

HUMBOLDT COUNTY BUILDING DEPARTMENT  
CITY OF WINNEMUCCA BUILDING DEPARTMENT  
RESIDENTIAL EXTERIOR STAIR HANDOUT  
IRC SECTIONS R311 & R312

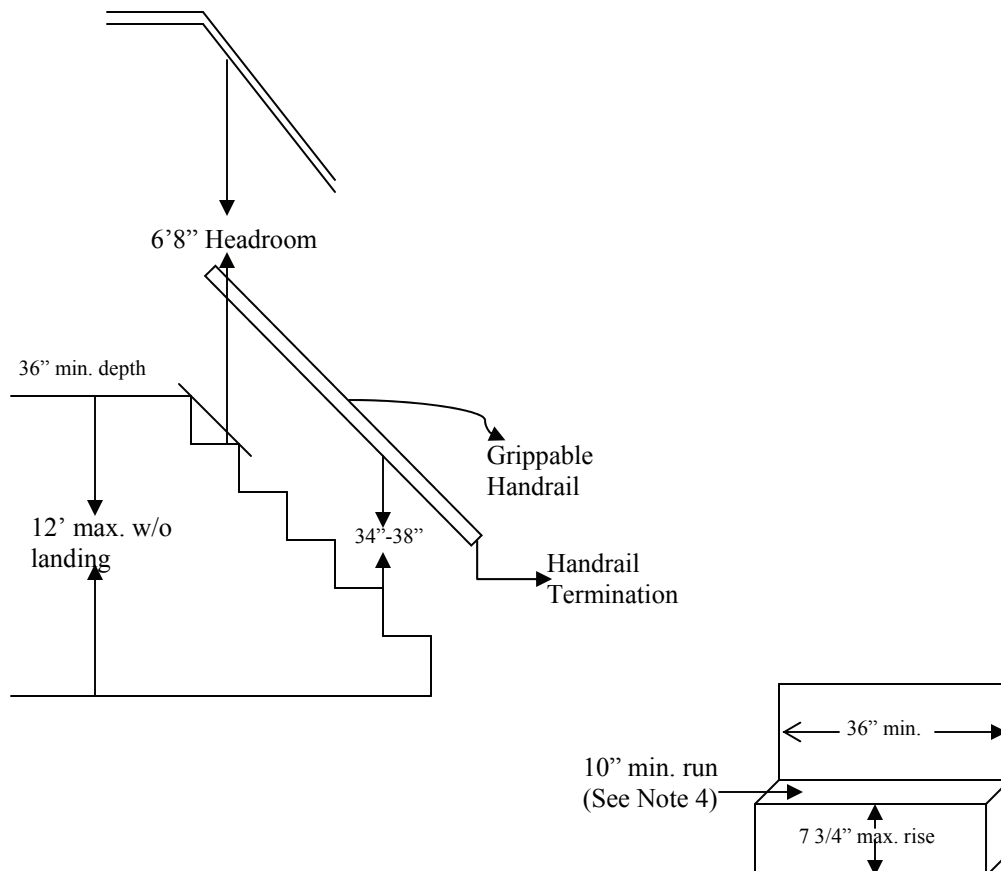
**Stairway and handrail requirements are very specific. You are responsible for reading the attachments and making sure stairways comply in EVERY way.**

**COMMON MISTAKES:**

1. Make sure that the stair riser is no more than 7 3/4" and the stair tread is no less than 10".
2. Make sure that the size of the risers and treads are consistent with **no more** than 3/8" deviation between the largest and the smallest treat (i.e. a bottom riser that is 7" and a top riser that is 7 3/4" is **not acceptable** since it is a 3/4" deviation.
3. If the stair treat is less than 11" and you have solid risers, you must have a nosing on the tread not less than 3/4" but no more than 1 1/4". *(To avoid the nosing requirements install an 11" tread.)*
4. You must have a 36" landing on exterior doors—this includes sliding doors (see page 2)
5. There must be at least one handrail when there are **4** or more risers.
6. when installing the handrail, the height must be 34"-38" as measured from the **nosing** of the tread. The **nosing** of the tread is the front edge of the step. If you measure from the back of the step the handrail will be too low. (see page 3 for how-to-measure)
7. A 2x4 laid flat or on edge will not work for a handrail since it is not considered grippable. A min. 2x6 routed to form a grippable edge is acceptable.
8. Handrails must be **continuous** for the full flight of stairs from a point directly **above** the top riser, to a point directly above the lowest riser. The handrails cannot be interrupted by newel posts except where the stairway turns a corner, or at the bottom of the stairway.
9. The ends of handrails must terminate in a safety terminal, newel post, or have an end return. This is to avoid catching clothing or bags on the handrail, which can cause a person to lose their balance.
10. Stairways and landings that are over 30" in height must additionally comply with guardrail requirements show on page 5 of this handout.
11. Exterior stairs base must be rot resistant and structurally sound. A pallet laid flat with a pier of plywood nailed across the top is not rot resistant, nor is it structurally sound. It also tends to rock.

RESIDENTIAL EXTERIOR STAIR  
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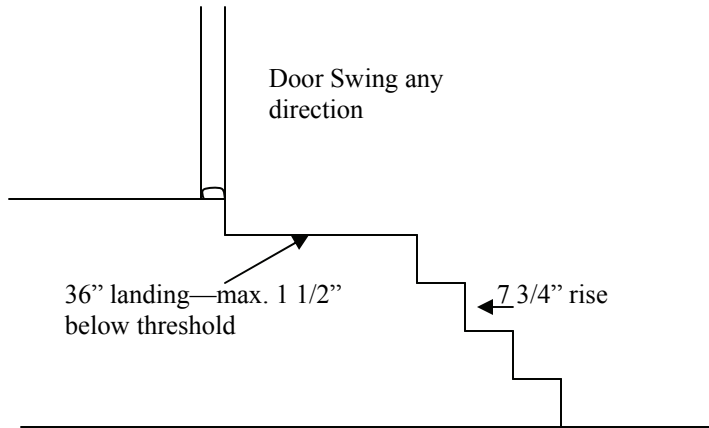
1. Stairways and landings shall be not less than 36" wide and 36" in depth (36"x36")
2. Landing width equal to the width of the door. Shall not be more than 1 1/2" lower than the top of the threshold.
3. Stairway risers shall be a maximum of 7 3/4" high. The greater rise shall not exceed the smallest by more than 3/8".
4. Stairway treads shall be a minimum of 10" wide measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the treads leading edge. When tread depth is less than 11", a nosing not less than 3/4" but not more than 1 1/4" shall be provided on the stairways with solid risers with no more than 3/8" deviation of projections including the nosing at the level of floors and landings. Bevel of nosing shall not exceed 1/2". Recommend you have a tread depth of 11" to avoid nosing requirement.
5. Stairway Handrails
  - a. Handrails shall be provided on at least one side of each continuous run of tread or flight with 4 or more risers.
  - b. Handrail height, measured vertically from the sloped plan adjoining the tread nosing shall not be less than 34" and not more than 38".
  - c. Handrails shall be continuous for the full length of the flight to a point directly above the lowest riser of the flight. Handrail ends shall be returned or shall terminate in newel posts or safety terminals.
  - d. Handrails shall not project more than 4 1/2" on either side of the stairway. Stairways with one hand rail shall not be less than 31 1/2" in width.
6. The walking surface of treads and landings of stairways shall be sloped no steeper than one unit vertical in 48" horizontal.
7. Stair construction shall have a rot resistant base and structurally sound.



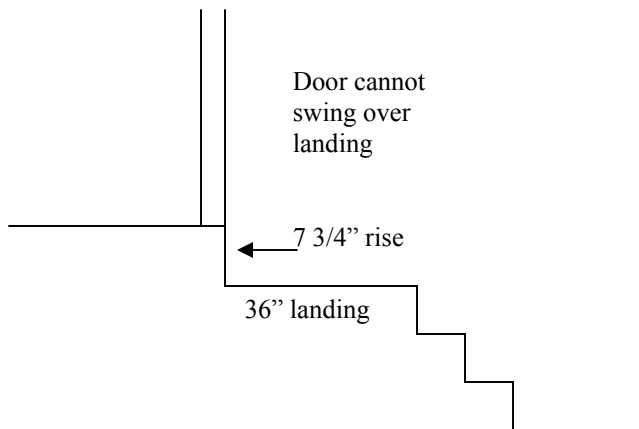
## LANDINGS AT DOORS

There shall be a floor or landing on each side of each exterior door. Landings are to be the width of the door and 36" in the direction of travel (typically a 36"x36" landing). Landings shall be located as follows:

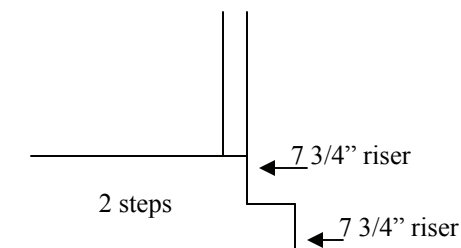
1. Note more than 1.5" lower than the top of the threshold of the door.



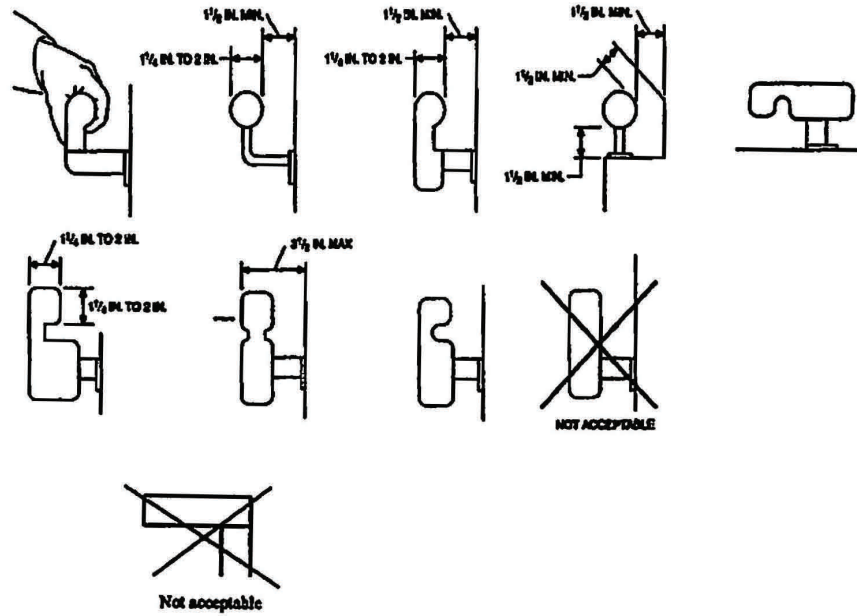
2. **Exception:** If the door does **not** swing over the landing, the landing may be located not more than 7 3/4" lower than the top of the threshold of the door



3. **Exception:** On doors other than the required exit, where there are **no more** than two risers and one intermediate tread, a landing is not required. Usually the front door is the required exit, therefore, you could not use this exception on the front door.



HANDRAIL GRIP SIZE  
IRC SECTION R311.5.6.3



Handgrip Size

- a. Type 1. Handrails with a circular cross section shall have an outside diameter of at least 1 1/4" and not greater than 2". If the handrail is not circular it shall have a perimeter dimension of at least 4" and not greater than 6 1/4" with a maximum cross section dimension of 2 1/4".
- b. Type II. Handrails with a perimeter greater than 6 1/4" shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin with a distance of 3/4" measured vertically from the tallest portion of the profile and achieve a depth of at least 5/16" within 7/8" below the widest portion of the profile. This required depth shall continue for a least 3/8" to a level that is not less than 1 3/4" below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 1 1/4" to a maximum of 2 3/4". Edges shall have a minimum radius of 0.01 inches.

GUARDS  
IRC SECTION R312

1. Guards are required along open-sided walking surfaces, including stairs, ramps and landings that are located more than 30" measured vertically to the floor or grade below.
2. Open sides of stairs with a total rise of more than 30" above the floor or grade below shall have guards of not less than 34" in height.
3. Guards shall not be less than 36" in height.
4. Guards shall have intermediate rails or ornamental closures which do not allow passage of a sphere 4" or more in diameter.
5. The triangular openings at the side of stair, formed by the riser, tread and bottom rail of a guard shall not allow passage of a sphere 6" in diameter.
6. Stairway Handrails
  - a. Handrails shall be provided on at least one side of each continuous run of tread or flight with 4 or more risers.
  - b. Handrail height, measured vertically from the sloped plan adjoining the tread nosing shall not be less than 34" and not more than 38".
  - c. Handrails shall be continuous for the full length of the flight to a point directly above the lowest riser of the flight. Handrail ends shall be returned or shall terminate in newel posts or safety terminals.
  - d. Handrails shall not project more than 4 1/2" on either side of the stairway. Stairways with one hand rail shall not be less than 31 1/2" in width.

