

Residential Deck Construction Guide

Purpose

This one-page guide highlights common deck construction requirements and key updates in the 2024 IRC. It is intended to help homeowners and contractors avoid common inspection issues.

Footings & Foundations

- Footings must extend below frost depth – 42" deep (including bottom of stringers)
- Footing size must support deck loads – table R507.3.1
- Posts must be anchored to concrete footings – R507.5
- Space between posts depends on the type of beam used

Posts, Beams & Framing

- Notched post to beam connection must have (2) ½" Diameter through bolts or approved equivalent connector – R507.5.2
- Built-up beams must use proper fasteners and spacing – if using screws, they need to be structural rated
- Beam Span chart – R507.5

Ledger Board Attachment

- Ledger boards must follow the pattern outlined in R507.9.1.3(1)
- Ledger flashing – R507.9.1.5
- Water resistant barrier – R507.9.1.6
- Lateral load connectors are required and do not replace ledger fasteners – R507.9.2

Joists & Hangers

- Joists must comply with allowable span limits – R507.6
- Only manufacturer-approved fasteners may be used in joist hangers
- Blocking is required at beams and cantilevers

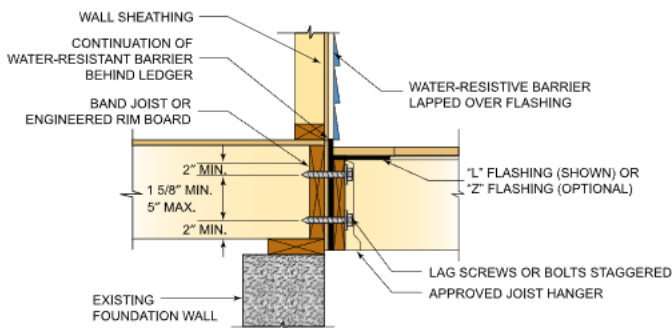
Guards, Stairs & Handrails

- Guards required when walking surface is more than 30 inches above grade
- Guards must be at least 36 inches high and resist loads and blocking under guard posts
- Riser height shall not be more than 7 ¾" and no more of a difference between risers by more than 3/8"
- Tread depth than not be less than 10" and no more of a difference between tread by more than 3/8"
- Handrails need to have a graspable handrail and return at the ends with a height between 34"-38"

Common Inspection Issues

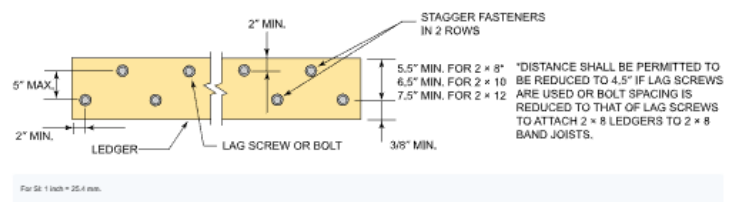
Permit Card not posted, improper ledger attachment, incorrect fasteners, weak guard connections, and inconsistent stair dimensions.

FIGURE R507.9.1.3(2) PLACEMENT OF LAG SCREWS AND BOLTS IN BAND JOISTS



THIS DETAIL IS SHOWN AT A TYPICAL FOUNDATION WALL LOCATION. SIMILAR AT WOOD WALL.

FIGURE R507.9.1.3(1) PLACEMENT OF LAG SCREWS AND BOLTS IN LEDGERS



Important Reminder: This guide is a summary only. Approved plans, manufacturer instructions, and engineered designs (when required) must be followed.

For questions regarding permits or inspections, contact the LaSalle County Building Department.

WALL SHEATHING

CONTINUATION OF WATER-PROTECTIVE BARRIER BEHIND LEDGER

FLOOR SHEATHING NAILING AT 6" MAX. ON CENTER TO JOIST WITH HOLD-DOWN

WATER-PROTECTIVE BARRIER LAPPED OVER FLASHING

"Z" FLASHING (SHOWN) OR "L" FLASHING (OPTIONAL)

HOLD-DOWN OR SIMILAR DEVICE ATTACHED TO ADJACENT JOISTS PER MANUFACTURER

LAG SCREWS OR BOLTS STAGGERED

APPROVED JOIST HANGER

THIS DETAIL IS SHOWN AT A TYPICAL WOOD WALL. SIMILAR AT A FOUNDATION WALL.

WALL SHEATHING

CONTINUATION OF WATER-RESISTING BARRIER BEHIND LEDGER

2" MIN.

1 5/8" MIN.
5" MAX.

2" MIN.

WATER-RESISTING BARRIER LAPPED OVER FLASHING

"L" FLASHING (SHOWN) OR "Z" FLASHING (OPTIONAL)

APPROVED JOIST HANGERS

LAG SCREWS OR BOLTS STAGGERED

HOLD-DOWN DEVICE MIN 750 LB. CAPACITY AT 4 LOCATIONS, EVENLY DISTRIBUTED ALONG DECK AND ONE WITHIN 24" OF EACH END OF THE LEDGER. HOLD-DOWN DEVICES SHALL FULLY ENGAGE DECK JOIST PER HOLD-DOWN MANUFACTURER. ATTACHED TO TOP PLATE STUDS OR HEADER WITH A FULLY THREADED 3/8" DIAMETER LAG SCREW PREDRILLED W/ MIN. 3" PENETRATION

THIS DETAIL IS SHOWN AT A TYPICAL WOOD WALL, SIMILAR TO A FOUNDATION WALL.

The image contains two cross-sectional diagrams of a joist system. The left diagram illustrates a cantilevered joist system. It shows a primary structure at the top, with a rim and a ledger board. A beam is supported by a post (beyond) and a joist hanger. The joist span is measured from the centerline of the joist hanger to the centerline of the joist hanger. The right diagram illustrates a standard joist system. It shows a primary structure at the top, with a joist and a ledger board. A beam is supported by a post (beyond) and a joist hanger. The joist span is measured from the centerline of the joist hanger to the centerline of the joist hanger.

Diagram illustrating the cross-section of a deck structure with joists on a freestanding deck with a dropped beam. The diagram shows a cross-section of a deck with joists supported by a central beam and posts. Labels include: RIM, JOIST, BEAM, POST (BEYOND), JOIST SPAN, and OPTIONAL CANTILEVER. A note states: "FOR CANTILEVERED JOISTS BLOCKING OR OTHER LATERAL RESTRAINT REQUIRED OVER BEAM".

Diagram illustrating the connection between a beam and joists. The components labeled are:

- PRIMARY STRUCTURE
- JOIST
- LEDGER BOARD
- BEAM
- JOISTS HANGER EACH END
- POST (BEYOND)

The diagram also indicates the measurement: JOIST SPAN MEASURED CENTERLINE TO CENTERLINE.

Diagram illustrating the connection of a JOIST to a BEAM using JOISTS HANGER EACH END. The diagram shows the JOIST spanning over the BEAM, supported by a POST (BEYOND). The JOIST SPAN MEASURED CENTERLINE TO CENTERLINE OF JOIST HANGERS is indicated.

FIGURE R507.5.2(2) NOTCHED POST-TO-BEAM CONNECTION

MIN. 2"

MIN. 2 1/2"

SINGLE PLY BEAM

MULTIPLY BEAM

(2) 1/2" DIAMETER THROUGH-BOLTS OR APPROVED EQUIVALENT CONNECTOR

POST NOTCH FOR FULL BEAM BEARING

≥ 2 1/2" MIN.

BEAM SPLICE

≥ 2"

≤ 5"

≥ 2 1/4"

≥ 3/4"