



DENVER AMENDMENT PROPOSAL FORM FOR PROPOSALS TO THE 2019 DENVER BUILDING CODE AMENDMENTS AND THE 2021 INTERNATIONAL CODES

DENVER
THE MILE HIGH CITY

2021 CODE DEVELOPMENT CYCLE

1) Name: **Robby Schwarz** Date: **6/11/2021**
 Email: robby@btankinc.com Representing (organization or self): **Denver**

2) One proposal per this document is to be provided with clear and concise information.

Is a separate graphic file provided ("X" to answer): Yes or No

3) Highlight the code and acronym that applies to the proposal

| <u>Acronym</u> | <u>Code Name</u> | <u>Acronym</u> | <u>Code Name</u> |
|----------------|--|----------------|--------------------------------|
| DBC-AP | Denver Building Code–Administrative Provisions | IPC | International Plumbing Code |
| IBC | International Building Code | IRC | International Residential Code |
| IECC | International Energy Conservation Code | IFGC | International Fuel Gas Code |
| IEBC | International Existing Building Code | IMC | International Mechanical Code |
| IFC | International Fire Code | DGC | Denver Green Code |

Please provide all the following items in your amendment proposal.

Code Sections/Tables/Figures Proposed for Revision:

Instructions: If the proposal is for a new section, indicate (new), otherwise enter applicable code section.

R404.5 SOLAR-READY

Proposal:

Instructions: Show the proposal using ~~strikeout~~, underline format.

Place an "X" next to the choice that best defines your proposal: Revision New Text Delete/Substitute Deletion

Add R202 Definition

LOW-SLOPED ROOF. A roof having a slope less than 2units vertical in 12 units horizontal.

Add new section

SOLAR-READY ZONE. A section or sections of the roof or building designated and reserved for the future installation of a solar photovoltaic or solar thermal system.

N1104.5 / R404.5 SOLAR-READY ZONE. New detached one- and two-family dwellings, and (International Residential Code) townhouses with not less than 600 square feet (55.74 m2) of roof area **that is** oriented between 110 degrees and 270 degrees of true north or that is a low-sloped roof, shall comply with Sections R404.5.1 through R404.5.10.

Exceptions:

1. New residential buildings with a permanently installed on-site renewable energy system.
2. A building where all areas of the roof that would otherwise meet the requirements of Section RB103 are in full or partial shade for more than 70 percent of daylight hours annually.

N1104.5.1 / R404.5.1 Construction document requirements for solar ready zone. Construction documents shall indicate the solar ready zone.

N1104.5.2 / R404.5.2 Solar-ready zone area. The total solar-ready zone area shall be not less than 300 square feet (27.87 m2) exclusive of mandatory access or setback areas as required by the *International Fire Code*. New townhouses three stories or less in height above grade plane (as defined by the International Residential Code) and

with a total floor area less than or equal to 2,000 square feet (185.8 m²) per dwelling shall have a solar-ready zone area of not less than 150 square feet (13.94 m²). The solar-ready zone shall be composed of areas not less than 5 feet (1524 mm) in width and not less than 80 square feet (7.44 m²) exclusive of access or setback areas as required by the *International Fire Code*.

N1104.5.3 / R404.5.3 Obstructions. Solar-ready zones shall be free from obstructions, including but not limited to vents, chimneys, and roof-mounted equipment.

N1104.5.4 / R404.5.4 Shading. The solar-ready zone shall be set back from any existing or new permanently affixed object on the building or site that is located south, east or west of the solar zone a distance not less than two times the object's height above the nearest point on the roof surface. Such objects include, but are not limited to, taller portions of the building itself, parapets, chimneys, antennas, signage, rooftop equipment, trees and roof plantings.

N1104.5.5 / R404.5.5 Capped roof penetration sleeve. A capped roof penetration sleeve shall be provided adjacent to a solar-ready zone located on a roof slope of not greater than 1 unit vertical in 12 units horizontal (8-percent slope). The capped roof penetration sleeve shall be sized to accommodate the future photovoltaic system conduit but shall have an inside diameter of not less than 1-1/4 inches (32 mm).

N1104.5.6 / R404.5.6 Electrical Conduit: Install a minimum one-inch metal conduit for future PV system wiring below the capped roof penetration sleeve in the attic to the designated inverter location. The conduit shall be clearly labeled as a Solar ready component indicating its purpose and intended use and shall be capped on both ends. The conduit run shall be identified on construction documents.

Exception: If roof design is such that all conduit is run on the outside elevation of the house to the solar ready zone, then capped roof penetration is not required and only conduit future location shall be required on the construction documents.

N1104.5.7 / R404.5.7 Roof load documentation. The structural design loads for roof dead load and roof live load shall be clearly indicated on the construction documents.

N1104.5.8 / R404.5.8 Interconnection pathway. Construction documents shall indicate pathways for routing of conduit or plumbing from the solar-ready zone to the electrical service panel or service hot water system. All conduit shall be run to the right-hand side of the electrical service panel.

N1104.5.9 / R404.5.9 Electrical reserved space. The electrical panel shall have a reserved space to allow installation of a two- or three-pole circuit breaker for future solar electric installation. The reserved space shall be labeled "For Future Solar Electric." The reserved space shall be positioned at the opposite (load) end from the input feeder location or main circuit location.

N1104.5.10 / R404.5.10 Construction documentation certificate. A permanent certificate, indicating the solar-ready zone and other requirements of this section, shall be posted near the electrical distribution panel, water heater or other conspicuous location by the builder or registered design professional.

Supporting Information (Required):

- The Purpose of this proposal is to move the Solar Ready Appendix RB to the main body of the code as a requirement
- One objective of the city of Denver's 2021 IECC adoption is to ensure that all new construction under the new code is ready for electrification when the time is appropriate. The possible addition of onsite power production largely services that goal and the greater 2030 goal of the city to get to zero energy homes. This proposal outlines what is needed to be considered ready to install solar renewables after the certificate of occupancy has been issued.

Bibliography and Access to Materials (as needed when substantiating material is associated with the amendment proposal):

Other Regulations Proposed to be Affected

***For proposals to delete content from the 2019 Denver Green Code in conjunction with adding it to other mandatory Denver codes and/or regulations, only.**

Please identify which other mandatory codes or regulations are suggested to be updated (if any) to accept relocated content.

Referenced Standards:

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

Impact:

How will this proposal impact cost and restrictiveness of code? ("X" answer for each item below)

Cost of construction: Increase ___ Decrease ___ No Impact

Cost of design: Increase ___ Decrease ___ No Impact

Restrictiveness: Increase ___ Decrease ___ No Impact

Departmental Impact (City use only):

This amendment proposal increases/decreases/is neutral to the cost of plans review.

This amendment increases/decreases/is neutral to the cost of inspections.