



Wood Decks

This edition of the Code Outreach Program is intended to summarize the prescriptive provisions of the 2020 Residential Code of New York State (2020 RCNYS) applicable to wood decks.

Design

Wood decks are required to be designed and constructed in a manner that supports all loads imposed, including but not limited to live and dead loads, flood, snow, wind, and seismic loads as well as vertical and lateral loads. Design criteria can be found in Section R301 of the 2020 RCNYS. Section R301 includes several paths to compliance including a path using prescriptive provisions, an “alternative provisions”* path (see Section R301.1.1), and an “engineered design” path (see Section R301.1.3). This edition will focus primarily on key prescriptive code-compliance provisions but is not intended to be an all-inclusive design guide or inspection tool.

Key Prescriptive Code-Compliance Provisions of the 2020 RCNYS

Ledger. Decks that are supported by the exterior wall of a building must be positively anchored to that wall. Where a positive connection to the primary building structure cannot be verified during inspection, decks shall be self-supporting. Lumber used for ledgers must be rated for exterior use, and a minimum nominal dimension of 2-inch by 8-inch. See Section R507.9.1.1.

Footings. Exterior footings shall be placed a minimum of 12 inches below undisturbed ground surface per Section R507.3.2. Footings of decks anchored to a building wall must also be frost-protected by one of the methods indicated in Section R403.1.4. Free standing decks are exempted from the requirement to be frost protected per exception 3 of Section R403.1.4.1 and exception 2 of Section R507.3.2. Regardless of depth, footings shall not bear on frozen soil.

Posts. Posts shall be connected to the beams per the requirements of Section R507.5.2 and restrained at the connection with the footing per Section R507.4.1.

Framing. Section R507 includes prescriptive tables to determine spans and spacing for deck joists and beams in areas with a ground snow load of 40 lbs per square foot or less. Also included in the deck joist table are allowable cantilevers similar to beams these are further limited to one forth the adjacent beam span. The ends of joists and beams shall have adequate bearing, but in no case not less than the entire width and a depth of one and a half inches on supports and shall also be fastened to them per Section R507.6.

Guards, Stairs. The requirements for guardrails of Section R312 are applicable to decks elevated 30-inches or more above the grade or floor below. The stair requirements of Section R311.7 are also applicable.

Materials. Lumber used for structural members, decking, and guard rails shall be approved for exterior use according to Section R317, with members in contact with the ground listed for ground contact. Cuts, notches, and drilled holes of preservative treated wood members shall be treated in accordance with Section R317.1.1. Fasteners and connectors must be protected from corrosion which are typically hot dipped galvanized or stainless-steel too meet this requirement. Table R507.2.3 provides the specific requirements for each type of fastener.

Composite Materials. Composite materials used for decking, stair treads, guards, and handrails shall bear a label indicating compliance with ASTM D 7032 and the allowable spans shall be determined by the same testing standard. Combustible composite deck materials shall also be decay and termite resistant and have a flame spread index of 200 or less, when tested according to ASTM E84. Biodegradable materials shall be decay and termite resistant in accordance with ASTM D 7032.

Additional information is available through the following free online training:

- Simpson Strong-Tie Online Training Courses provides two classes that cover decks <https://www.strongtie.com/resources/training>
- The International Code Council offers a free class found under the title “Deck Safety and the Codes” at <https://learn.iccsafe.org/> after an account has been created.

The provisions contained in this document are intended as a summary and not as a comprehensive checklist. Additional provisions apply to decks, in particular those constructed in seismic zones or floodplains.

**One of the standards listed under “alternative provisions” is the ‘Wood Frame Construction Manual for One- and Two-family Dwellings’ (WFCM). The 2018 version is incorporated by reference in the Uniform Code, and it is available from the [American Wood Council \(AWC\)](#). The AWC also publishes the ‘[Prescriptive Residential Wood Deck Construction Guide](#)’, which contains useful structural details including, but not limited to, lateral load connections. However, it is not enforceable and should only be used as a guide; compliance with the ‘Design Criteria,’ as put forth in Section R301 of the 2020 RCNYS, is still required.*

Please look for our next edition of the Code Outreach Program at the beginning of next month.