



Community Development Building and Safety

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STAIRS, HANDRAILS AND GUARDS

Notice: This handout is intended only as a guide to the subject matter covered herein and is based in part on the 2019 California Residential Code. While every attempt has been made to ensure the correctness of this handout, no guarantees are made to its accuracy or completeness. Responsibility for compliance with applicable codes and ordinances falls on the owner or contractor. For specific questions regarding code requirements, refer to the 2019 California Residential Code or contact City of San Dimas Building & Safety at (909) 394-6260.

This handout will provide basic information for **RESIDENTIAL (R3)** stairs, handrails, and guardrails. Because circular and spiral stairs are rarely used in residential construction, those types of stairs are not covered in this handout. If you are contemplating the use of one of those stair designs, please contact the Building Division.

The information in this handout is based on the 2019 California Residential Code.

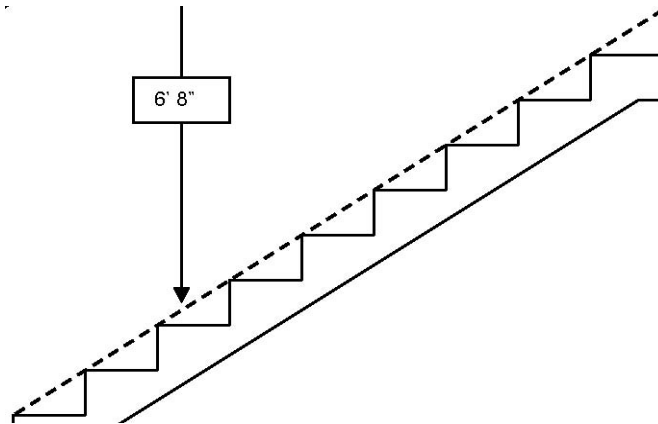
STAIRWAYS (C.R.C. 2019)

The following spacing requirements apply to stairs:

- A minimum of 6 feet, 8 inches of headroom is required measured vertically from the nosing of the treads. 6 feet, 8 inches of headroom is required at all landings.
- The maximum riser height in any stair may not exceed 7 ³/₄ inches measured from the top of one tread to the top of any adjacent tread.
- The minimum tread depth shall be 10 inches measured from the nosing of one tread to the nosing of any adjacent tread.
- The greatest tread or riser dimension shall not exceed the smallest tread or riser dimension by more than 3/8 inch.
- For spiral stairs requirements (see C.B.C. R311.7.10.1)
- **When the underside of stairs is enclosed with walls and a door, the walls, ceilings, and under side of the stair must be covered with 1/2 inch gypsum board.**

Stairs must be designed for a 40 pound per square foot uniformly distributed live load. Treads must be designed for the uniformly distributed live load or a 300-pound concentrated load acting over an area of 4 square inches, whichever produces the greatest stresses.

How to Measure Stair Headroom



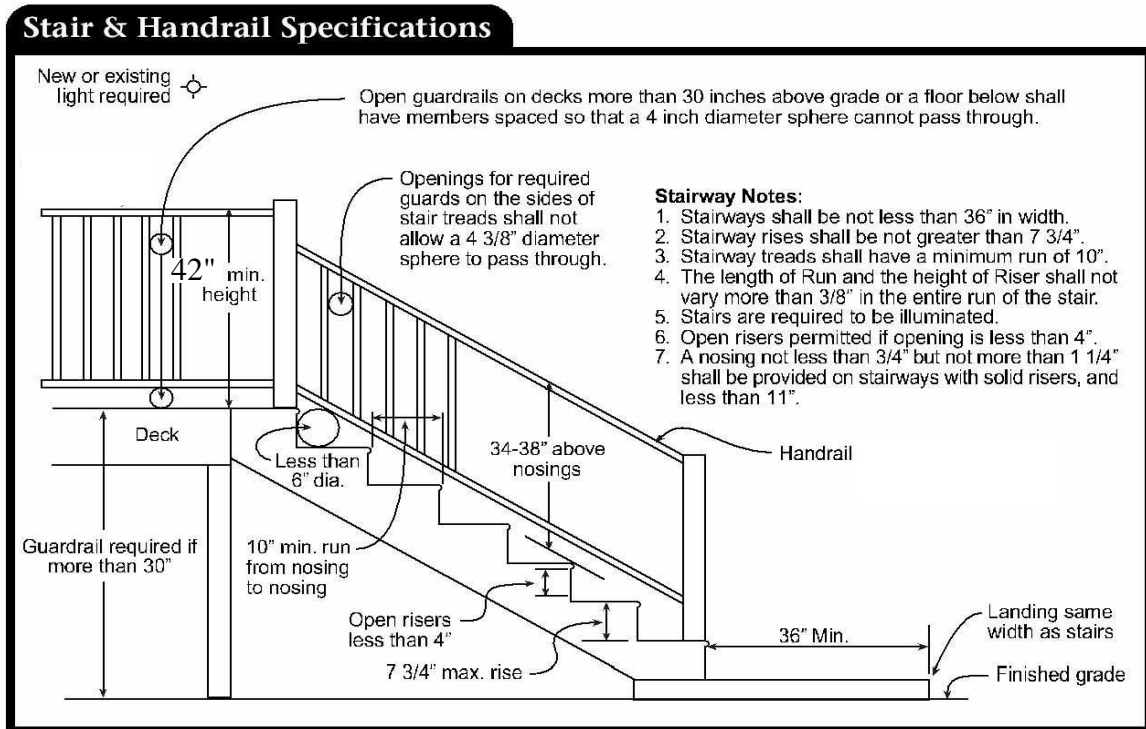
HANDRAILS (C.R.C. R311.7.7)

- Handrails are required on at least one side of all stairs with four (4) or more risers.
- Handrails must be mounted between 34 and 38 inches above the nosing of the stair treads.
- Handrails must extend from a point directly above the bottom riser to a point directly above the top riser.
- Handrails must be continuous for the entire length of a flight of stairs.
- The ends of handrails must be returned to the wall or terminate in a newel post.
- Handrails adjacent to a wall must have a space of not less than 1 1/2 inches between the handrail and the wall.
- Handrails must be designed to support a 200 lb load applied in any direction at any point along the top of the rail.
- Handrails must meet the following grip size requirements:
 1. The handrail must have a circular cross section of 1 1/4 inches to 2 inches.
 2. Other handrail shapes that provide an equivalent grasping surface are permissible.
(See Section R311.7.7.3)

GUARDS (C.R.C. R312)

- Guards are required for any porch, balcony, deck, or other raised floor surface that is located more than 30 inches above the floor or grade below. Guards at these locations must be not less than 42 inches in height.
- Guards are required on the open side(s) of stairs with a total rise of more than 30 inches above the floor or grade below. Guards on stairs must be not less than 34 inches high measured from the nosing of the treads.
- All required guards must have intermediate rails or a decorative pattern such that a 4-inch diameter sphere will not pass through except that the triangular space formed by the bottom of a guard, a stair riser and stair tread may be such that a 6-inch diameter sphere will not pass through. Exception: Openings for required guards on the sides of stair treads shall not allow a sphere 4³/₈" to pass through.

Guards must be designed to support a 200 lb load applied in any direction at any point along the top of the guard.



Handrail Notes:

1. Handrails shall be continuous on at least one side of stairs with 4 or more risers.
2. Top of the handrails shall be placed not less than 34 inches nor more than 38 inches above stair nosings.
3. The handgrip portion of handrails shall be not less than 1-1/4 inches nor more than 2 inches in circular cross section.
4. Handrails shall be placed not less than 1-1/2 inches from any wall or other surface.
5. Handrails to be returned to wall, post or safty terminal

