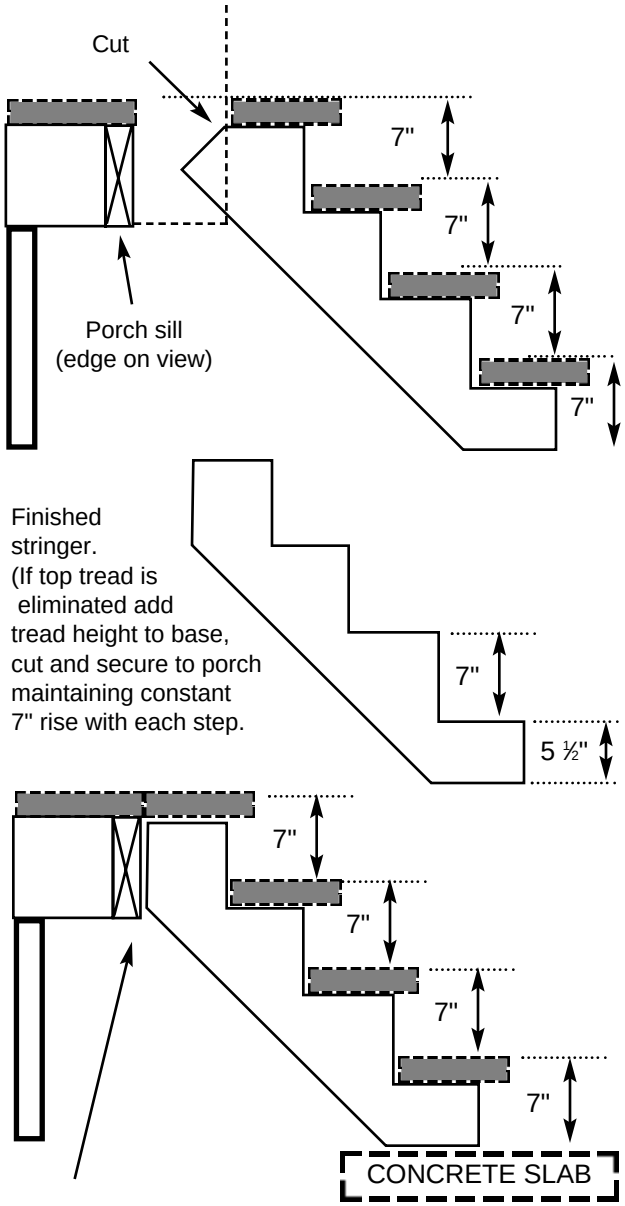
STEP FIVE:

Make cut to fit porch

The cut may vary to attach the stair, however the 7" rise is always maintained. Cut the wood so the tread is against the porch sill.




Secure the stringer to the porch.

## Common Problems

This brochure only covers stairs for one and two-family homes. Commercial buildings have another set of rules to follow.

A permit is required if you are replacing stairs. No drawings or plans are required, but it would be helpful to know the height and run of the stairs. A short description of the project will be listed on the permit.

On stairways with more than 3 risers, one handrail is required for the full length of the stairway on any open side and on the left, as one mounts the stairs. Handrails shall be located at least 30" but not more than 34" above the nosing of the tread.

Guardrails are required if the porch or platform is more an 24" above the floor or grade. Both shall be at least 36" high and ballasters spaced as to prevent the passage of a 6" ball. Both must sustain a 200 lb. load applied in any direction. Every stairway shall measure at least 3 feet in width. Trim and handrails may project no more than 3½" into this width.

Any time the structural members are repaired or replaced a permit is required. Any electrical or plumbing work requires a permit.

## Biggest Mistakes

The biggest mistake in building stairs is not keeping ALL the steps the SAME height. Most often the first and last step are incorrect. Tread widths and riser heights may vary in uniformity by a maximum of 3/16". However, the 8" maximum rise and 9" minimum run must be maintained. A level 3 foot landing is required at the top and bottom of the stairs and be as wide as the stairs. Intermediate landings are required for stairs 12 feet or higher.

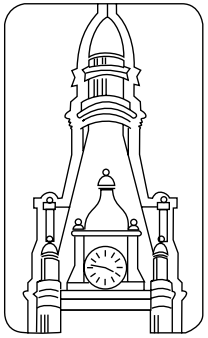
## Questions?

For more stair building information talk to your construction inspector. If you need more information about permit requirements, fees, or you just want to ask a "what if" question, call the Building Inspection's Permit Desk at 286-2507. Business hours are 8:00 A.M. to 4:30 P.M.

# 5 Easy Steps to Building Stairs Correctly

For One and Two Family Dwellings Only

**presented by**



**City of Milwaukee**
**Department of**
**Neighborhood Services**

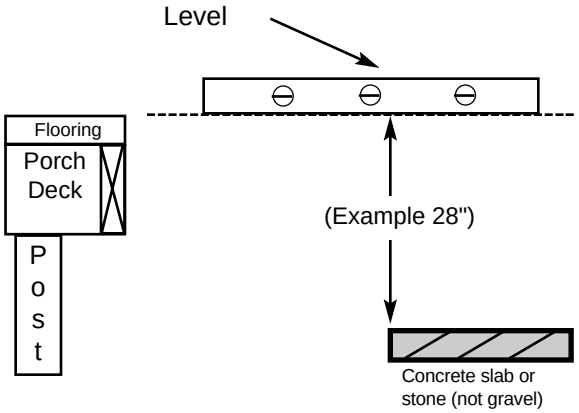
**WWW.MILWAUKEE.GOV**

DNS-107 STEPS BRO TNW 9/23/02

STEP ONE:

How high do you have to go?

Determine the distance you have to climb from the ground to the porch. Use a level.

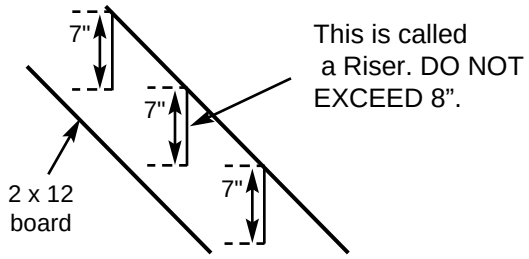



STEP TWO:

Divide the distance by 7.

A comfortable step to climb is 7 inches. Determine the number of steps by dividing the height (example 28") by 7. (28÷7=4) Your stairs will have 4 equal 7" steps called risers. The code limits the maximum stepping height to 8 inches and a minimum height of 4 inches.

For non-multiples of 7 (for example 31"), first divide it by 7 to determine the number of steps. 31÷7=4.42 Take the whole number (4), then divide it into the distance (31) again. 31÷4=7.75 This means each of your 4 steps, or risers, will be exactly 7¾" high. Round up or down the whole number, but do not exceed 8 inches per step. DOUBLE CHECK your math.

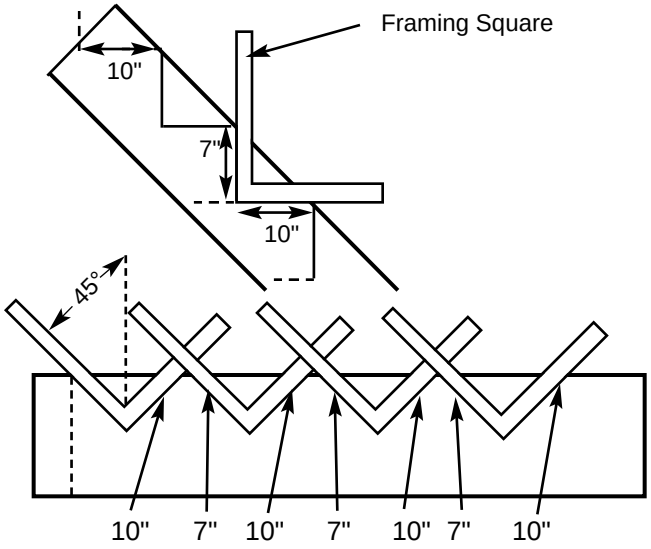



STEP THREE:

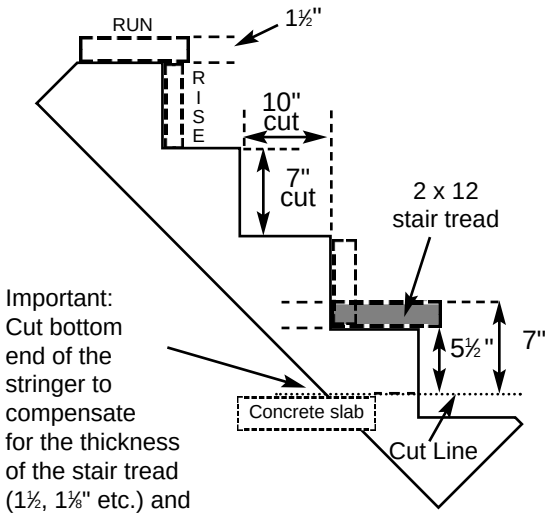
Marking the lumber for a cut.

Once you know how high each step is, it's time to figure out how far out the step will run. A comfortable unit run or tread "cut" will be 10". However, it must be at least 9". Treads should contain some overhang from the risers (called nosing). This avoids tripping while ascending the stairs. Desirable nosing should be 1" to 1½" from the riser. Our example is 1¼". If adding a riser, measurement is the same since some amount is being added to tread and riser.

Protected or treated lumber is required for exterior stairs. Use a framing square to mark a 2 x 12 board. A framing square is a ruler built at a 90° angle and marked on each edge. Marking the lumber on one side, use a pencil to mark the rise (7") on one side of the square and the tread cut (10") on the other side of the square.




Using the framing square, mark cut lines on the lumber, times the number of steps you have. Be sure to take the measurement on the outside edge of the square and intersect the lines at the edge of the 2 x 12 lumber. This is a Stringer.




Important: Cut bottom end of the stringer to compensate for the thickness of the stair tread (1½, 1⅛" etc.) and thus maintain the 7" rise.

STEP FOUR:

Nosing room on treads.

A 1¼" nosing is desirable on stairs. The actual size of a 2 x 12 is 1½" x 11 ¼". Since you left a 10" tread cut, adding the 2 x 12 as a tread leaves you with a 1 ¼" nosing. (11 ¼" -10"=1¼")