



## COMMUNITY DEVELOPMENT DEPARTMENT

310 W Poplar, Suite 200 Walla Walla, WA 99362  
Phone 509-524-2610 FAX 509-524-2630  
www.co.walla-walla.wa.us

### MINIMUM CODE REQUIREMENTS FOR SINGLE FAMILY RESIDENTIAL CONSTRUCTION

#### 2006 International Residential Code

**Footings and Foundations** -- All footings must be placed on undisturbed soil, must be continuous, and be no less than 24-inches below finished grade. Footings shall have a minimum of (2) #4 (1/2-inch) rebar placed horizontally with corner lap splices at a minimum of 24-inches and horizontal lap splices at a minimum of 15-inches or (30 bar diameters), all lap splices shall have a minimum of two wire ties each. Footings that support a single story shall be a minimum of 6-inches in depth by 12-inches in width, with a minimum 6-inch stem wall. Footings that support a second floor (two floors and a roof) shall be a minimum of 7-inches in depth by 15-inches in width, with a minimum 8-inch stem wall.

All soil bearing retaining (basements) walls shall be a minimum of 8-inches thick. An engineer registered with the State of Washington shall design all foundation walls that exceed 8 feet in height.

Foundations/stem walls not more than 24-inches in height may have one #4 rebar (1/2-inch) placed horizontally within 12-inches from top of stem wall, with #4 rebar (1/2-inch) verticals placed 4 feet on center. All foundations/stem walls that exceed 24-inches shall have #4 (1/2-inch) rebar at 18-inches on center both vertically and horizontally with corner and horizontal lap splices as mentioned above.

**Foundation Plates and Sills** -- Wood plates and sills shall be bolted to the foundation or foundation wall. Bolts shall be a minimum of 1/2-inch in diameter by 10-inch long J-bolt, with a minimum of 7-inches embedded in the concrete or masonry. Bolts shall be spaced a maximum of 6 feet apart with a minimum of two (2) bolts per piece of plate or sill and have a bolt within 12-inches of each end of each piece of plate or sill. Foundation plates or sills placed on concrete or masonry that is in contact with earth shall be treated wood or foundation red wood all marked or branded by an approved agency.

**Crawlspaces** -- When wood joists or structural floors are located closer than 18-inches or wood girders are located closer than 12-inches to exposed ground in crawlspaces, the floor assembly, including posts, girders, joists, and sub-floor shall be treated wood or wood of natural resistance to decay.

A minimum of an 18-inch by 24-inch access shall be provided so that access can be gained to all areas of the crawl space.

A moisture barrier of 6-mil black polyethylene shall be placed over the ground in all crawlspaces. The ground cover must extend to the foundation wall with all seams lapped a minimum of 12-inches. This ground cover may be omitted if a minimum 3 1/2-inch concrete slab is poured in the crawlspace.

Crawlspace areas shall be ventilated by an approved mechanical means or by openings. Vent openings shall have a net clear area of 1 square foot for each 300 square feet of under floor area. Openings shall be located as close to the corners as practical and shall provide cross ventilation.

Crawlspaces used as plenum systems for providing supply air to the HVAC system shall have a radon vent pipe installed, in accordance with section 503.2 of the Washington State Ventilation and Indoor Air Quality Code. Crawlspaces shall not be used for return air plenums.

When closable foundation vents are used for crawlspace ventilation you must remove the closable louvers or install non-closing vents. When closable vents are used an inactive radon vent is required.

**Moisture Control** -- Vapor retarders shall be installed on the warm side of insulation as specified in the Washington State Energy Code (2006 Edition). The vapor retarder shall have a one perm dry cup rating or less (i.e. 4-mil polyethylene, craft faced paper or perm rated paint). When perm rated paint is used it must comply with the one perm or less and the paint cans must be on site for verification by the inspector. Faced batt insulation, when used as a vapor barrier, the paper tabs shall be face stapled.

Floors and walls separating conditioned space from unconditioned space shall have a vapor barrier installed. Roof/ceiling assemblies where the ventilation space is less than an average of 12-inches shall be provided with vapor barrier.

When water resistant gypsum/green board is used for moisture control in tub/shower enclosures, 4-mil polyethylene is not required. When water resistant gypsum/green board is placed on the ceiling it must be supported 12-inches on center.

**Whole House Ventilation Systems** -- Each dwelling unit shall be equipped with a whole house ventilation system capable of providing the volume of outdoor air specified in Table 3-2 under normal operating conditions (Washington State Ventilation and Indoor Air Quality Code). Washington State Ventilation and Indoor Air Quality Code specifies different prescriptive path options, as follows:

- Source Specific Ventilation (all prescriptive paths)
- Whole House Ventilation Using Exhaust Fans
  
- Whole House Ventilation Integrated with a Forced Air Heating System
- Whole House Ventilation Using a Supply Fan
- Whole House Ventilation Using a Heat Recovery Ventilation System

**Exception:** Maximum flow rates listed in Table 3-2 do not apply to heat recovery ventilation systems.

**Outdoor Air** -- Outdoor air is required for all prescriptive options except as specified in the Washington State Ventilation and Indoor Air Quality Code, Chapter 3, Section 303.4.1.5.

**Exception:** Exhaust only ventilation systems do not require outdoor air inlets if the home has a ducted forced air heating system that communicates with all habitable rooms and the interior doors are undercut to a minimum of 1/2-inch above the surface of the finish floor covering.

**Source Specific Ventilation** -- Source specific exhaust ventilation is required in each kitchen, bathroom, water closet, laundry room, indoor swimming pool, spa, and other rooms where excess water vapor or cooking odor is produced. The minimum source specific ventilation effective exhaust capacity shall not be less than levels specified in Table 3-1.

**Fan Controls** -- All whole house ventilation systems must have a control with the capability of continuous operation, manual and automatic control. Twenty-four hour timers with a manual switch are the most common control.

At the time of final inspection, the ventilation system shall be set to operate for a minimum of eight hours per day. It is recommended that the fan setting alternate between 10 minutes "on" and 20 minutes "off." Whole house fan controls must have a label that reads: "Whole House Ventilation (see operating instructions)."

**Smoke Detectors** -- Smoke detectors shall be located in each sleeping room and at a point centrally located in the hallway or area giving access to each sleeping room. A detector shall be located on each story and in basements. In new construction, required smoke detectors shall receive their primary power from the building wiring when such wiring is served from a commercial source and shall be equipped with a battery backup.

Smoke alarms shall be permitted to be battery operated when installed in buildings without commercial power. When interior alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be provided with smoke alarms located as required for new dwellings; the smoke alarms shall be interconnected and hard wired.

**Exceptions:**

1. Smoke alarms in existing areas shall not be required to be interconnected and hard wired where the alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space, or basement available which could provide access for hard wiring and interconnection without the removal of interior finishes.
2. Repairs to the exterior surfaces of dwellings are exempt from the requirements of this section.

**Egress Windows** -- Basements in dwelling units and in every sleeping room below the fourth story shall have access to at least one operable window or door that is approved for emergency escape or rescue. The emergency door or window shall be operable from the inside to provide a full, clear opening without the use of separate tools.

**Exception:** Basements used only to hold mechanical equipment and not exceeding total floor area of 200 sq. ft.

Escape or rescue windows shall have a minimum net clear opening of 5.7 square feet, the minimum height of this net clear opening shall not be less than 24-inches or the minimum width of this net clear opening shall not be less than 20-inches. Egress windows finished sill height shall not exceed 44-inches.

**Exception:** Grade floor openings shall have a min. net clearance opening of 5 sq. ft.

Egress windows with a finished sill height that is below the adjacent ground level shall be provided with window wells in compliance with the following:

1. The well shall allow the window to be fully opened and provide a minimum net clear opening of 9 square feet, with a minimum dimension of 36-inches.
2. Window wells with a vertical depth of more than 44-inches shall be provided with an approved permanently affixed ladder or stairs that are accessible with the window in the fully open position. The ladder or stairs shall not encroach into the required 36-inch dimension of the window well by more than 6-inches.

Bars, grilles, grates or similar devices may be installed on emergency escape or rescue windows, doors or window wells, provided:

1. The devices are equipped with approved release mechanisms that are operable from the inside without the use of a key or special knowledge or effort; and
2. The building is equipped with smoke detectors as required above.

**Ceiling Height** -- Habitable rooms, hallways, corridors, bathrooms, toilet rooms, laundry rooms and basements shall have a ceiling height of not less than 7 feet. The required height shall be measured from the finish floor to the lowest projection from the ceiling.

**Exceptions:**

1. Beams and girders spaced not less than 4 feet on center may project not more than 6 inches below the required ceiling height.
2. Ceilings in basements without habitable spaces may project to within 6 feet 8-inches of the finished floor; and beams, girders, ducts or other obstructions may project to within 6 feet 4-inches of the finished floor.
3. Not more than 50 percent of the required floor area of a room or space is permitted to have a sloped ceiling less than 7 feet in height with no portion of the required floor area less than 5 feet in height.

4. Bathrooms shall have a minimum ceiling height of 6 feet 8-inches over the fixture and 21-inches in front of the fixture. A shower or tub equipped with a showerhead shall have a minimum ceiling height of 6 feet 8-inches above a minimum area 30-inches by 30-inches at the showerhead.

**Landings/Floor Level at Doors** -- There shall be a floor or landing on each side of a door, where the floor or landing shall not be more than 1½-inch below the threshold of the doorway. Landings are required at all exterior doors; landings shall extend a minimum of 36-inches out from the finished wall and be at least as wide as the door opening. Landings shall be level except exterior landings may have a slope not to exceed 1/4 unit vertical in 12 units horizontal.

**Exceptions:**

1. A door may open at the top step of an interior flight of stairs, provided the door does not swing over the top step.
2. A door may open at a landing that is not more than 7¾-inches below the top of the threshold, provided the door does not swing over the landing.
3. Screen doors and storm doors may swing over stairs, steps or landings.
4. Where a stairway of two or fewer risers is located on the exterior side of a door, other than the required exit door, a landing is not required for the exterior side of the door.

**Residential Guardrails** -- Unenclosed floor and roof openings, open and glazed sides of stairways, aisles, landings, ramps, balconies, decks, or porches, which are more than 30-inches above grade or floor below, and roofs used for other than service of the building, shall be protected by a guardrail. The top of guardrails shall not be less than 36-inches in height. Open guardrails shall have intermediate rails or an ornamental pattern such that a sphere 4-inches in diameter cannot pass through.

**Exceptions:**

1. The triangular openings formed by the stair riser, tread and bottom element of a guardrail at the open side of a stairway may be of such size that a sphere 6-inches in diameter cannot pass through.
2. Open sides of stairs with a total rise of more than 30-inches above the floor or grade below shall have guards not less than 34-inches in height measured vertically from the nosing of the treads.

**Residential Stairways** -- The width of residential stairways must be a minimum of 36-inches in width, handrails may project into this required width a maximum of 4½-inches from each side of a stairway. Stringers and other projections such as trim and similar decorative features may project into the required width 1½-inches from each side.

The rise of steps and stairs shall not be less than 4-inches nor more than 7 3/4-inches. The greatest riser height shall not exceed the smallest by more the 3/8-inch. The run shall not be less than 10-inches; the largest stair run shall not exceed the smallest by more the 3/8-inch. A floor or landing is required at the top and bottom of each stairway or stair run. At least one intermediate landing shall be provided for each 12 feet of vertical rise. Landings shall be a minimum of 36-inches in length. Spiral and winder stairways must comply with the applicable sections of R311.5.

All stairways shall be provided with illumination in accordance with Section R303.6.

**Headroom** -- The minimum headroom in all parts of the stairway shall not be less than 6 feet 8-inches measured vertically from the sloped plane adjoining the tread nosing or from the floor surface of the landing or platform (R311.5.2).

**Handrails** -- Handrails shall be provided on at least one side of each continuous run of treads or flight of stairs with 4 or more risers.

The tops of handrails and handrail extensions shall be not less than 34-inches and not more than 38-inches above landings and the nosing of treads. Handrails for stairways shall be continuous for the full length of the stairway, from a point directly above the top riser to a point directly above the lowest riser of the stairway. Handrail ends shall be returned or shall terminate in newel posts or safety terminals. Handrails adjacent to a wall shall have a space of not less the 1½-inches between the wall and the handrails.

**Exceptions:**

1. Handrails shall be permitted to be interrupted by a newel post at the turn.
2. The use of a volute, turnout, starting easing or starting newel shall be allowed over the lowest tread.

**Attached Garages Opening protection** -- Openings from a private garage directly into a room used for sleeping purposes is prohibited. Other openings between the garage and residence shall be equipped with solid wood doors not less than 1 3/8-inches in thickness, solid or honeycomb core steel doors not less than 1 3/8-inches thick, or 20-minute fire rated doors.

**Duct Penetrations** -- Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum No. 26 gage sheet steel or other approved material and shall have no openings into the garage.

**Separation Required** -- The garage shall be separated from the residence and its attic area by not less than ½-inch gypsum board applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than 5/8-inch Type X gypsum board or equivalent. Where the separation is a floor-ceiling assembly, the structure supporting the separation shall also be protected by not less than ½-inch gypsum board or equivalent.

**Ignition Source** -- In garages, all equipment (i.e. water heaters, pressure switches, etc.) that has a flame, generates a spark, or uses a glowing ignition source that is open to the space in which it is installed shall be installed with sources of ignition at least 18-inches above the finished floor.

**Engineered Trusses** -- Trusses shall be designed and stamped by an engineer registered with the State of Washington. Engineer stamped truss specifications shall be on site for framing inspection. Trusses shall have 2x blocking at bearing with hurricane clips at minimum placed on every other truss or hurricane clips. All 1x and 2x lateral bracing, as specified on the truss specifications, must be in place prior to framing inspection.

**Attic Space** -- Buildings with combustible ceiling or roof construction shall have an attic access opening to attic areas that exceed 30 square feet and have a vertical height of 30 inches or more. The opening shall not be less than 22-inches by 30-inches and shall be located in a corridor, hallway or other readily accessible location. A minimum of 30-inches shall be provided at or above the access opening.

**Insulation** -- All insulation shall be installed as required in the Washington State Energy Code (Current Edition). Floor insulation shall be supported a minimum of 24-inches on center and placed in such a way to prevent compression of the insulation and have the insulation in contact with the underside of the floor.

December, 2007