DENVER AMENDMENT PROPOSAL FORM
FOR CPD INTERNAL PROPOSALS TO THE 2016 DENVER BUILDING CODE AMENDMENTS AND THE 2018 INTERNATIONAL CODES

2018 CODE DEVELOPMENT CYCLE

1) Name: Robby Schwarz       Date: 3/25/2019
   Click or tap here to enter text.

2) Proposals should be drafted in Word with the only formatting that is needed being BOLDING, STRIKEOUT AND UNDERLINING. Please do not provide additional formatting such as tabs, columns, etc.

   Please use a separate form for each proposal submitted.

Is separate graphic file provided (Yes or No):

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AMENDMENT PROPOSAL

Please provide all of the following items in your amendment proposal:

**Code Sections/Tables/Figures Proposed for Revision:**
Section R502 Existing Home additions – Performance path

**Note:** If the proposal is for a new section, indicate (new).
Proposed:

R502.1 General. **Additions** to an existing building, building system or portion thereof shall conform to the provisions of this code as those provisions relate to new construction without requiring the unaltered portion of the existing building or building system to comply with this code. **Additions** shall not create an unsafe or hazardous condition or overload existing building systems. An **addition** shall be deemed to comply with this code where the **addition** alone complies using section R502.1.1, where the existing building and addition comply with this code as a single building, or where the building with the addition does not use more energy than the existing building. **Additions** shall be in accordance with Section R502.1.1, or R502.1.2 R502.2, R502.3, or R502.4.

R502.1.1 Prescriptive compliance. **Additions** shall comply with Sections R502.1.1.1 through R502.1.1.4.

R502.1.1.1 Building envelope. New building envelope assemblies that are part of the **addition** shall comply with Sections R402.1, R402.2, R402.3 .1 through R402.3.5, and R402.4.

**Exception:** Where unconditioned space is changed to conditioned space, the building envelope of the addition shall comply where the Total UA, as determined in Section R402.1.5, of the existing building and the **addition**, and any alterations that are part of the project, is less than or equal to the Total UA generated for the existing building.

R502.1.1.2 Heating and cooling systems. New heating, cooling and duct systems that are part of the **addition** shall comply with Section R403.

**Exception:** Where ducts from an existing heating and cooling system are extended to an **addition**, duct systems with less than 40 linear feet (12.19 m) in unconditioned spaces shall not be required to be tested in accordance with Section R403.3.3.

R502.1.1.3 Service hot water systems. New service hot water systems that are part of the **addition** shall comply with Section R403.4.

R502.1.1.4 Lighting. New lighting systems that are part of the **addition** shall comply with Section R404.1.

R502.2 Existing plus addition compliance (Prescriptive plus blower door). The existing building plus the addition shall demonstrate that the structure in its entirety does not use more energy than the existing building did prior to adding the addition. All prescriptive measures shall be installed in the addition in accordance with Section R402.1. This method requires the project to demonstrate compliance verification and reporting as follows:

1. A blower door test shall be performed and reported to the code official with the construction documents at the time of permit to establish a baseline air leakage rate for the existing building prior to construction.

2. Prior to the final building inspection, a confirmed blower door test shall be conducted on the existing building plus addition to demonstrate an air leakage rate equal to or less than the baseline measurement.

3. The final confirmed blower door testing report shall be submitted to the code official for the issuance of the certificate of occupancy.

R502.3 Existing plus addition compliance (Simulated Performance Alternative). Cost compliance verification using Section R405 software analysis shall demonstrate that the existing building plus the addition does not use more energy than the existing building did prior to the addition. This method requires the project to demonstrate compliance verification and reporting as follows: Where unconditioned space is changed to conditioned space, the **addition** shall comply where the annual energy cost or energy use of the **addition** and the existing building, and any alterations that are part of the project, is less than or equal to the annual energy cost of the existing building when modeled in accordance with Section R405. The **addition** and any alterations that are part of the project shall comply with Section R405 in its entirety.

November 15, 2005
1. A baseline cost compliance analysis report of the existing structure shall be submitted to the code official with the construction documents at the time of permit prior to construction.

2. A projected cost compliance analysis report of the existing building plus the addition based on the proposed design specifications for the building in its entirety shall be submitted to the code official with the construction documents at the time of permit prior to construction.

3. A confirmed cost compliance analysis report verifying whole building cost compliance shall be submitted to the code official to demonstrate that the completed project’s cost compliance is equal to or better than the baseline cost compliance for the issuance of the certificate of occupancy.

R502.4 Existing plus addition compliance (Energy Rating Index Alternative). An energy rating index score shall demonstrate that the existing building plus the addition does not use more energy than the existing building did prior to the addition. This method requires the project to demonstrate compliance verification and reporting as follows:

1. A baseline ERI analysis and report of the existing structure shall be submitted to the code official with the construction documents at the time of permit prior to construction.

2. A projected ERI analysis and report of the existing building plus the addition based on the proposed design specifications for the building in its entirety shall be submitted to the code official with the construction documents at the time of permit prior to construction.

3. A confirmed ERI analysis and report verifying whole building performance ERI compliance shall be submitted to the code official to demonstrate that the completed project’s ERI score is equal to or better than the baseline ERI score for the issuance of the certificate of occupancy.

Note: Show the proposal using strikeout, underline format. At the beginning of each section, one of the following instruction lines are also needed:

•Revise as follows
•Add new text as follows
•Delete and substitute as follows
•Delete without substitution

November 15, 2005
Supporting Information:

Reason Statement:
The current existing buildings chapter 5 of the IECC has always struggled with clearly executing the energy code provisions on additions to an existing building. If an addition is added to an existing building then the home’s configuration has changed and assessing compliance on a portion of the home becomes a problem. In reality, it is not possible to assess a portion of the system separated from its entirety for energy code compliance. However, the code has established a method, but not a clear means for trying to do so.

In one form or another the IECC has always stated that an addition shall be deemed to comply where the building with the addition does not use more energy than the existing building did without the addition. The proposal for this section leverages this language (or method) and the existing paths (the means) in the code to offer better compliance mechanisms. The proposed Section R502.1.5 Existing plus addition compliance (Prescriptive), for example, uses a baseline pre-blower door test compared to a final confirmed blower door test to demonstrate if the final product is better than or equal to the existing benchmarked building. The assumption is that the prescriptive R-values, U-values, and installation requirements for the specification installed in the addition will be better than what has been installed in the existing portions of the building. Since it is not practical and, in most cases, possible to perform a blower door on just the addition the requirement changes in order to use the blower door as a compliance mechanism.

A Simulated Performance and Energy Rating Index path have been added as alternative compliance mechanisms in this section of the code for three reasons. First, the blower door is moved back to an assessment of energy performance rather than used as a compliance mechanism. Second, it is our experience that existing portions of a building are almost always modified during the creation of an addition on a building. Therefore, these compliance paths look at the entirety of the building rather than just the addition. Third, design flexibility is achieved when one is not required to use every portion of the prescriptive specification outlined in the code. The clear ability to use tradeoffs in existing buildings fits better with the reality of construction in this arena. Forth, these two pathways enable and encourage pre-planning as well as offer a very clear matrix of compliance. The software analysis to generate the proposed design for the existing building plus the addition clearly projects if the new building in its entirety will be better than or equal to the existing benchmarked building. The projection enables the designer to forecast what in the existing building must be addressed which helps create better building budgets and expectations. In addition, a variety of options can be presented to pick what in the existing and new sections of the building makes the most sense to address.

Note: The following items are required to be included:

Purpose: The proponent shall clearly state the purpose of the proposed amendment to physical, environmental and customary characteristics that are specific to the City and County of Denver (e.g., clarify the Code; revise outdated material; substitute new or revised material for physical, environmental and customary characteristics; add new requirements to the Code; delete current requirements, etc.)

Reasons: The proponent shall justify changing the current Code provisions, stating why the proposal is necessary to reflect physical, environmental and customary characteristics that are specific to the City and County of Denver. Proposals that add or delete requirements shall be supported by a logical explanation which clearly shows why the current does not reflect physical, environmental and customary characteristics that are specific to the City and County of Denver and explains how such proposals will improve the Code.

Substantiation: The proponent shall substantiate the proposed amendment based on technical information and substantiation. Substantiation provided which is reviewed and determined as not germane to the technical issues addressed in the proposed amendment shall be identified as such.

Bibliography (as needed): The proponent shall submit a bibliography when substantiating material is associated with the amendment proposal. The proponent shall make the substantiating materials available for review.

November 15, 2005
**Referenced Standards:**
Click or tap here to enter text.

*List any new referenced standards that are proposed to be referenced in the code.*

**Impact:**

**Cost Statement:**
Demonstration of compliance with this code is required regardless, so adding additional options for demonstrating compliance would not add to the cost. It is not a certainty, but added flexibility could reduce the cost of construction as well as jurisdictional time spent on enforcement.

**Note:** The proponent shall indicate one of the following regarding the impact of the amendment proposal:

- The effect of the amendment proposal on the cost of construction; Increase, Reduce, No Effect:
- The effect of the amendment proposal on the cost of design; Increase, Reduce, No Effect:
- Is the amendment proposal more- or less-restrictive than the I-Codes; More, Less, Same:

**Departmental Impact:**
Click or tap here to enter text.

**Note:** Indicate one of the following regarding the impact of the amendment proposal:

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