

City of Robbinsdale

Building & Engineering Department

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This handout is intended only as a guide and is based in part on the 2015 Minnesota State Building Code, Robbinsdale City ordinances, and good building practice. While every attempt has been made to insure the correctness of this handout, no guarantees are made to its accuracy or completeness. Responsibility for compliance with applicable codes and ordinances falls on the owner or contractor. For specific questions regarding code requirements, refer to the applicable codes or contact the Building Official at the City of Robbinsdale.

DECK INFORMATION

Please submit the following information in addition to the building permit application:

Survey or Site Plan Two copies of an as-built survey and/or scale drawing showing

- Lot size and all adjacent streets
- Exact location and dimensions of all existing and proposed buildings on the lot.
- Corner monuments (to the satisfaction of building inspector).
- *If near a flood plain - elevations must be shown on a survey.

Building Plans (two sets)

- Section drawing (side, cutaway drawing) showing the footing width and thickness, post size, joist size, beam size, decking, height above grade, guardrail, cantilevers (overhang), anchoring, flashing, connectors and hanger types, include grade and species of lumber, and
- Floor Plans of the deck showing the length and width of the deck, beam location, post spacing, joist spacing, stair location and type of lumber (pressure treated, redwood, cedar, etc.).

Building Permit Application

- A Building Permit Application will need to be filled out in its entirety by either the contractor or homeowner. A Property Owner's Affidavit may be required.

Permit Fees

- The contract value of work is calculated at \$15 per sq ft. (Example: 16 x 16 = 256 x \$15 = \$3840) Permit fee is then calculated at the value of \$3840.

Building permits will not be granted for the erection of any building or structure upon land which is not platted and described as a lot or a tract of a registered land survey, except as provided in Section 16-04 of the City Code. Building permits will not be granted on any lot that does not abut upon a public street.

Setbacks: Decks shall be setback 5 feet from the side property line and shall be setback 20% of the lot depth from the rear property line. Decks which are no higher than 30 inches may extend nearer than 10 feet into any required yard provided they do not extend nearer than 20 feet from any front property line and five feet from any side or rear property line. Decks may not be installed over any utility easement. Decks may not be installed in front yards. A 15 foot side setback is required for corner lots.

Electrical: Wires must be 10 feet above deck surface in any direction.

Special Design Note: Some designs may not be appropriate if a future porch, addition or hot tub is intended to be installed on the deck. Footings, beams and joists should be sized for all future loads.

Footings/Posts: Footings must be a minimum 42 inches below final grade. The base of the footing must be wide enough to transfer the weight of the deck to the soil [determine minimum footings sizes from tables].

Posts must be pressure treated, redwood, cedar, concrete or other approved material. Future three-season or screen porches will require larger support footings. Adding of a porch or roof should be a future consideration at the time of permit applications.

Wood Required: All exposed wood used in the construction of decks is required to be of an approved wood with natural resistance to decay (redwood, cedar, etc.) or an approved treated wood. This includes posts, beams joists, railings and decking (entire deck)

Live Load: All deck floor systems shall be designed to support a live floor load of 40 pounds per square foot. An additional 40 pounds loading design is required for the post, beams, and footings when covered by a roof system.

Floor Joists: Floor joists spacing at 24 inches on center requires 2 x decking. Floor joist spacing at 16 inches on center permits 1 x decking. Joists on overhanging decks should not overhang beams by more than two feet nor should beams overhang posts by more than one foot unless a special design is approved. Cantilevered decks (no post support) may require an engineered design.

Joist Hangers: Header joists of more than 6 feet long and tail joists over 12 feet long shall be supported by approved framing anchors such as joist hangers. When constructed by use of face joist method it shall be lag bolted at 16 inches on center spacing to the structural members of structure. Roofing nails shall not be used in joist hangers. Nails shall be hot dipped galvanized or stainless steel. Joist hangers shall be approved for contact with treated wood such as triple galvanized hangers.

Framing: The joists and beams must be sized to support a 40lbs per sq ft live load.

Flashing: All connections between deck and dwelling shall be weatherproof. Any cuts in exterior finish shall be flashed or caulked.

Stairs/ Residential: The minimum width of a stairway is 36" inches in width. The maximum rise on stairs is 7 ¾ inches. The minimum run of the treads is 10 inches. A handrail is required on all stairs with four or more risers. Open risers are permitted, provided that the opening between treads does not permit the passage of a 4 inch in diameter sphere.

Handrails: A handrail is required on one side of stairs with four or more risers. The handrail must be 34 to 38 inches high, be continuous and uninterrupted the full length of the stairs. The handgrip portion of the handrail shall not be less than 1 ¼ inches or more than 2 5/8th inches in diameter. The ends of the handrail shall be returned or terminated in a newel post or safety terminal.

Guard: Residential decks 30 inches or more above adjacent grade must be protected by a guard with a minimum height of 36 inches. Open guardrails shall have intermediate rails or ornamental pattern such that a 4 inch sphere cannot pass through.

EXCEPTIONS & REPAIRS

EXCEPTIONS: Free standing decks UNDER 30 inches high do not require a building permits but DO require zoning permission. Please contact zoning at 763-531-1266 for information.

REPAIRS: Please contact the Building Official to find out if a building permit will be required on any repairs you are planning on an existing deck.

RESIDENTIAL DECKS AND THE 2020 MINNESOTA RESIDENTIAL CODE

Minnesota Department of Labor and Industry

General requirements and building permits

Effective March 31, 2020, residential exterior decks must be designed and constructed using the 2020 Minnesota Residential Code (MRC), related standards, manufacturer installation instructions, best practices and local jurisdiction zoning codes and ordinances.

Building permits are required:

- When a deck or a platform is more than 30 inches above adjacent grade.
- When a deck or platform is attached to a structure with frost footings.
- When a deck or platform is part of an accessible route.

Deck materials

All wood used in deck construction must meet requirements of MRC R507.2.1. This includes the grade of the wood (No. 2 or better), preservative treated or naturally durable lumber that has approval by the local jurisdiction. Preservative-treated wood must be appropriate for the installation and meet the American Wood Protection Association's (AWPA) UC3 (above ground) or UC4 (ground contact) use categories. All cuts, notches and holes in preservative-treated wood requires field treatment (MRC R317.1.1). All engineered wood products must meet the requirements in MRC R502.

Exterior deck boards, stair treads, guards or handrails made of plastic composite materials must meet certain performance standards in American Society for Testing and Materials (ASTM) D7302. Labels on materials or packaging will indicate compliance. Follow manufacturer's installation instructions for plastic composite materials.

Fasteners and connectors

Requirements for fasteners are in MRC Table R507.2.3 and R317.3. Fasteners (including nuts and washers) used in preservative-treated wood must be hot-dipped, zinc-coated galvanized steel, stainless steel, silicon bronze or copper. Staples used in preservative-treated wood must be stainless steel. Metal connectors in contact with preservative-treated wood should follow manufacturers recommendations and MRC Table R507.2.3.

Holes for bolts must be drilled between 1/32 and 1/16 of an inch larger than the bolt. Lag screws 1/2 inch or larger should be predrilled to avoid wood splitting.

Footings

Decks are required to be supported on concrete footings or other approved structural systems designed to accommodate all loads in accordance with the MRC. The use of alternative footings must be reviewed for approval by the local building safety department. Footings must be sized to bear loads and suitable for allowable soil-bearing



pressure (MRC Table R401.4.1). The minimum depths of footings must be either 5'-0" (Zone 1) or 3'-6" (Zone 2). Refer to Minnesota Rules 1303.1600 for the counties included in each zone.

Deck posts

Deck post sizing requirements are in MRC Table R507.4 and are limited to single-level wood-framed decks when sizing the decks other structural components with MRC Table R507.5. The height of the post shown in MRC Table R507.4 is measured from the underside of the beam to the top of the footing. Deck posts are based on using a 40 psf live load for structural member size calculations. Metal connectors must be provided at the top and bottom of posts for lateral restraint.

Beams

Allowable deck beam span lengths can be determined in MRC Table R507.5.

Examples of the flush beams and dropped beams can be seen in the examples shown. Measurements of deck beam lengths need to be from center of post to center of post. The spans used in the table are based on a live load of 40 psf, a dead load of 10 psf, supporting deck joists from one side only and the beam depth must be greater than or equal to the joist depth when using a flush beam configuration. Beam plies shall be fastened with two rows of 10d (3-inch x 0.128-inch) nails or approved fasteners a minimum of 16 inches on center. Beams are allowed to cantilever up to one-fourth of their allowable span at each end.

Ends of beams used in splices must have a minimum of 1-1/2 inches of bearing on wood and 3 inches on concrete.

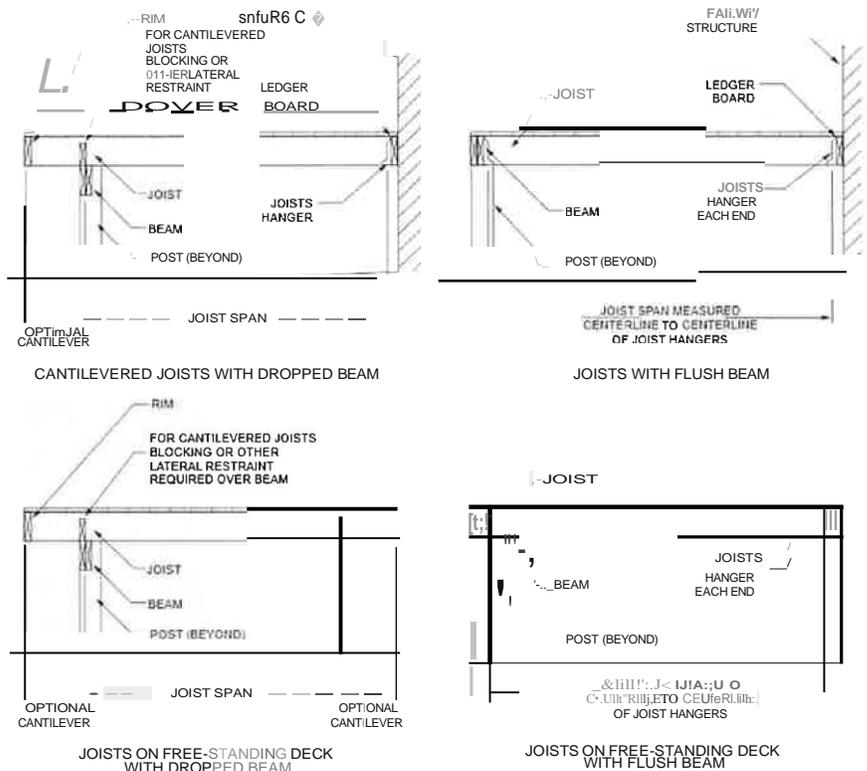
Multiple-span beams must have full bearing on posts (MRC Figures R507.5.1(1) and R507.5.1(2)). Those figures also show beam-to-post connections with metal connector plates and bolts and nuts configurations that are required by MRC R507.5.2.

Joists

Allowable spans for joists are in MRC Table 507.6. The live load used in the table is 40 psf and a dead load of 10 psf. The maximum cantilever length is determined by the lesser of one-fourth of the joist span or the maximum cantilever length shown in MRC Table 507.6. Joist spacing is limited by the span rating of the decking being used, see MRC Table R507.7.

Deck joists require a minimum of 1-1/2 inches of bearing on wood and 3 inches on concrete. Joist bearing on top of a single-ply beam or ledger shall be attached by a mechanical connector. Use the fastener schedule (MRC Table R602.3(1)) for fastening joists to a multiple-ply beam. Use an approved joist hanger for joist framing into the side of a beam or ledger board.

Where joist hangers or blocking are used, 60-percent of the joist depth must be restrained. If a rim joist is being used, not fewer than three 10d (3-inch x 0.128-inch) nails or three No. 10x 3-inch-long wood screws are required.



Decking

Use at least two 8d threaded nails or two No. 8 wood screws to attach wood decking to the joist. Other approved decking or fastener systems shall be installed in accordance with the manufacturer's installation requirements.

Ledger and band joist

A ledger board attached to the exterior wall of the primary structure must be at least 2-inch by 8-inch nominal. Pressure-preservative-treated Southern pine, incised pressure-preservative treated hem-fir, or approved, naturally durable, No. 2 grade or better lumber. Deck ledgers must not support concentrated loads from beams or girders and cannot be supported on stone or masonry veneer.

Band joists supporting a ledger must bear fully on the primary structure and be capable of supporting all required loads. Fasteners used in deck ledger connections in accordance with MRC Tables R507.9.1.3(1) shall be hot-dipped galvanized or stainless steel and shall be installed in accordance with Table R507.9.1.3(2) and figures R507.9.1.3(1) and R507.9.1.3(2). Where connections to the primary structure cannot be verified during inspection, decks must be self-supporting.

Lateral support

Lateral-load connection devices must be installed to transmit the lateral loads imposed on the deck to the ground. The lateral-load connection device shown in MRC Figure R507.9.2(1), with the threaded rod and connection points on the deck joist and the primary structure floor system, must be installed in two locations on the deck a minimum of 24 inches from the ends. Each device must have an allowable stress design capacity of at least 1,500 pounds.

Where the lateral load connections are provided in accordance with Figure R507.9.2(2), the hold-down tension devices must be installed in at least four locations per deck, and each device must have an allowable stress design capacity of at least 750 pounds. Hold-down tension devices are required to be installed per the manufacturer's instructions.

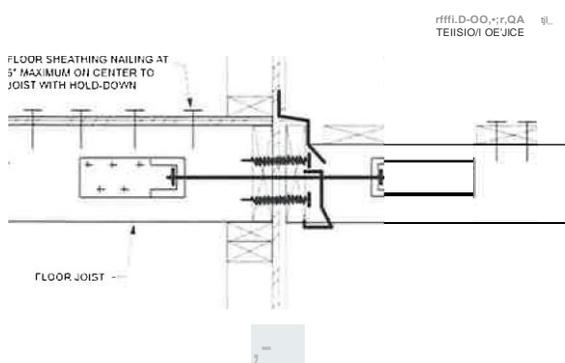


FIGURE R507.9.2(1)
DECK ATTACHMENT FOR LATERAL LOADS

NOTE
THIS DETAIL IS APPLICABLE
WHERE FLOOR JOISTS ARE
PARALLEL TO DECK JOISTS

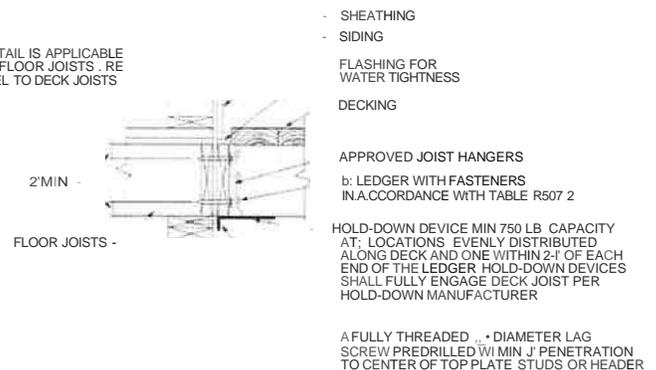


FIGURE R507.9.2(2)
DECK ATTACHMENT FOR LATERAL LOADS

