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## Single-Family Dwelling Stairways/Guards Information Sheet

### Width

Stairways shall not be less than 36 inches wide. The handrail may enter a maximum of 4-1/2 inches into this dimension.

[2007 CBC 1009.1, Exception 1]

### Dimensional Tolerances

The largest tread depth or riser height within any stairway shall not exceed the smallest by more than 3/8 inch.

[2007 CBC 1009.3.2]

### Risers & Treads

- If you are building a new standard residential stairway (not a spiral), each step (or riser) can't be more than 7-3/4 inches high or less than 4".
- Treads are the flat surfaces that you step onto. For new stairs, the treads have to be a minimum of 10 inches deep from front to back (not counting the part underneath the nosing of the tread above). The exposed edge of the tread is called nosing, and the nosing must stick out at least 3/4 inch, but not more than 1-1/4 inches
- The steps in a flight of stairs have to be even so that people don't trip. The code allows only 3/8 inch difference between the largest and the smallest rise, and only 3/8 difference between the largest and smallest tread measured from front to back.

[2007 CBC 1009.3]

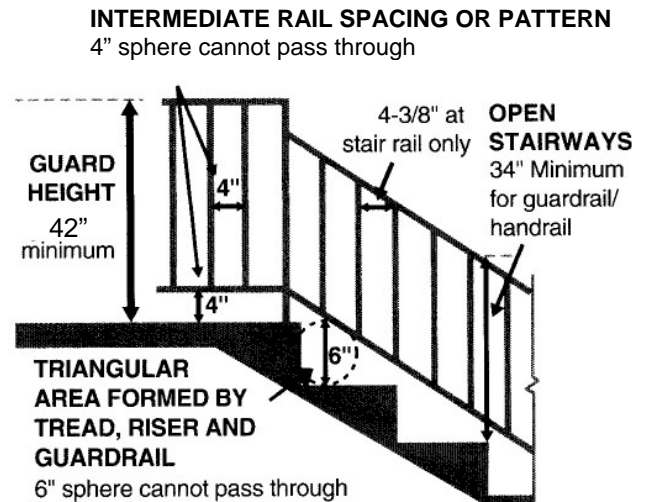
### Handrails

#### ***Required at four or more risers.***

The top shall be placed not less than 34 inches, nor more than 38 inches, above the nosing of the treads. Ends shall be returned or terminated in newel posts or safety terminals.

All required handrails shall be continuous for the full length of the stairs from a point directly above the top

### Guard Opening Limitations



#### Exceptions:

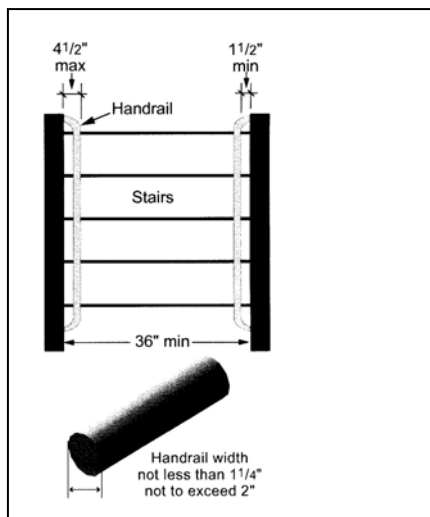
1. Handrails may be interrupted by a newel post at a turn.
2. A volute, turnout or newel post is allowed over the lowest tread.

The outside diameter of a circular handrail may be no less than 1-1/4 inches and no greater than 2 inches. A non-circular must have a perimeter dimension of at least 4 inches and no greater than 6-1/4 inches. The maximum cross section is 2-1/4 inches. [2007 CBC 1012]6+33

- Stairways must have a handrail if the stairway has four or more risers.
- Handrails may project over stairs by 4-1/2 inches maximum on each side of the stairway.
- Handrails must be continuous for the full length of the stairs. They must run back into the wall or butt into a post so that purse straps and clothing won't get caught behind them and cause a fall.
- Handrails attached to the wall must have a space between the wall and the rail of at least 1-1/2 inches to provide a graspable surface.
- Handrails on the open side of a stairway must meet guardrail requirements. [2007 CBC 1013.2]

For occupancies in group R-3 guards whose top rail also serves as a handrail shall have height not less than 34 inches and not more than 38 inches measured vertically from the leading edge of the stair tread nosing.

- The height of handrails is measured straight up from the nosing of the tread to the top of the handrail. A handrail along a wall must be between 34 inches and 38 inches high.
- A round handrail must have a diameter no smaller than 1-1/4 inches and no larger than 2 inches, so that it can be easily and securely gripped. Other handrail shapes are allowed, if the perimeter dimension is at least 4 inches and not more than 6-1/4 inches, with a cross section dimension not more than 2-1/4 inches.



## Illumination

All interior and exterior stairways must be illuminated.

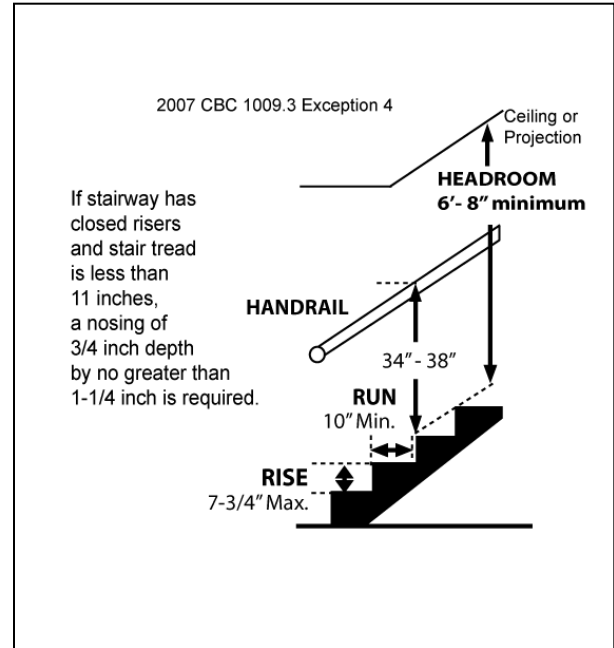
**Stairway Lighting [2007 CEC 210.70]**

⊕ A	⊕ B	⊕ A
<p><b>Interior lighting</b> must be installed either over the stair (Points B) or over the landings (Points A).</p> <p><b>Exterior</b> stairs must be lit at a minimum by the landing at the top of the stairway. The light control must be provided within the dwelling unit or automatically controlled, e.g. motion detector light.</p>		
⊕ B		
⊕ A		

## Headroom

Every stairway shall have a headroom clearance of not less than 6 feet 8 inches. The minimum headroom in all parts of the stairway may not be less than 6 feet 8 inches. This is measured vertically from the sloped plane adjoining the tread nosings or from the floor surface of the landings.

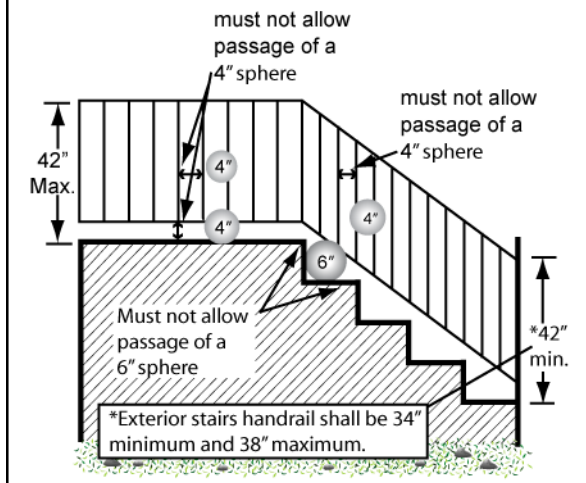
[2007 CBC 1009.2]



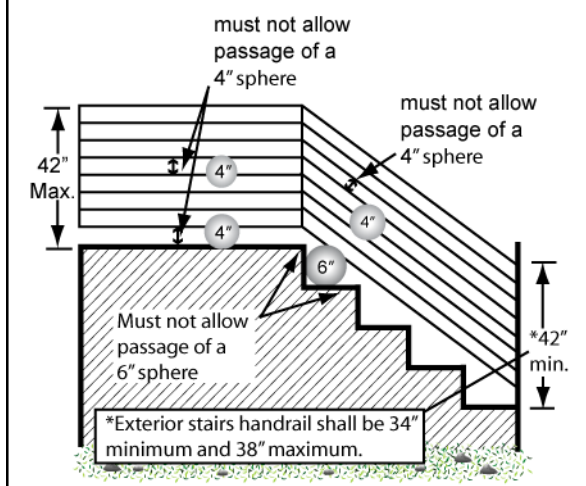
## Guardrails

- A guardrail is required to prevent someone from falling from a balcony, deck, landing, etc. that is more than 30 inches above the floor or ground below. Guardrails must be at least 42 inches high, except that they may be 34 inches minimum and 38 inches maximum when located within dwelling units in R-3 occupancies whose top rail also serves as a handrail.
- Guardrails on interior stairs must have some kind of a pattern, so that a 4-3/8 inch sphere can't pass through. However, all exterior guardrails along raised floors, landings, porches, decks, and balconies must have intermediate rails or ornamental closures that do not allow passage of a 4 inch sphere.
- At the bottom edge of a guardrail along a series of steps, the space between the tread, riser and the guardrail must be small enough to prevent a 6 inch sphere from getting through.

### Guardrail with vertical pattern



### Guardrail with horizontal pattern



### Winder Stairs

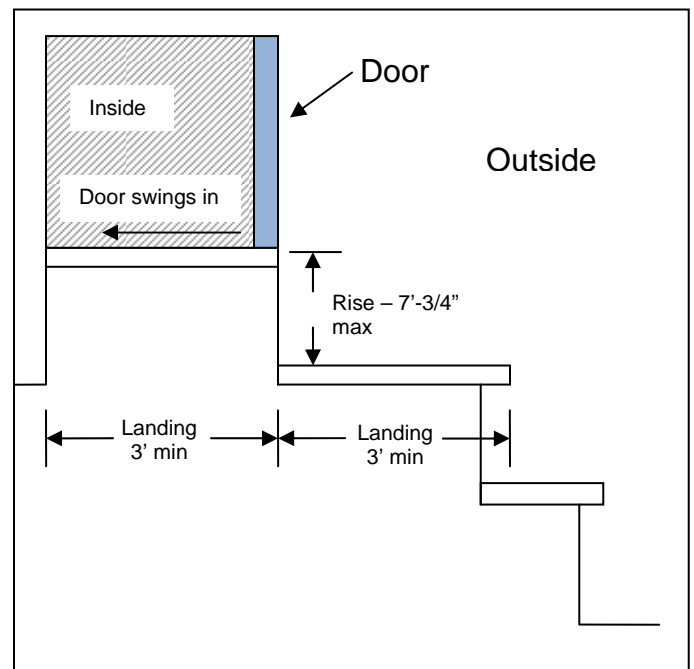
- Stairways that turn a corner, with treads that are narrow on one end and wider at the other, are called winder stairs. You may build winder stairs, but the treads must be at least 6 inches deep at their narrowest point. Also, all of your treads must be at least ten inches wide, Measured 12 inches from where they are the narrowest. Although the tread size varies on winder stairs, there still may not be more than 3/8 inch variation between the largest and smallest rise.

### Spiral Stairs

- Spiral stairway treads must be at least 7-1/2 inches deep measured 12 inches out from where they are the narrowest. The risers can't be more than nine and one half inches high.
- The minimum width of a spiral stairway from the center pole to the outside edge of the tread is 26 inches.
- Each spiral stair tread must be identical.
- Headroom may be 6'6" minimum.

### Landings

- Any exterior entry/exit door must have a landing at least 3' x 3' inside the door before there can be a step. The interior landing must not be more than 1-1/2 inches lower than the top of the threshold. On the outside of the door, the step down may be 7'-3/4" before you need another 3' x 3' minimum landing, providing the door does not swing over the stairs. After the landing there may be additional steps.



**NOTE: REQUIRED HANDRAILS ARE NOT SHOWN**

