

Interior Architecture

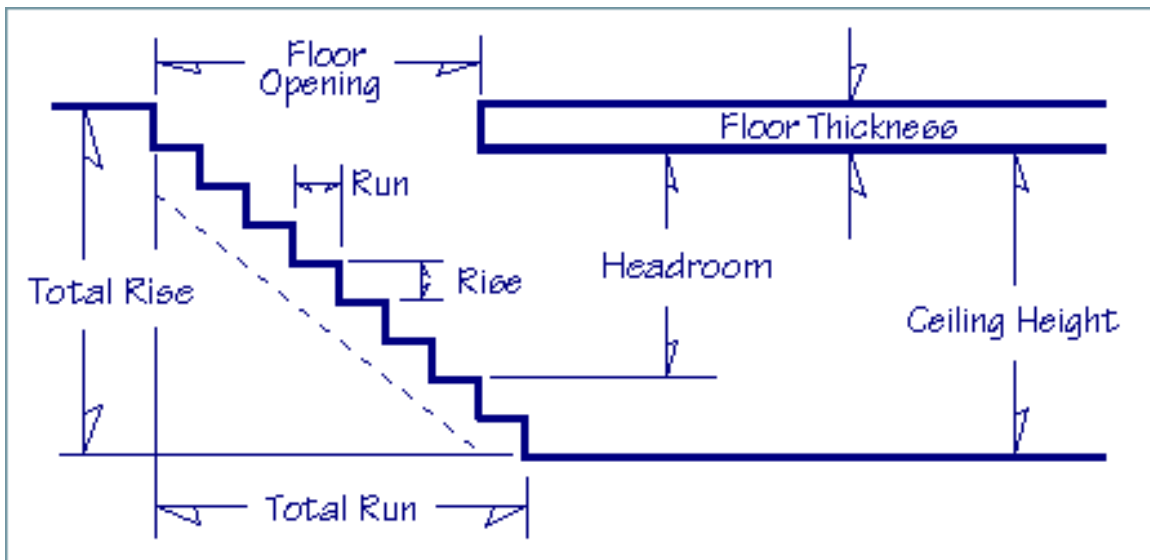
Ohio University

College of Fine Arts
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Interior Architecture Studio I

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Stair Design Rules & Guidelines



Residential stairs:

- minimum stair clear width = 36"
- maximum riser height = 7 3/4"
- minimum tread depth = 10" with nosings
- nosing projection = 3/4" - 1 1/4"
- minimum tread depth = 11" without nosings
- minimum headroom = 6'-8"

Non-residential stairs:

- minimum stair clear width = 44"
- maximum riser height = 7"
- minimum riser height = 4"
- minimum tread depth = 11"
- minimum headroom = 6'-8"

General Rules:

- no more than 3/8" variation between successive risers and treads (ensures safety of walking without tripping/falling)
- maximum travel of 12' (12'-3" for residential) in **vertical rise** without a landing

General Notes:

- width of exit stair is calculated in terms of 'exit units' which are 22" units, based on the idea that one person is 22" wide
- outdoor stairs, or monumental stairs do not have to adhere to the riser and tread requirements of egress stairs

Calculation

General formula: $2R + t = 24-25$ inches

To calculate the number and size of steps in a run of stairs:

1. identify the required height, from finished floor to finished floor
2. divide this height by the approximate height of the riser of one step (see above for limitations)

**since there can be no partial steps, round off any non-whole numbers; divide any fractions of an inch into the total number of stairs*

3. plug the riser height into the $2R+T=24-25$ formula to determine how deep each tread needs to be

To describe an element like a stair, or even a wall, requires that the three primary dimensions of the physical existence of that element be presented. In simple terms, when designing a stair, you must:

- elevation view of the stair
- plan view of the stair
- vertical section of the stair

This way you can actually see what is going on in each of these dimensions.

Often just a plan view, or just an elevation view does not adequately reveal the overall physical character of the piece you are designing.

Web sites with stair information

<http://woodstairs.com/>

<http://www.arcways.com/>

<http://www.stairwaysinc.com/>

<http://www.dsnelson.com/gallery.htm>

[Residential Stair Codes](#)