

New Residential Building Code Requirements

The Oregon Residential Building code is updated to the 2017 edition beginning October 1, 2017. After January 1, 2018 all work must conform to the new code. Here are the top ten changes likely to have the most impact.

1. The energy code requires more efficient walls, ceilings and windows. New methods of framing such as intermediate frame construction are necessary to comply. The options table is completely changed. Requirements for plumbing fixture efficiencies have been added. All lighting must be high efficacy.
2. The deck sections have been substantially changed with new tables for joist spacing, support posts, ledgers, joist and beam sizes. A new simpler method for hold downs is allowed.
3. Some smaller accessory structures exempted from permit requirements.
4. Laundry rooms, bathrooms and non-habitable basement areas allowed ceiling heights of 6'-8".
5. Anchor bolts must be placed in the middle third of the sill plate.
6. New lumber span tables allow greater spans for Douglas Fir lumber.
7. A new fastener table may require more fasteners for connections.
8. Roof vents must have between 40% and 50% of the vents located within 3' of the peak to take advantage of ventilation area reductions.
9. Concealed gas piping must be protected when it is less than 1-1/2" from the framing surface unless it is galvanized or black iron pipe.
- 10 The garage electrical circuit can only serve the garage and a receptacle must be provided for each parking space.

New Deck Requirements

The deck section of the code (Section R507) has been rewritten with several significant changes. Here is a brief summary of the changes:

Ledger connection to band joist: Ledgers must be a minimum of a 2 x 8. They may not support any concentrated loads. Band joists to which ledgers are attached must be either 2" solid sawn or 1" laminated veneer lumber. A table details what fasteners are allowed based on fastener size and joist spans.

Lateral load connection: Lateral load connections must now be placed within 2 feet of each end of the deck. A new connection method allows "L" brackets to attach with a 3/8" lag screw into the top plate of the adjoining wall and to a deck joist. Four "L" brackets are required. This method is illustrated. It means the lateral load connection can now be made without removing the interior ceiling to make the attachment.

Deck joist spacing: A new table is provided to determine allowable deck joist spacing for different types of decking material.

Deck joist size: A new deck joist span table is provided for choosing the proper size joist size for a given span and spacing. The table recognizes wood used in wet conditions does not have the same strength as wood used in dry conditions.

Lateral restraint for joists: The ends of joists must be secured to prevent them from rotating. A rim joist, blocking or joist hangers may be used.

Deck beams: A new table is provided to determine the required size of deck beams based on joist span. Beams must have at least 1-1/2" bearing on wood or metal and 3" on masonry or concrete.

Attachment to posts: Two illustrations are added showing attachment of deck beams to deck posts.

New Lumber Span Tables

The 2017 Oregon Residential Structures Code has revised the allowable spans for lumber. The spans allowed for Douglas Fir lumber have increased while some other species have decreased. The change is due to more current testing data showing the lumber being harvested today is different than that of several years ago. Since most of the lumber we use in our area is Douglas Fir this may allow use of narrower boards.

There are span tables for floor joists, ceiling joists, rafters, headers and beams. Each will be affected. Before designing a new project with dimensional lumber, it may be worth the time to check the new span tables to see if the changes will allow less expensive material.

As examples of the effect of this change, the span for #2 Douglas Fir 2 x 8's 16" on center floor joists for a living room floor has been increased from 12'-7" to 12'-9". 2 x 10's changed from 15'-5" to 15'-7". A 2 x 8 ceiling joist increased from 18'-9" to 19'-1".

Allowable spans are based on the strength of the lumber to support the load, how much it will bend under full loading, and the ability of the wood fibers at the supports to resist crushing because of the weight of the load. The span also depends on the loads expected including dead loads which are the weight of building materials and live loads which are things like people, furniture, snow and wind. Most lumber will exceed its rated capacity before it fails by fifty percent.

A span of a joist or beam is calculated as the unsupported length. That means the part of the joist bearing on a plate is not considered when calculating the span. Thus a 13' long floor joist with 1-1/2" bearing on each end is considered to span 12'-9". The span of a rafter is not measured along the length of the rafter, but the horizontal distance the rafter covers. A rafter with a 12/12 pitch might be 20' long, but its span would only be 10'.

Size Becomes Less Important

A couple of new code changes will make room size and height requirements less restrictive and allow greater flexibility for use of basements, second stories and in existing spaces.

The first change removes the requirement that at least one room contain at least 120 square feet. This change is in response to the tiny house movement. The code writers determined there is no health or safety reason to require a room to be this large. Habitable rooms like bedrooms will still need to contain at least 70 square feet, a practical number to allow adequate room for beds and furniture.

The second change reduces required ceiling heights for some spaces. Bathrooms and laundry rooms will now be allowed to have ceilings 6'-8" high. This will allow basements or low attic areas to be used for practical purposes. The lower ceiling may also help if you use the energy code option of placing the ductwork within the building thermal envelope, providing a dropped ceiling location in which to run the ductwork.

Beams or other obstructions are allowed when at least 6'-4" of clearance is provided. This will be useful in basements where duct runs may project below the floor joists.

Bathrooms and laundry rooms with sloping ceilings are allowed less than 6'-8" over the fixtures, as long as the ceiling is at least 6'-8" high at the point where one would stand to use the fixture. A shower or a tub/shower combination is required to have 6'-8" over a space at least 30" by 30" measured at the shower head.

Non-habitable basements, such as used for storage or mechanical equipment, can have ceiling heights of 6'-8" and beams or other obstructions that provide at least 6'-4" clearance. New basements with a ceiling height of 7' can be used as habitable space such as for bedrooms. Non-habitable basement ceiling height is not regulated.

Foundation Anchorage when using Anchor Bolts

Wood sill plates at all exterior walls and sole plates on interior braced walls on a slab foundation are required to be anchored to the foundation with a minimum of ½ inch diameter anchor bolts spaced not more than 6 feet apart. No less than 2 bolts are required per plate section; and the bolts must be placed not more than 12 inches or less than 7 bolt diameters from the end. A wall less than 12 inches in length does not require an anchor bolt; and a wall less than 24" in length is allowed a single anchor bolt placed in the center.

The code will now contain an additional requirement for the anchor bolt to be placed in the middle third of the sill plate. This will require greater precision when bolts are installed during the pour.

There has not been a code requirement before for how close a bolt can be to the edge of the sill plate. Standard industry practice has been to keep them at least 2 bolt diameters from the edge. Anchor bolt manufacturers specify in their installation instructions to keep the bolts a minimum of 1-3/4" from the edge of the plate. Testing has shown an anchor bolt loses some of its capacity when placed closer than 1-3/4" from the edge.

To comply with the new rule an anchor bolt in a 2 x 4 plate can be no closer than 1-1/8" from the edge; and in a 2 x 6 plate can be no closer than 1-3/4".

It would be wise to make sure your concrete sub is aware of the requirement before the rule takes effect.

Other methods of foundation anchorage are still permitted, such as foundation anchors, wedge anchors, expansion anchors, adhesive anchors, and other methods approved by the building official. These methods need to be installed in accordance with the manufacturer's specifications.