

RECD1-4-22 As Modified (note: any approved RED1s to R404.6.1 would take precedence)

2024 International Energy Conservation Code [RE Project]

CHAPTER 2 [RE] DEFINITIONS

ON-SITE RENEWABLE ENERGY. Energy from renewable energy resources harvested at the building site.

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

CHAPTER 4 [RE] RESIDENTIAL ENERGY EFFICIENCY

R404.6 Renewable energy infrastructure. The building shall comply with the requirements of R404.6.1 or R404.6.2.

R404.6.1 One- and two- family dwellings and townhouses. One- and two-family dwellings and townhouses shall comply with Sections R404.6.1.1 through R404.6.1.4.

Exceptions:

1. A dwelling unit with a permanently installed on-site renewable energy system.
2. A dwelling unit with a solar-ready zone area that is less than 500 square feet (46 m²) of roof area oriented between 110 degrees and 270 degrees of true north.
3. A dwelling unit with less than 500 square feet (46m²) of roof area oriented between 110 degrees and 270 degrees of true north.
4. Dwelling units where 50 percent of the solar-ready zone area is shaded from direct-beam sunlight by natural objects or by structures that are not part of the building for more than 2500 annual hours between 8:00 a.m. and 4:00 p.m.
5. A dwelling unit that complies with Appendix RC.
6. A dwelling unit with a renewable energy power purchase agreement with a duration of not less than 15 years from a utility or a community renewable energy facility and for not less than 80 percent of the estimated dwelling unit whole-building electric use on an annual basis.
7. A dwelling unit with less than or equal to 1,500 square feet (139 m²) of living space floor-area located above grade plane.

R404.6.1.1 Solar-ready zone area. The total area of the solar-ready zone shall not be less than 250 square feet (23.2 m²) and shall be composed of areas not less than 5.5 feet (1676 mm) in one direction and not less than 80 square feet (7.4 m²) exclusive of access or set back areas as required by the *International Residential Code*.

Exception: Dwelling units in townhouses three stories or less in height above grade plane and with a total floor area less than or equal to 2,000 square feet (186 m²) per dwelling shall be permitted to have a solar-ready zone area of not less than 150 square feet (14 m²).

R404.6.1.2 Obstructions. Solar-ready zones shall be free from obstructions, including but not limited to vents, chimneys, and roof-mounted equipment.

R404.6.1.3 Electrical service reserved space. The main electrical service panel shall have a reserved space for a dual pole circuit breaker and shall be labeled "For Future Solar Electric." The reserved space shall be at the opposite (load) end of the busbar from the primary energy source.

R404.6.1.4 Electrical interconnection. An electrical junction box shall be installed within 24 inches (610 mm) of the main electrical service panel and shall be connected to a capped roof penetration sleeve or a location in the attic that is within 3 feet (914 mm) of the solar-ready zone by a minimum 1 inch (25 mm) nonflexible metallic conduit or permanently installed wire as approved by the code official. Where the interconnection terminates in the attic, location shall be no less than 12 inches (35 mm) above ceiling insulation. Both ends of the interconnection shall be labeled "For Future Solar Electric".

Revise as follows:

R404.6.2 Group R occupancies. Residential buildings other than one- and two-family dwellings and townhouses Buildings in Group R-2, R-3 and R-4 shall comply with the requirements of Sections R404.6.2.1 through R404.6.2.8 Appendix CB.

R404.6.2.1 General. A solar-ready zone shall be located on the roof of residential buildings that are ~~three stories or less in height above grade plane, and~~ are oriented between 110 degrees and 270 degrees of true north or have low-slope roofs. Solar-ready zones shall comply with Sections R404.6.2.2 through R404.6.2.8.

Exceptions:

1. A building with a permanently installed, on-site renewable energy system.
2. A building with a solar-ready zone area that is shaded for more than 70 percent of daylight hours annually.
3. A building where an approved party certifies that the incident solar radiation available to the building is not suitable for a solar-ready zone.
4. A building where an approved party certifies that the solar-ready zone area required by Section R404.6.2.3 cannot be met because of extensive rooftop equipment, skylights, vegetative roof areas or other obstructions.
5. A building that complies with Appendix RC.
6. A building with a renewable energy power purchase agreement with a duration of not less than 15 years from a utility or a community renewable energy facility and for not less than 80 percent of the estimated whole-building electric use on an annual basis.

R404.6.2.2 Construction document requirements for a solar-ready zone. Construction documents shall indicate the solar-ready zone.

R404.6.2.3 Solar-ready zone area. The total solar-ready zone area shall be not less than 40 percent of the roof area calculated as the horizontally projected gross roof area less the area covered by penthouses, mechanical equipment, rooftop structures, skylights, occupied roof decks, vegetative roof areas and mandatory access or set back areas as required by the International Fire Code. The solar-ready zone shall be a single area or smaller, separated sub-

zone areas. Each sub-zone shall be not less than 5 feet (1524 mm) in width in the narrowest dimension.

R404.6.2.4 Obstructions. *Solar-ready zones* shall be free from obstructions, including pipes, vents, ducts, HVAC equipment, skylights and roof-mounted equipment.

R404.6.2.5 Roof loads and documentation. A collateral dead load of not less than 5 pounds per square foot (5 psf) (24.41 kg/m²) shall be included in the gravity and lateral design calculations for the *solar-ready zone*. The structural design loads for roof dead load and roof live load shall be indicated on the construction documents.

R404.6.2.6 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.

R404.6.2.7 Electrical service reserved space. The main electrical service panel shall have a reserved space to allow installation of a dual-pole circuit breaker for future solar electric and shall be labeled "For Future **Solar-Renewable** Electric." The reserved spaces shall be positioned at the end of the panel that is opposite from the panel supply conductor connection.

R404.6.2.8 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.~~

Reason: We cannot point to an Appendix for requirements; the requirements have to be stated in the section itself. This proposal takes the requirements from the referenced Appendix CB and copies it into the R404.6.2 section. There are some edits to consider, given that the R404.6.1 section that applies to other residential buildings does not contain some of these sub-sections, as they are covered in R103 and R401.

Cost Impact: None. Rather than pointing to an Appendix for a requirement, it brings the requirement text into the actual section.

Bibliography: Appendix CB from 2024 IECC-C, 1st public comment draft [https://www.iccsafe.org/wp-content/uploads/IECC2024P1CE_2022-09-07-clean-gray-red2.pdf]