

## How To Cut Common Set Of Stairs---Pt.1

author--steve drake

<http://www.jccalc.com>

When it comes to stairs for your home or exterior deck, most people would rather hire a contractor to build them but after reading this article you should have a clear understanding of how to build a set of common stairs.

This article is written to help take the pain out of trying to cut common set of stairs for any type of building. In the example below, we will be cutting stairs for a deck that is 48" high. The width of the stairs are 36".

### Terminology

**Riser**-----The measurement of the vertical rise between each tread or step).

**Tread**-----The part of the stairs you step on. Common size thickness 5/4" to 1-1/2"

**Run**-----The measurement of the distance beginning at the first riser to the last riser in a total stair installation.

**Stringer**-----The structural element that creates the both risers and treads. Built usually from 2x12 material.

**Nosing**-----The portion of the Tread that overhangs the Riser, commonly 3/4" to 1".

**Hand Railing** -----The portion of the total stair installation that someone holds on to while ascending or descending the stairs.

**Spindles**-----The separate vertical elements that are part of the Hand railing Detail.

**Level Cut**-----The horizontal cut that creates the Tread placement in the Stringer.

**Plumb Cut**-----The vertical cut that creates the Riser placement in the Stringer.

**Pressure Treated**-----Exterior grade of lumber.

**Framing Square**-----The tool that is used to layout stair stringers.

### The Framing Square

It is recommended that someone

who is cutting stairs to be familiar with the terminology of the 2' Framing Square. This Square is used in multiple areas of construction and most for building an entire home.

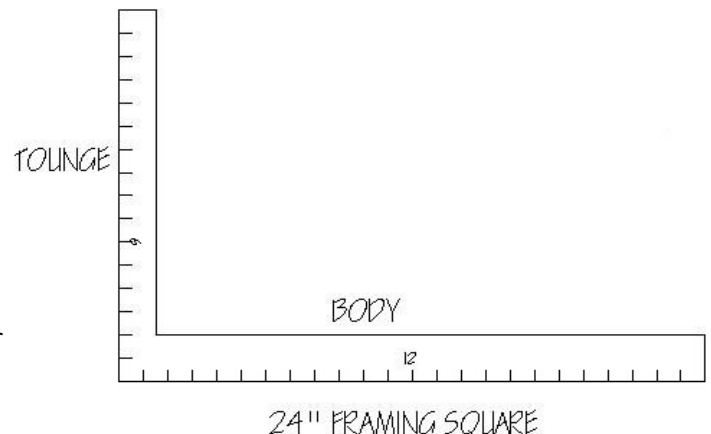
So, needless to say, you need a 2' Framing Square to layout your stairs.

The framing square has 2 blades on it, one long blade (body-24") and one short blade (tounge-16").

The Tongue (Riser) numeric graduations are for the Riser and

the Body (Tread) numeric graduations are for the Tread of the Stairs.

If you cannot follow along with the terminology in the next couple of paragraphs please find a framing square along with the very short manual and read up.



Another small tool that comes in handy when you layout stairs are a pair of stair guides that you can purchase at your nearest hardware store. You don't need them but they make the handling of the 2' Framing Square a little easier.

## How To Cut Common Set Of Stairs---Pt.2

### Calculating Your Stairs

#### 1. Calculating The Risers

You first have to calculate the vertical height of your stairs.  
If you are building your stairs from a concrete pad to your deck:  
Measure from the concrete pad's finished surface to the top of the deck's finished surface.

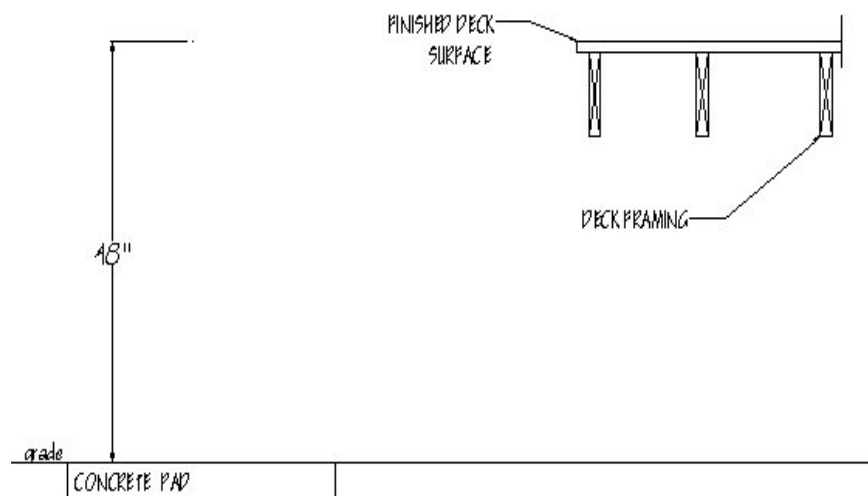
Our Example:

Measuring from the concrete pad's finished surface to the deck's finished surface--

Measurement To Finished Deck Height----- = 48"

Total Vertical Height----- = 48"

The diagram below shows the measurement from concrete pad to the finished deck.



#### 2. Laying Out Stairs

Most building codes do not allow riser heights to be more than 8" so it would be a good idea to contact your local code enforcement officer and ask what the maximum riser height is for your stairs.

To begin, the common number used to divide into any stair height is 8".

In this case, divide 8" into the "Total Vertical Height" which is 48" . As you can see 48" divided by 8" equals 6. This means that your risers will be 8" tall and you have 6 of them.

Our Example:

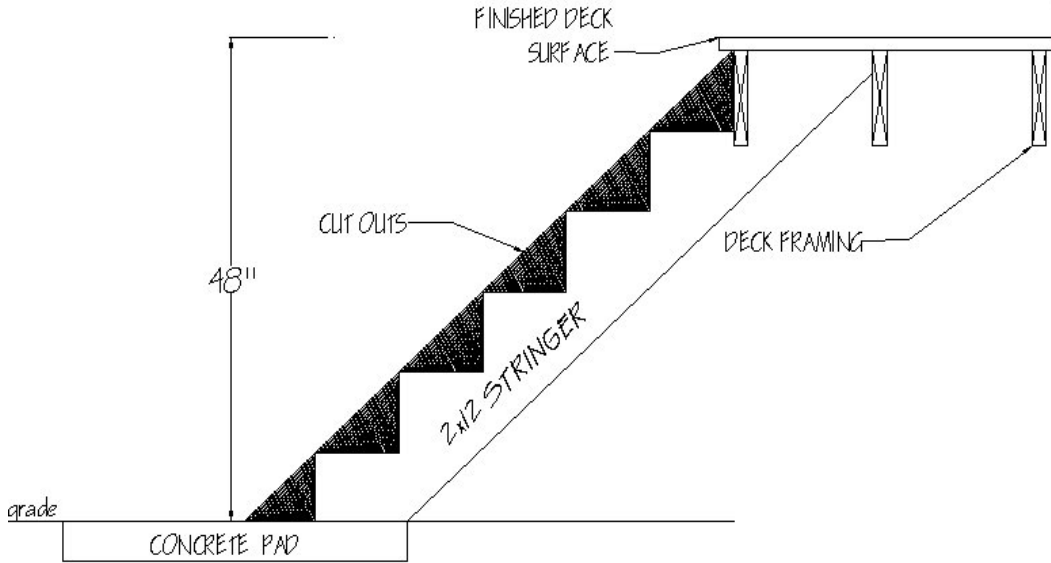
Your stair calculations are--  
6 risers @ 8"  
5 treads @ 9-1/2"

Lock your stair guide on 8" of the Tongue for the Riser.  
 Lock your stair guide on 8.3/4" of the Body for the Tread.  
 Mark off the count of Risers and Treads you need for your stairs

### 3. Cutting Out The Stairs

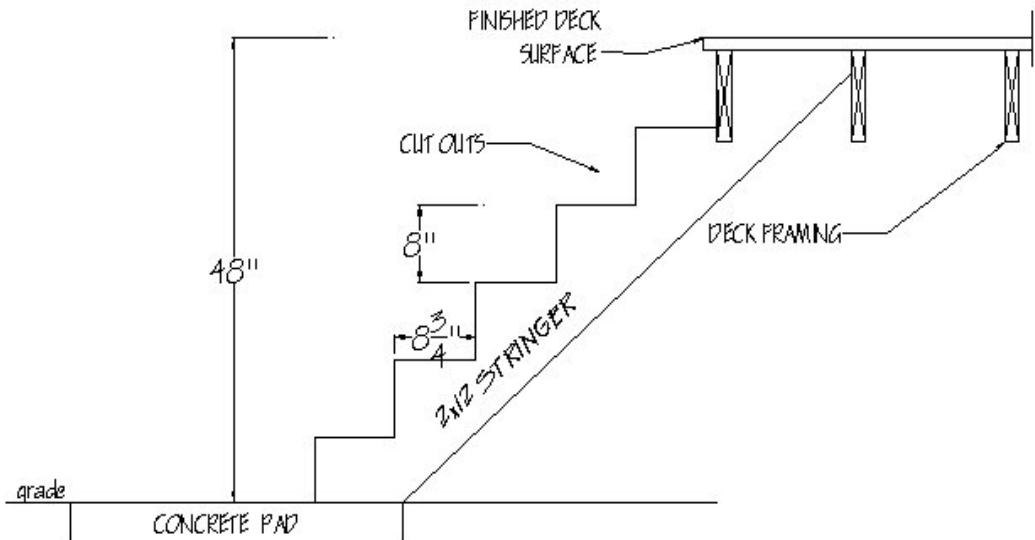
Begin to cut out the triangle that is created from the framing square and continue from bottom to top of the stringer.

As you can see in the below diagram, the stair cutouts (in black).



Stringer Cut Out--finished

The diagram below shows the 8" Riser cut with the 8-3/4" allowance for the Tread cut. When you layout your Stringer, you must make allowances for the Tread (1-1/2") and the Riser (3/4").



### 4. The Tread Widths

Now we begin to calculate the tread widths .  
 Common tread widths are 9.5" to 11.5" depending on your local building codes.

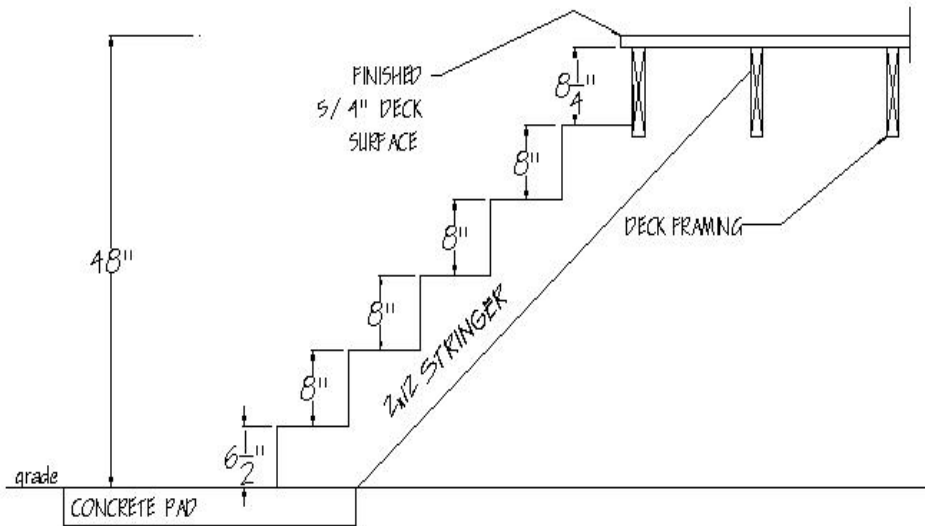
These numbers could be different so it would be a good idea to contact your local code enforcement officer and ask what the maximum tread width for your stairs.

Also-- you want 3/4" to 1" overhang (nosing) at each tread to riser location.

5. One last cut to be made.

You must cut 1-1/2" off the bottom of the first step of the stringer.

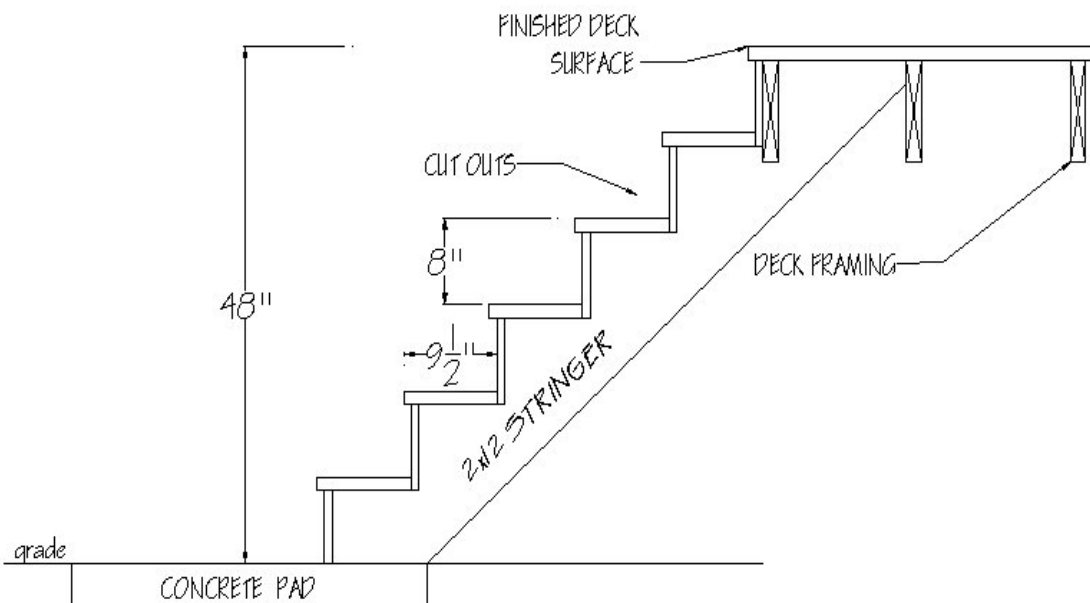
The diagram below shows the first Riser at 6-1/2". This first cut is the thickness of the treads (1-1/2").



### 6. Finish Stair Layout With Risers and Treads

The diagram below shows the Stair Stringer with the Risers and Treads. As you can see the Treads are 1-1/2" x 9-1/2" (2x10) and the Stringer was cut for the allowance of a 3/4" Riser.

Also there is an allowance for a 3/4" Nosing (overhang) where the Riser meets the Tread. This is what the 8-3/4" dimension is for.



### 7. Connecting To The Deck

Generally you would have stringers app. 12" to 16" on center so if your stairs were 36" wide you will have 3 stringers to cut--left side, right side, and center.

Depending on which way your floor joists are running your stringers would attach to the framing as shown in the diagram above.

Your stairs must maintain consistent equal riser and tread dimensions for safe usage.

Another Quick Example:

*Not equal dimension*

Your stair height is 7'-7" or 91" high.

Your first calculation is 7'-7" or 91" divided by 8".

Result = 11.375"

11 risers @ 8", ----but you have .375" left over.

The result does not equal out so you would add another riser.

Now just add another riser to your calculation, which would now be 12 risers.

7'-7" or 91" divided by 12 "risers" = 7.58" -----app. 7-5/8".

12 risers @ 7-5/8"

That is the new calculation for this example set of stairs.

I hope this helps you in your attempt to cut a common set of stairs.

Job Cost Calculators-----<http://www.jccalc.com/>