Public Review Draft
Proposed Addendum w to Standard 189.1-2017

Standard for
the Design of
High-Performance
Green Buildings
Except Low-Rise
Residential Buildings

Second Public Review (June 2020)
(Draft Shows Proposed Changes to Current Standard)

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Foreword

This addendum adds a jurisdictional option for new buildings with less than 100,000 ft² of conditioned floor area that are not high-rise to have air tightness verified through whole building air leakage testing. It also updates references to Standard 90.1 to reflect the 2019 version of that standard.

[Note to Reviewers: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and strikethrough (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard are open for review and comment at this time. Additional material is provided for context only and is not open for comment except as it relates to the proposed changes.]

Addendum w to 189.1-2017

Add new definitions in Section 3 as follows:

High-rise building: A building with an occupied floor located more than 75 feet (23 m) above the lowest level of fire department vehicle access.

Revise Table 4.2 as follows:

INFORMATIVE TABLE 4.2
REQUIREMENTS DETERMINED BY THE JURISDICTION

<table>
<thead>
<tr>
<th>SECTION</th>
<th>SECTION TITLE OR DESCRIPTION AND DIRECTIVES</th>
<th>Jurisdictional Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.3.1.3.5</td>
<td>Building Envelope Airtightness Testing</td>
<td>No</td>
</tr>
</tbody>
</table>

Revise Section 7.3.1.2 as follows:

7.3.1.2 Continuous Air Barrier Air Leakage. The exceptions to the requirement for a continuous air barrier in ANSI/ASHRAE/IES Standard 90.1, Section 5.4.3.1, for specific climate zones and constructions shall not apply. Whole-building pressurization testing shall be conducted in accordance with ASTM E779, ASTM E1827, ASTM E3158, CAN/CGSB-149.10, CAN/CGSB-149.15, or ISO 9972. The testing criteria of Section 10.3.1.3.5(a) shall supersede ANSI/ASHRAE/IES Standard 90.1, Section 5.4.3.1.3(a).
Replace Section 10.3.1.3.5 as follows:

**10.3.1.3.5 Building Envelope Airtightness.** Building envelope airtightness shall comply with ANSI/ASHRAE/IES Standard 90.1, with the following modifications and additions. Air leakage verification shall be in accordance with ANSI/ASHRAE/IES Standard 90.1, Section 5.9.2.2:

a. When implementing the testing option in ANSI/ASHRAE/IES Standard 90.1, Sections 5.2.2(b) and 5.4.3.1.3(a), whole-building pressurization testing shall meet the following requirements:

1. It shall be conducted in accordance with ASTM E779, ASTM E1827, CAN/CGSB-149.10, CAN/CGSB-149.15, ISO 9972, or equivalent standard by an independent third party.

2. The measured air leakage rate of the building envelope shall not exceed 0.25 cfm/ft² (1.25 L/s·m²) under a pressure differential of 0.3 in. of water (75 Pa), with this air leakage rate normalized by the sum of the above- and below-grade building envelope areas of the conditioned and semiheated space.

3. Section 5.4.3.1.3(a), Exception (1), is not allowed.

4. Section 5.4.3.1.3(a), Exception (2), is allowed where the measured air leakage rate exceeds 0.25 cfm/ft² (1.25 L/s·m²) but does not exceed 0.40 cfm/ft² (2.0 L/s·m²).

b. When implementing the verification program option in ANSI/ASHRAE/IES Standard 90.1, Section 5.9.2.2(a), the air barrier design review shall be performed by an independent third party.

**[JO] 10.3.1.3.5 Building Envelope Airtightness Testing.** The requirements in this section supersede the requirements in ANSI/ASHRAE Standard 90.1, Section 5.4.3.1.1.

a. For new buildings with a gross conditioned floor area of 100,000 ft² (10,000 m²) or less and that are not high-rise buildings, an independent third party shall perform whole-building pressurization testing in accordance with ASTM E779, ASTM E1827, ASTM E3158, CAN/CGSB-149.10, CAN/CGSB-149.15, or ISO 9972.

1) The measured air leakage rate of the building, normalized by the sum of the above-grade and below-grade building envelope areas of conditioned space and semiheated space shall not exceed 0.25 cfm/ft² (1.25 L/s·m²) under a pressure differential of 0.3 in. of water (75 Pa).

**Exception:** Where the measured air leakage rate is between 0.25 cfm/ft² (1.25 L/s·m²) and 0.40 cfm/ft² (2.0 L/s·m²), an independent third party shall perform a diagnostic evaluation, perform a visual inspection, prepare a report of corrective actions and submit the report in accordance with Exception 2 to Section 5.4.3.1.1 of Standard 90.1.

2) Where the measured air leakage rate exceeds 0.40 cfm/ft² (2.0 L/s·m²), an independent third party shall perform corrective action and repeat the whole-building pressurization testing described in (a) above until the measured air leakage rate complies with the requirements in item 1.

b. For high-rise buildings, buildings greater than 100,000 ft² (10,000 m²) of gross conditioned floor area, and existing buildings, an independent third party shall perform either the whole-building pressurization testing described in (a) above or shall verify the design and installation of the continuous air barrier in accordance with ANSI/ASHRAE Standard 90.1, Section 5.9.1.2

**Modify Section 11 (Normative References) by inserting the following references under ASTM:**

ASTM E3158-18, Standard Test Method for Measuring the Air Leakage Rate of a Large or Multizone Building, 10.3.1.3.5

**Notes to reviewers:**

- Addendum ao, published on the ASHRAE website, changed section number for continuous air barrier from 7.3.1.1 to 7.3.1.2
- Addendum ac, published on the ASHRAE website, added the new definition gross conditioned floor area, also used here.