          |
|  | <input type="checkbox"/> Construction and Demolition Sites |

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### Problem

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The reference to ASTM E2307, "Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus" in Sentences 3.1.8.3.(2) and (4) and 9.10.9.2.(4) and Note A-3.1.8.3.(2) of Division B of the NBC was required because the fire test method in CAN/ULC-S115-11, "Standard Method of Fire Tests of Firestop Systems," used different criteria to measure the performance of firestops at perimeter joints.

CAN/ULC-S115-11 standard was written in a way that made the pressure differential requirement stricter than the requirement in ASTM E2307, which was perceived to be beyond the minimum level of performance that such testing should achieve. For this reason, a reference to CAN/ULC-S115-11 would have led to increased installation costs

for builders due to the installation of stronger firestop systems than originally intended. The requirement could have added undue costs to a building, reducing the potential for innovative building design and construction.

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## Justification

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Now that both standards have been harmonized, by referencing the 2023 edition of CAN/ULC-S115 in the NBC, referencing ASTM E2307 is no longer necessary. The fire test method in CAN/ULC-S115:2023 achieves similar performance for firestops installed at perimeter joints as ASTM E2307.

Additionally, replacing the ASTM standard with the CAN/ULC one would simplify industry compliance; the required fire-resistance rating of firestops could be achieved by referencing only one standard. The fire test in CAN/ULC-S115 is already referenced in the NBC for assessing the fire-resistance rating of firestops used to maintain the continuity of a fire separation abutting a fire separation, a floor, a ceiling or a roof (Sentences 3.1.8.3.(2) and (3)).

The fire test method in CAN/ULC-S115 is also referenced for maintaining the fire-resistance rating of a fire separation with penetrations by firestops (Articles 3.1.9.1., 3.1.9.3. and 3.1.9.4.).

Using a fire test method with which the industry is familiar and that is already used to test firestops would reduce testing costs and likely further harmonize the installation of firestops. This proposed change would also facilitate compliance enforcement by building inspectors. As a result, the likelihood of defective firestops would be reduced, lowering the risk that fire could spread to upper floors through defective perimeter joints and lead to an uncontrolled fire that could harm people and significantly damage a building.

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## PROPOSED CHANGE

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### **[3.1.8.3.] 3.1.8.3. Continuity of Fire Separations**

- [1] 2)** Except as provided in Sentence (5), the continuity of a *fire separation* having a *fire-resistance rating* that abuts another *fire separation*, a floor, a ceiling, or a roof shall be maintained by a *firestop* conforming to Sentence (3). (See Note A-3.1.8.3.(2).)

### **Note A-3.1.8.3.(2) Fire Separation Continuity.**

The continuity of a fire separation with a fire-resistance rating is maintained by installing a firestop system at the juncture where it abuts against another fire separation, a floor, a ceiling or a roof assembly. The continuity of a fire separation without a fire-resistance rating that abuts another fire separation is maintained by filling all openings at the juncture of the

assemblies with a fire-resistance-rated joint firestop system that will ensure the integrity of the fire separation at that location.

Test methods for the evaluation of joint systems are described in CAN/ULC-S115, "Standard Method of Fire Tests of Firestop Systems", which covers joint systems between adjacent fire-resistance-rated assemblies and between a fire-resistance-rated floor and a non-fire-resistance-rated exterior wall. ~~ASTM E2307, "Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus," is a test method applicable to joint systems between a fire-resistance-rated floor and a non-fire-resistance-rated exterior wall.~~

Fire-resistance-rated joint firestop systems can be tested and listed as either static or dynamic. Dynamic joint firestop systems are subjected to movement cycling prior to undergoing fire testing at maximum joint extension. This approach ensures that the fire-resistance rating of the joint firestop system will be maintained even after the joint has cycled through its anticipated range of movement over the service life of the building. Most joints between fire-resistance-rated assemblies, other than those between loadbearing elements, experience some movement over the service life of the building.

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### **[3.1.8.3.] 3.1.8.3. Continuity of Fire Separations**

- [1] 4)** Except as provided in Sentence (5), joints located in a horizontal plane between a floor and an exterior wall shall be sealed by a *firestop* that, when subjected to the fire test method in ~~ASTM E2307, "Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus,"~~ CAN/ULC-S115:2023, "Standard Method of Fire Tests of Firestop Systems," has an F rating not less than the *fire-resistance rating* of the horizontal *fire separation*.

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### **[9.10.9.2.] 9.10.9.2. Continuous Barrier**

- [1] 4)** Except as provided in Sentence (6), joints located in a horizontal plane between a floor and an exterior wall shall be sealed by a *firestop* that, when subjected to the fire test method in ~~ASTM E2307, "Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus,"~~ CAN/ULC-S115:2023, "Standard Method of Fire Tests of Firestop Systems," has an F rating not less than the *fire-resistance rating* for the horizontal *fire separation*.

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## **Impact analysis**

The industry is already familiar with the fire test method in CAN/ULC-S115. Testing firestops at perimeter joints should not introduce additional costs as the firestops would all be tested to the same standard (instead of requiring a different standard to test a

specific application of firestops). As such, the potential impact would benefit the industry by decreasing costs for the testing of firestops in accordance with one standard instead of two different ones.

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## Enforcement implications

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The proposed change is expected to facilitate the enforcement of requirements for firestops at perimeter joints as there is no need to comply with the fire test methods in two different standards.

Building officials, the industry and contractors would benefit from referring to a single standard with which they are already familiar for firestopping penetrations of fire separations required to have a fire-resistance rating.

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## Who is affected

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Building officials, manufacturers, contractors and building owners.

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## OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

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[\[3.1.8.3.\]](#) 3.1.8.3. ([1] 2) [F03-OS1.2]

[\[3.1.8.3.\]](#) 3.1.8.3. ([1] 2) [F03-OP1.2]

[\[3.1.8.3.\]](#) 3.1.8.3. ([1] 4) [F03-OS1.2]

[\[3.1.8.3.\]](#) 3.1.8.3. ([1] 4) [F03-OP1.2]

[\[9.10.9.2.\]](#) 9.10.9.2. ([1] 4) [F03-OS1.2]

[\[9.10.9.2.\]](#) 9.10.9.2. ([1] 4) [F04-OP1.2]