

Residential Underfloor

This tip sheet reflects code requirements of the 2021 International Residential Code (IRC) with Washington State Amendments.

Please verify the following before calling for underfloor inspection.

Permits and Plans

- Job address shall be posted in a visible location. (R319.1)
- Permit and approved plans are on site and accessible to the inspector. (R105.7, R106.1.1, R106.3.1)
- Note corrections left which need to be addressed at this time.
- If foundation was inspected by a special inspector, the reports are approved and with the permit. (R109.2)
- Check the approved plans for identification of flood hazard area and associated requirements for construction. (R109.1.3, R322)
- Check approved plans for building height restrictions. (Per the local jurisdiction)

Grade

- Grade under girders or beams is 12 inches minimum. (R317.1, Item 1)
- Grade under joisting is 18 inches minimum. (R317.1, Item 1)
- If less than 12 inches and 18 inches, respectively, beams and girders, and joists shall be pressure-treated. (R317.1)
- Wood columns where closer than 8 inches (204mm) to exposed ground (R317.1)
- Wood columns in contact with basement floor slabs unless supported by concrete piers or metal pedestals projecting not less than 1 inch (25mm) above the concrete floor and separated from the concrete pier by an impervious moisture barrier. (R317.1)
- Verify the lowest floor elevations for any construction identified as being in flood hazard areas. (R322)

Foundation

- Foundation has not been damaged by backfill. (R404.1.7)

Hardware

- Anchor bolting is installed per shear wall schedule, when specified.

- Anchor bolts are installed at a minimum of 2 per plate, spaced maximum 6 feet on center, located in the middle third of the plate width and maximum 12 inches from plate ends. (R403.1.6)
- Square hot-dipped galvanized plate washers (minimum 3 inches by 3 inches by 1/4-inch) are installed at pressure treated plates within the width of the plate at anchor bolts. (R602.11.1)
- Check for any strapping at drag struts, hold downs, top flange hangers, specified hardware, etc. which may occur at underfloor areas.
- Check for missing or damaged hold-downs and anchor bolts within sill plate, proper anchor bolt placement where sill plates have been cut and/or foundation vents provided. (R317.3.1)
- Fasteners for preservative-treated wood shall be of hot dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper. Staples shall be of stainless steel. Coating types and weights for connectors in contact with preservative-treated wood shall be in accordance with the connector manufacturer's recommendations. In the absence of manufacturer's recommendations, a minimum of ASTM A 653 type G185 zinc-coated galvanized steel, or equivalent, shall be used. (R317.3.1) Exceptions:
 - One-half-inch diameter or greater steel bolts.
 - Fasteners other than nails, staples and timber rivets shall be permitted to be of mechanically deposited zinc coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum.
 - Plain carbon steel fasteners in SBX/DOT and Zinc Borate preservative treated wood in an interior, dry environment shall be permitted.

Framing

- Review floor plan for joists, beams, and posting.
- Note their size, type, spacing, grade, etc.
- Dimensional joist bearing to be minimum 3 inches on concrete or masonry and 1-1/2 inches on wood or metal. (R502.6)
- Hangers are installed at head-outs, cantilevers, etc. (R502.6.2)
- Joists bearing and beams are supported laterally at ends and at bearing points by solid blocking. (R502.7)
- Nailing of joisting, double joists, rims, etc. are per plan and code. (Table R602.3 (1))
- If wood I-joists are being used, verify layout and that installation guides are onsite. Check that blocking detail, bearing requirements, etc. are per manufacturer's specifications.

- Load bearing cripple walls with studs less than 14 inches, are fully blocked and sheeted one side minimum with plywood and nailed per shear schedule or Table 602.3(1). (R602.9, WA Amendment)
- When cripple wall studs exceed 48 inches, the studs are the size required for an additional story. (R602.9, WA Amendment)
- Load bearing cripple walls are braced per code, minimum. (R602.9, WA Amendment)
- Identify any point loads which require blocking, posting, joisting additions.
- Identify shear walls and note joisting and/or hardware details.
- Positive connections at post to pads, post to beams, etc. (R502.9, R407.3)
- Check areas where shear wall and floor diaphragm nailing and/or blocking may occur (typically blocking perpendicular to joisting or specified hardware are connections).
- Check crawl space venting requirements: 1 square foot for each 150 square feet of under-floor area. One ventilation opening shall be within 3 feet of each exterior corner of the under-floor space. (Can be seen at later inspection.) (R408.2, R408.2, WA Amendment)
- Check areas where plumbing may cause problems, such as toilet flanges centered on joists, plumbing walls, etc.

Framing and Concrete

- Girder end joints occur over supports. (R502.6)
- Foundation plates, sills, and sleepers on concrete, which is in direct contact with the earth, are to be treated wood or wood of natural resistance to decay. (R317.1, Item 3)
- Check areas where exceptional conditions may occur. Example: Patios, slabs, step areas. Treated plywood and flashing to be installed where concrete is being poured up against framing. Where concrete is being poured over framed floor, approved protective moisture barrier must be installed and inspected prior to concrete pour, or joisting and plywood sheathing required to be pressure treated. (R317.1, Item 6)