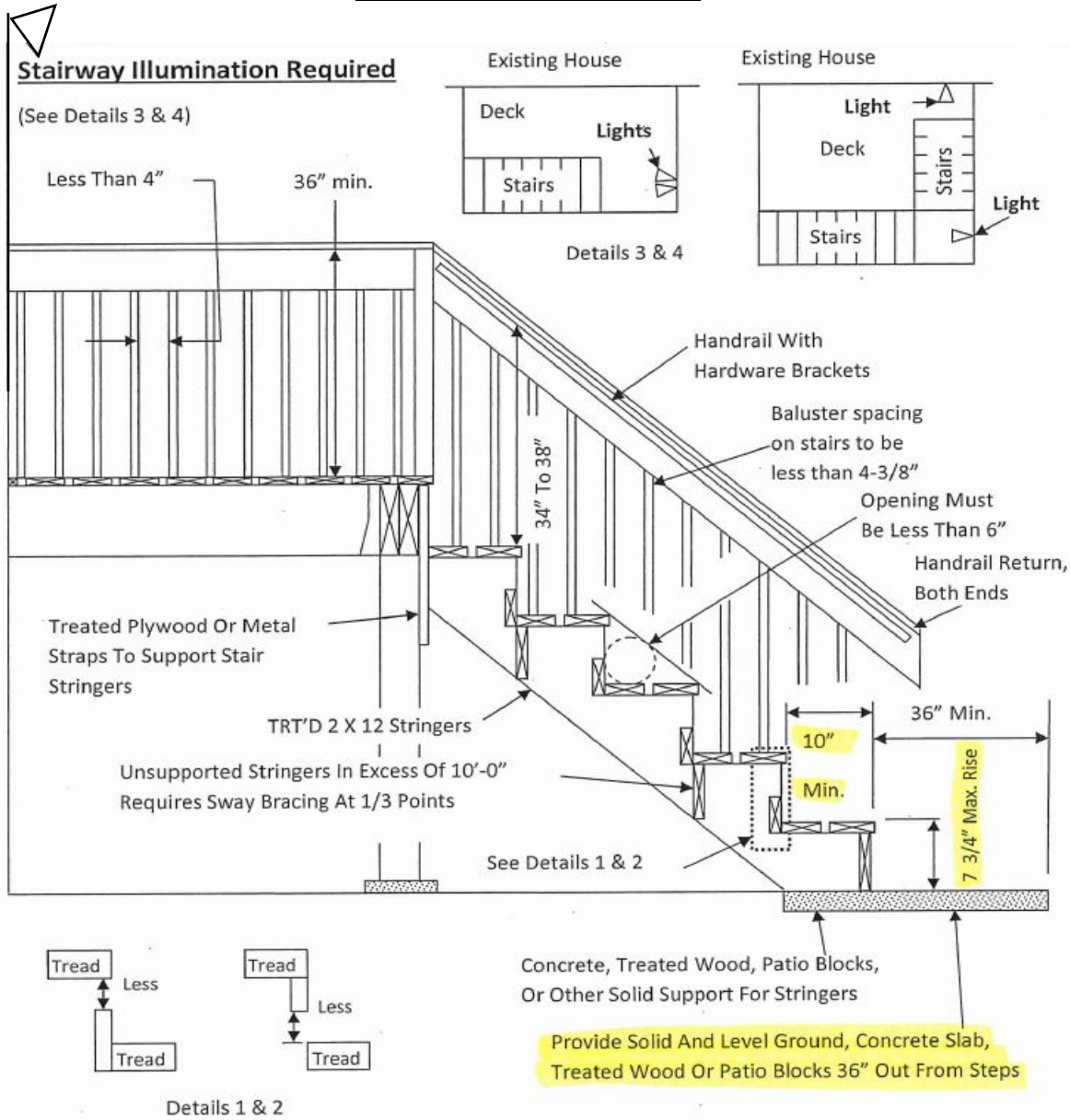




Deck Stairs Requirements

Building Inspections | City of Eden Prairie | 8080 Mitchell Road | Office: 952-949-8342

Stair Section B



Notes:

- 1) The maximum variation from the largest rise/run to the smallest rise/run shall be 3/8"
- 2) Minimum stairway width is 36 inches
- 3) 4 or more risers requires a handrail
- 4) A flight of stairs shall not have a vertical rise greater than 12 feet between floor levels or landings

Deck Stair Calculations

To calculate the number and size of risers and treads (less nosing) for a given stair run, divide the total rise (distance from grade to top of deck) by 7. For example, if the total rise for a stairway is 7'10" or 94" the answer will be 13.43. Since there must be a whole number of risers select the one closest to this figure (13.43) and divide it into the total rise.

Example #1

Total Rise of Stairway (94") Divided by (13) Number of Risers = (7.23" or 7 ¼") Riser Height
Number of Risers = 13
Riser Height = 7 ¼" (Max riser height = 7 ¾")

In each stair run the number of treads will always be one less than the number of risers. (Min. depth is 10") The total run would be calculated as followed:

Number of Treads = 12
Total Run = (10") Tread depth Multiplied By (12) Number of Treads = 120"
120" divided by 12" = 10' (Total Run)

The stairs in this example will have 13 risers 7 ¼" high, 10" wide and a total run of 10'

Example #2

The total run could be lengthened by increasing the number of risers and treads. This change would decrease the steepness of the stairway. Using the example above the calculations would be as followed:

Total Rise of Stairway From Above Example (94") Divided by (14) Increase In Number of Risers = (6.71" or 6 11/16") Riser Height
Number of Risers = 14
Riser Height = 6 11/16" (Max riser height = 7 ¾")

As stated above in each stair run the number of treads will always be one less than the number of risers. (Min tread is 10") The total run would be calculated as follows:

Number of treads = 13
Total Run = (10") Tread Depth Multiplied By (13) Number of Treads = 130"
130" divided by 12" = 10'10" (Total Run)

The Stairs in this example will have 14 risers 6 11/16" high, 13 treads 10" wide and a total run of 10'10"

Stringer Layout

Example Only:

In the actual laying out of the stair stringer, it is first necessary to determine the riser height. Set a story pole (straight strip of 1 X 4 lumber) in a vertical position on the final elevation and mark the location of the top surface of the deck above.

Set a pair of dividers to the calculated riser height and step *off* the distances. There will likely be a slight error in the first layout so adjust the setting and try again.

Continue adjusting the dividers and stepping *off* the distance on the story pole until the last space is equal to all the others. Measure the setting of the dividers which will be the exact riser height to be used in laying out.

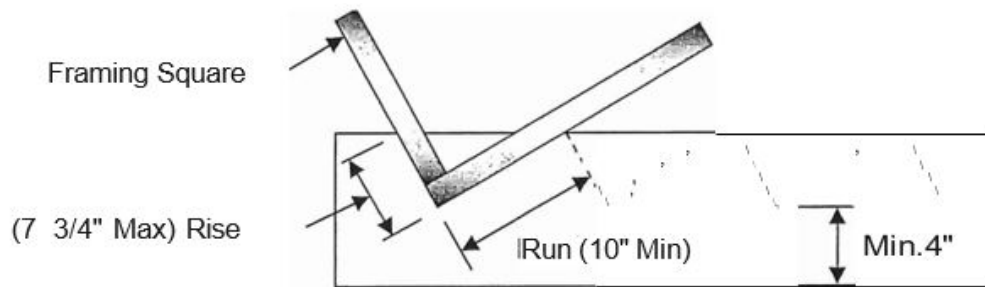


Fig. 1. Using a framing square to lay out a stringer

Continue until the required number of risers and unit treads has been drawn. The stair begins with a riser at the bottom so extend the last tread line to the back edge of the stringer. At the top extend the last tread and riser line to the back edge.

One Other adjustment must be made before the stringer is cut. When the bottom tread is installed the tread thickness needs to be cut off.

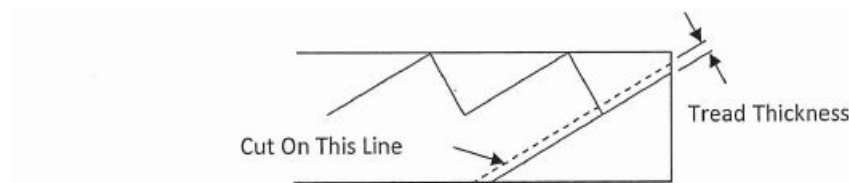


Fig. 2. Trimming the bottom end of a stringer to adjust for tread thickness