Code Amendment Proposal Form
For public amendments proposed to the 2018 editions of the International Codes

Instructions: Upload this form and all accompanying documentation at www.denvergov.org/BuildingCode. If you are submitting your proposal on a separate sheet, make sure it includes all information requested below.

All proposals must be received by April 26, 2019.

CONTACT INFORMATION
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Signature: __________________________
Co-proposed by: Amber Wood, Denver Department of Public Health and Environment
Jim Meyers, Southwest Energy Efficiency Project
Bill Geisheker, Lightly Treading

AMENDMENT PROPOSAL

Please use a separate form for each proposal.

1) Code(s) associated with this proposal. Please use acronym: IECC

If you submitted a separate coordination change to another code, please indicate which code: __________________________

2) Please check here if a separate graphic file is provided: ☐

Graphics may also be embedded within your proposal below.

3) Use this template to submit your proposal or attach a separate file, but please include all items requested below in your proposal. The only formatting needed is **BOLDING**, **STRIKEOUT** AND **UNDERLINING**. Please do not provide additional formatting such as tabs, columns, etc., as this will be done by CPD.

**Code Sections/Tables/ Figures Proposed for Revision:**
IECC R303.2

Proposal:
Revise the section as follows:

R303.2 Installation. Materials, systems and equipment shall be installed in accordance with the manufacturer’s instructions, the Grade I insulation installation requirements in RESNET/ICC 301 and the International Building Code or the International Residential Code, as applicable.

Supporting Information:

Purpose:
The purpose of this proposal is to improve the quality of insulation installation in residential buildings.

Reason:
The quality of insulation installation has a significant impact on the performance of the building envelope. When insulation is not properly installed, the code does not achieve the energy savings intended by its insulation requirements. Poorly installed insulation can compromise home performance, resulting in higher energy bills for the builder’s customers and increased customer call backs due to comfort issues. Based on a report by Energy Star Certified Homes, Version 3 (Rev. 08) there is a 5% savings for heating and cooling system consumption on properly installed insulation (Grade I) vs Grade II insulation that includes more gaps, voids and compressions.

The current IECC language requires that insulation be installed to manufacturer’s instructions. This provision is difficult to enforce because installation instructions will vary based on manufacturer and type of installation (e.g. fiberglass batts versus blown fiber glass versus cellulose). Field inspectors normally don’t have ready access to manufacturer’s installation instructors when conducting an insulation inspection. Manufacturers require that their product be installed with minimal gaps, voids and compression which relates to Grade I Insulation installation but based on the U.S. DOE field study conducted in several states, less than 50% of the homes had insulation installed to Grade I insulation quality.

To address this issue, RESNET has created a new insulation installation standard that includes requirements for Grade I insulation installation for different types of insulation (e.g. fiberglass batts, blown fiber glass and cellulose). The standards language is included in latest version of RESNET/ICC Standard 301. The Grade I installation requirement will help standardize how insulation should be installed and can be used as a reference by both the insulation contractor and the building department reducing potential issues in the field over how products should be installed. This can also be used by the builder focused on quality assurance as they will know how the insulation product is require to be installed.

Grade I insulation allows very small gaps in the insulation. Voids are not allowed to extend from the interior to the exterior (i.e. the full width of a wall cavity). The product is required to be installed according to manufacturer’s specification and cut to fit around electrical junction boxes and is split around wires and pipes. Compression or incomplete fill can amount to 2% or less, if the empty spaces are less than 30% of the intended fill thickness.

Cost

There is no cost increase in this code change as the code currently requires insulation to be installed to manufacturers installation instruction which is consistent with Grade I insulation installation requirements. However, U.S. DOE field studies found that at least 50% of the homes were not installing insulation to this level. The costs included below show the difference between poorly, non-compliant installation, and insulation installed to Grade I. These values are based on the Energy Star Certified Homes, Version 3 (Rev. 08) that documents an increased first cost for installing insulation to meet Grade I insulation installation requirements.

- Roof (Grade II to Grade I) $0.07/ft²
- Wall (Grade III to Grade I) $0.05/ft²
- Foundation (Grade II to Grade I) $0.16/ft²

It is important to note that these are the costs to move from common, non-code-compliant installation to Grade 1.

Referenced Standards:

NA

Impact:

The effect of the proposal on the cost of construction: □ Increase □ Reduce ☒ No Effect
- See Reason Statement
The effect of the proposal on the cost of design: □ Increase □ Reduce ☒ No Effect
<table>
<thead>
<tr>
<th>Is the proposal more or less restrictive than the I-codes:</th>
<th>☒ More</th>
<th>☐ Less</th>
<th>☐ Same</th>
</tr>
</thead>
</table>

**Departmental Impact:** (To be filled out by CPD staff)

**Note:** CITY STAFF ONLY. Discuss the impact of this proposal in this section AND indicate the impact of this amendment proposal for each of the following:

- The effect of the proposal on the cost of review: ☐ Increase ☐ Reduce ☐ No Effect
- The effect of the proposal on the cost of enforcement/inspection: ☐ Increase ☐ Reduce ☐ No Effect