



Town of Paradise
Community Development Department
Building Resiliency Center
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DECK / PORCH / STAIR / GUARDRAIL PLAN REQUIREMENTS

The Town of Paradise Building Department has developed this package to help you with the construction of a deck/porch/stair/guardrail. Please read this completely before planning your project. If you have questions, the Building Department is here to help you.

Attached is the ***Deck / Porch / Stair / Guardrail Construction Guide***, which is a helpful resource. This guide will assist you in code requirements along with deck design and construction details.

Plan Submittal Requirements:

- 1 copy** of completed **Building Permit Application**.
- 2 copies of Site plans** (minimum size 11"x17") drawn to an engineer's scale; 1" = 20' is preferred. Designer shall sign the plans. Site Plans shall include:
 - (a) Project address; (b) Name, address and phone number of the owner and the person preparing the plans; (c) Scope of work.
 - All structures and private sewage disposal system (septic tank and leach field) on the property, including location of existing and proposed deck(s)/stair(s)/porch(s) with distances to property lines, etc.
- 2 copies of Foundation plan** showing the location of the piers and spacing between the piers, including:
 - Section drawing of the pier foundation showing footing depth and width, pier block, size of post, size of girders, how the two are mechanically connected, size and spacing of joist, and deck flooring. Toe nailing is not acceptable. Piers/footings are to be a minimum of 12 inches in depth, shall be a minimum of 12" in any plan dimension, and shall have #4 bar reinforcing. Precast piers are not permitted.
- 2 copies of Framing plan** showing the joist spacing, ledger board and how it's secured to the building.
 - Decks for Manufactured Homes cannot attach to the unit and must be free standing up against the unit.
 - If steps are coming off the deck, provide a section detail on how they are constructed including (a) maximum riser height; (b) minimum tread depth; (c) minimum width of 36 inches; (d) minimum headroom of 6'-8"; (e) framing (stringer) size, bracing, connections, footing.
 - Indicate guard railing around the deck and handrail down the steps if more than four steps. Provide detail on how posts are attached to the deck.
 - Deck framing (e.g., joists, beams, posts, decking, etc.) shall be of approved naturally durable or pressure-preservative-treated wood. (CRC Sec.R317.1.3, R202).
 - 4"x 4" nominal posts are permitted with a maximum post height of 8 feet. 6"x6" nominal posts are permitted with a maximum height of 14 feet. Decks exceeding these limits require engineering from a California Licensed Design Professional.
- 2 copies of Cross Section/Elevations** drawings showing front view and side view of the deck.

NOTE: Decks that are detached and do not serve an exit door, lower than 30", and are not more than 200 square feet, **do not** require a building permit.

See **CRC PRESCRIPTIVE SUMMARY** attached included for your guidance.



DECK / PORCH / STAIR / GUARDRAIL CONSTRUCTION GUIDE

For One and Two Family Residences & Townhomes not exceeding 3 Stories

CRC PRESCRIPTIVE SUMMARY REQUIREMENTS (For Reference Purposes)

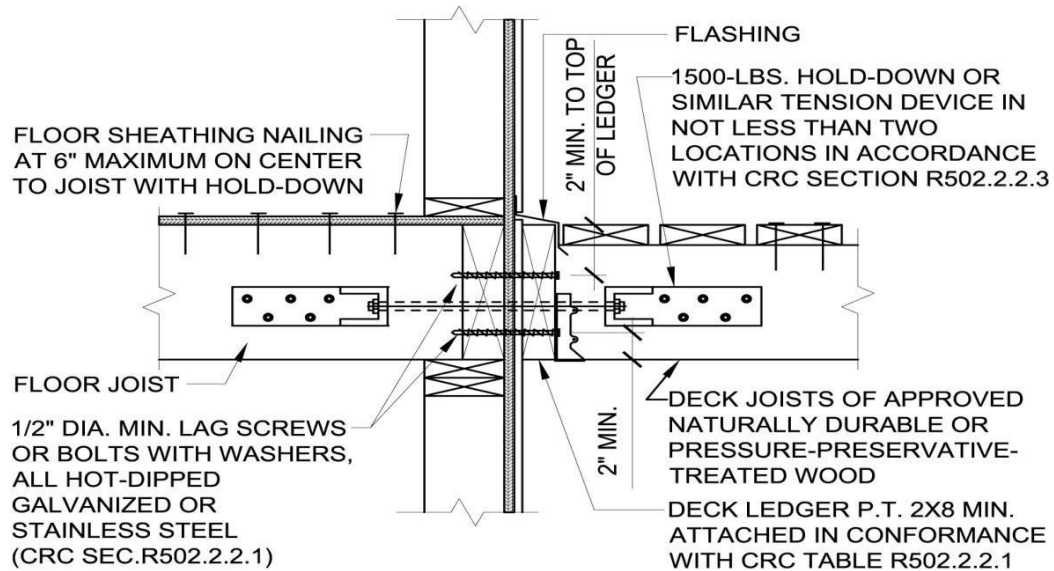
Based on 2022 California Residential Code

1. Deck Framing Requirements:

- A. Deck framing shall be positively anchored to the primary structure for both vertical and lateral loads. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal. Where the positive connection to the primary structure cannot be provided, decks shall be self-supporting. (CRC Sec.R502.2.2).
- B. Ledger shall be attached as set forth in CRC Table R502.2.2.1 with 1/2-inch minimum lag screws or bolts with washers, all hot-dip galvanized or stainless steel. Lag screws or bolts shall be placed 2” in from bottom and top of deck ledger and shall be staggered. (CRC Sec.R502.2.2.1.1).

JOIST SPAN	6' and less	6'1" to 8'	8'1" to 10'	10'1" to 12'	12'1" to 14'	14'1" to 16'	16'1" to 18'
Connection details	On-center spacing of fasteners^{d, e}						
1/2 inch diameter lag screw with 15/32 inch maximum sheathing ^a	30	23	18	15	13	11	10
1/2 inch diameter bolt with 15/32 inch maximum sheathing	36	36	34	29	24	21	19
1/2 inch diameter bolt with 15/32 inch maximum sheathing and 1/2 inch stacked washers ^{b, h}	36	36	29	24	21	18	16

- C. Deck framing shall have positive tension tie connections with floor framing. Hold-down tension devices shall be installed in not less than 2 locations per deck, and each device shall have an allowable design capacity of not less than 1500 pounds. (CRC Sec.R502.2.2.3, Figure R502.2.2.3).



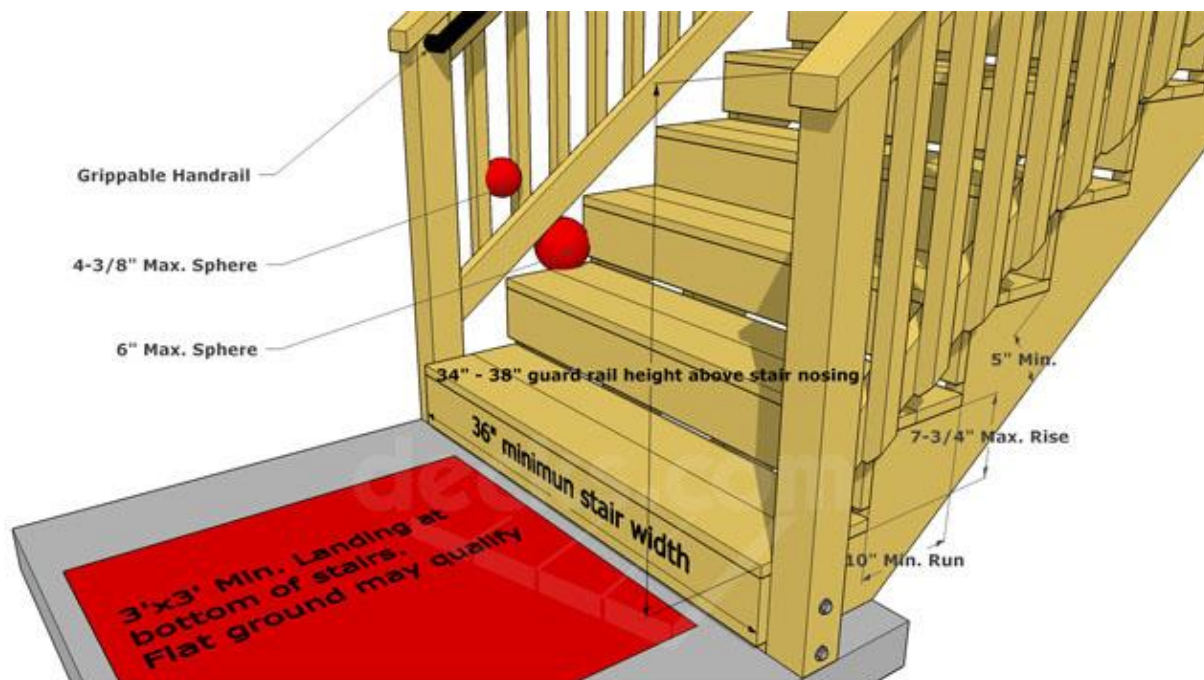
- D. Deck ledger shall be flashed to prevent water from contacting the house band/rim joist. (CRC Table R502.2.2.1 *footnote c*, Figure R502.2.2.3).
- E. Deck ledger shall be minimum 2x8 pressure treated No 2 (or better) grade lumber. (CRC Table R502.2.2.1 *footnote e*).
- F. The maximum distance between the face of the ledger and the face of the band joist shall not exceed 1 inch. (CRC Table R502.2.1 *footnote h*).
- G. Ledger connections not conforming to the above requirements shall be designed in accordance with accepted engineering practice.
- H. Deck framing (e.g., joists, beams, posts, decking etc.) shall be of approved naturally durable or pressure-preservative-treated wood. (CRC Sec.R317.1.3, R202).

2. Stairway Requirements:

- A. Stairways shall not be less than 36 inches in clear width above the handrails. Handrail projections are limited to not more than 4.5 inches on either side of the stairway. (CRC Sec.R311.7.1).
- B. Headroom shall not be less than 6 feet 8 inches measured vertically from the sloped line adjoining the tread nosings. (CRC R311.7.2).
- C. Riser height shall not exceed 7¾ inches. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8". (CRC Sec.R311.7.4.1).
- D. Tread depth (measured between the nosings) shall be at least 10 inches. The largest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8". (CRC Sec.R311.7.4.2).



- E. Nosings not less than 0.75” but not more than 1.25” shall be provided on stairways with solid risers if the tread depth is less than 11”. The radius of curvature at the nosing shall be no greater than 9/16 inch. (CRC Sec.R311.7.4.3).
- F. Open risers are permitted, provided that the opening between treads does not permit the passage of a 4-inch diameter sphere. The opening between adjacent treads is not limited on stairs with a total rise of 30 inches or less. (CRC Sec.R311.7.4.3).

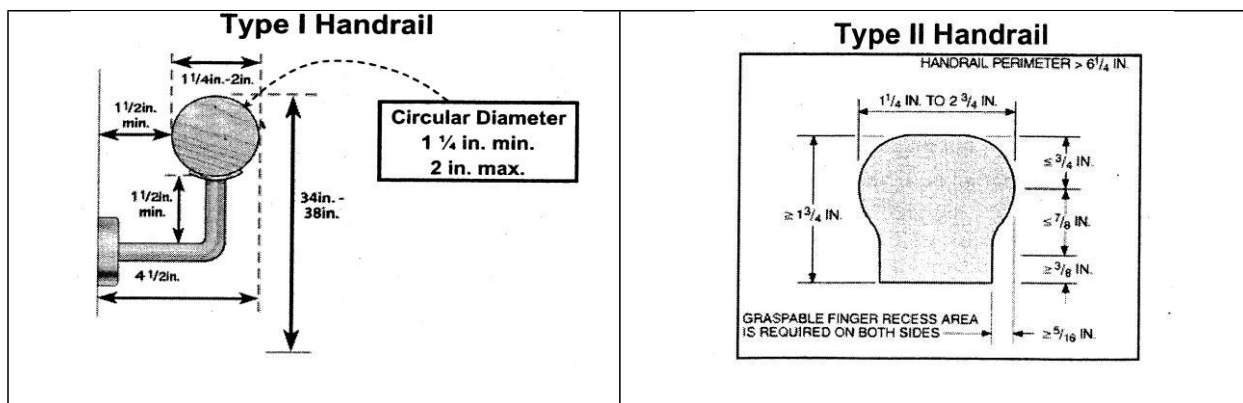


3. Handrail Requirements:

- A. Handrails shall be provided on at least one side of each continuous flight of stair with four or more risers. (CRC Sec.R311.7.7).
- B. The top of handrails shall be 34 to 38 inches above the tread nosings. (CRC Sec.R311.7.7.1).
- C. Handrails shall be graspable and shall be of one of the following types:
 - i. Type I. Handrails with a circular cross-section of not less than 1-1/4” nor greater than 2” in diameter. If the handrail is not circular, it shall have a perimeter dimension of at least 4 inches and not greater than 6¼ inches with a maximum cross section dimension of 2¼ inches. Edges shall have a minimum radius of 0.01 inch. (CRC Sec.R311.7.7.3).
 - ii. Type II. Handrails with a perimeter greater than 6¼ inches shall have a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of ¾ inch measured vertically from the tallest portion of the profile and achieve a depth



of at least 5/16 inch withing 7/8/ inches below the widest portion of the profile. This required depth shall continue for at least 3/8 inch to a level that is not less than 1-3/4 inches below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 1-1/4 inches to a maximum of 2-3/4 inches. Edges shall have a minimum radius of 0.01 inch. (CRC R311.7.7.3).



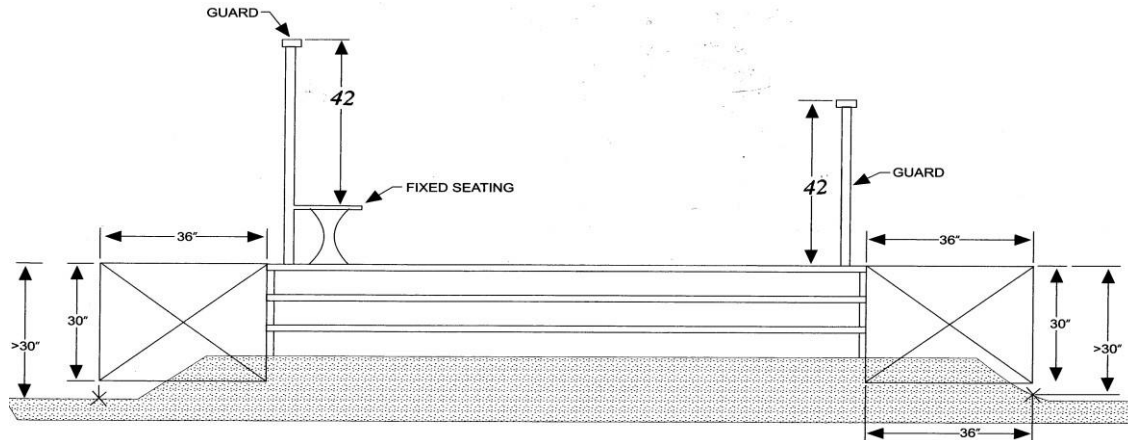
D. Handrails ends shall be returned or shall terminate in newel posts or safety terminals. Handrails adjacent to a wall shall have a space of not less than 1-1/2 inch between the wall and the handrails. (CRC Sec.R311.7.7.2).

4. Guardrail Requirements:

- A. Guards shall be located along open sides of decks, porches, landings, stairs that are located more than 30 inches measured vertically to the floor or grade below at any point within 36 inches horizontally if the edge of the open side. (CRC Sec.R312.1).
- B. Guards shall be not less than 42 inches high measured vertically above the walking surface, adjacent fixed seating or the line connecting the leading edges of the treads. (CRC Sec.R312.2).

Exceptions:

- i. Guards on the open sides of stairs shall have a height not less than 34 inches measured vertically from a line connecting the leading edges of the treads.
- ii. Where the top of the guard also serves as a handrail on the open sides of stairs, the top of the guard shall not be less than 34 inches and not more than 38 inches measured vertically from a line connecting the leading edges of the treads.



- C. Guards shall not have openings from the walking surface to the required guard height which allow passage of a sphere 4 inches in diameter. (CRC Sec.R312.3).

Exceptions:

- i. The triangular openings at the open side of a stair, formed by the riser, tread and bottom rail of a guard, shall not allow passage of a sphere 6 inches in diameter.
 - ii. Guards on the open sides of stairs shall not have openings which allow passage of a sphere 4-3/8 inches in diameter.
- D. Guardrails and handrails shall be capable to withstand a single concentrated load of 200 lbs applied in any direction at any point along the top of the rail. (CRC Table R301.5 footnote d).
- E. Guardrail in-fill components, balusters and panel fillers shall be capable to withstand a horizontally applied normal load of 50 lbs on an area equal to 1 sq. ft. This load need not be assumed to act concurrently with any other live load requirement. (CRC Table R301.5 footnotes f and h).

5. Landing Requirements:

- A. Exterior doors onto decks/porches shall be provided with landings. The width of each landing shall be not less than the door served. Every landing shall have a minimum dimension of 36 inches measured in the direction of travel. Exterior landings are permitted to have a slope not exceeding 1/4 unit vertical in 12 units horizontal (2%). (CRC Sec.R311.3).
- B. Exterior landings at the required egress door shall not be more than 1 1/2 inches lower than the top of the threshold for the outswinging door and not more than 7 3/4 inches below the top of the threshold for the inswinging door. (CRC Sec.R311.3.1).
- C. Doors *other* than the required egress door shall be provided with landings not more than 7 3/4 inches below the top of the threshold. (CRC Sec.R311.3.2).
- Exception: A landing is not required where a stairway of two or fewer risers is located on the exterior side of the door, provided the door does not swing over the stairway.



- D. Exterior stairways shall be provided with an artificial light source located in the immediate vicinity of the top landing of the stairway. Lighting shall be controlled from inside the dwelling unit, unless the lighting is continuously illuminated or automatically controlled. (CRC Sec.R311.7.8, R303.6).
- 6. Wildland-Urban Interface.** The following is required for projects located in the Town of Paradise.
- CRC Section R327.9.3 Decking Surfaces. The walking surface material of decks, porches, balconies and stairs shall be of one of the following:
- A. Ignition-resistant material that complies with the performance requirements of both SFM Standard 12-7A-4 (materials shall bear identification issued by ICC-ES or a testing agency recognized by the State Fire Marshal) and SFM Standard 12-7A-5;
 - B. Exterior fire retardant treated wood;
 - C. Approved non-combustible materials;
 - i. Materials passing performance requirements of SFM 12-7A-4A. Decking material listings approved by the office of the State Fire Marshall are available online at: <https://calfire.govmotus.org/BMLSearch/Index>
 - ii. Adjacent exterior wall siding may be of any complying material when the decking surface material has a Class A or Class B flame spread rating;
 - iii. Adjacent exterior wall siding shall be of noncombustible or ignition-resistant material if the decking surface material has a Class C flame spread rating.
- 7. Smoke Detectors:** When a permit is required, smoke detectors shall be installed: (a) in each sleeping room, (b) outside each separate sleeping area in the immediate vicinity of the bedrooms, (c) on each story of the dwelling, including basements and habitable attics but not including crawl spaces and uninhabitable attics. (CRC Sec.R314).
- 8. Carbon Monoxide Alarms:** When a permit is required for alterations, repairs or additions exceeding \$1,000, existing dwellings that have attached garages or fuel burning appliances shall be provided with a carbon monoxide alarm in the following locations: (a) outside of the dwelling unit sleeping area in the immediate vicinity of the bedroom(s); (b) on every level of a dwelling unit including basements. (CRC Sec.R315).