



Photovoltaic Systems and the 2020 RCNYS

This Code Outreach Program is intended to summarize some key provisions regarding the installation of Photovoltaic systems (PV systems) on buildings and structures regulated by the 2020 Residential Code of New York State (2020 RCNYS).

A building permit is required for the installation of a PV system. According to 19 NYCRR §1203.3(a)(1), they require a building permit because they are not included in any exempt category. Construction documents are required, and shall indicate that the proposed work will conform to the Uniform Code, and depending on the local laws, they may need to be prepared by a registered design professional.

PV systems can be mounted on the ground or roof, or they can be a component of the building's envelope. New PV systems installed on new and existing buildings shall comply with Section 324 of the 2020 RCNYS, NFPA 70, and the manufacturer's installation instructions. Additionally, PV systems installed on existing buildings shall comply with Appendix J of the 2020 RCNYS as an Alteration—Level 2 (Section AJ301.4).

Rooftop-mounted PV panel systems installed on to, or above, the roof covering of new or existing roofs, shall comply with the applicable provisions of Section 324, Section R324.4, and Section R324.6. Some of the key design and construction provisions included are:

- The PV panel system shall be able to structurally support itself and withstand all applicable gravity loads in accordance with Chapter 3.
- The roof on which the PV panel system is installed shall be able to support the loads imposed by the panel system and be capable of transmitting the resulting loads to the supporting structural elements of the building (Section R324.4.1).
- The PV panel system shall have, at a minimum, the same fire classification as the roof assembly required in Section R902, even if it is an existing roof that does not meet the fire classification requirements for a new roof (Section R324.4.2).
- The PV panel system shall be tested, listed, and identified for fire classification in accordance with Section R902.4.
- Roof penetrations created by the PV panel system shall be flashed and sealed in accordance with Chapter 9.
- Compliance with the provisions of Section R324.6, including, but not limited to those pertaining to roof access, pathways, setbacks, and emergency escape and rescue openings is required.

Building integrated PV systems that serve as roof coverings, including Photovoltaic Shingles and Building-Integrated Photovoltaic Roof Panels (BIPV Roof Panels) (as defined in the 2020 RCNYS), shall comply with the applicable provisions of Section R324, Section R324.5, and Section R324.6. Some of the key design and construction provisions included are:

- They shall be designed and installed in accordance with the applicable provisions of Section R905.
- They shall have a fire classification in accordance with Section R902.3, which includes fire testing in accordance with UL 790 or ASTM E108.
- They shall meet the required material standards of UL 1703, and be listed and labeled as such.
- Their packaging shall include the information and documentation required by Section R904.4.
- They shall be installed with the appropriate underlayment in accordance with Section 905.1.1, and where required, an ice barrier per Section R905.1.2.
- They shall comply with all provisions specific to the type of building integrated photovoltaic system being used. For example, Photovoltaic Shingles shall meet the provisions of Section R905.16 and BIPV Roof Panels shall meet the provisions of Section R905.17.
- Compliance with the provisions of Section R324.6, including, but not limited to those pertaining to roof access, pathways, setbacks, and emergency escape and rescue openings is required.

Ground-mounted photovoltaic systems associated with buildings and structures regulated by the 2020 RCNYS shall be designed and installed in accordance with the requirements of Section R301 and shall be subject to the fire separation distance requirements of the local jurisdiction, as indicated in Section R324.7.

Associated equipment and electrical and plumbing work are also required to comply with the code. A few key provisions:

- Vent pipes that terminate at the roof below the PV panel shall comply with the applicable provisions of Section P3103.1.3.
- Inverters shall be listed and labeled in accordance with UL 1741. If they are connected to the utility grid, they shall be listed for utility interaction. (Section R324.3.1).
- All electrical work in connection with any the type of PV system shall be installed in accordance with NFPA 70. (Section R324.3).
- An Energy Storage System (ESS) may be connected to the PV system; however, more often than not in NYS, PV systems are connected to the utility grid and there is no onsite battery. If an ESS is installed, it shall comply with the provisions of Section R327.