

## BCT 223 Finished Stair Construction Baluster Spacing Layout

**Determine the number of balusters and on-center spacing for balcony and stair handrails and guardrails.**

Step 1. Measure the horizontal distance between two rail posts or from post and wall. Add the width of one baluster to this measurement.

Step 2. Add the width of one baluster to the maximum code space allowed (4") between balusters.

Step 3. Divide step #2 into step #1. This answer equals the **number of spaces** for the section.

**Round any decimal answer up.** This will make sure your spacing is at or less than code maximum.

Step 4. The number of spaces minus one equals the number of balusters needed for the section.

Step 5. Divide the distance (step1) by the number of spaces. This equals the on-center spacing for each baluster.

Step 6. The on-center space minus one baluster width equals the space between each baluster or between baluster and post.

**Practice calculating baluster spacing and layout using the steps above.**

After you have the spacing, do a full scale layout of the baluster spacing on a paper provided to check if your calculations were correct.

Measured opening between posts =  $62 \frac{5}{8}$ " Balusters =  $1 \frac{3}{4}$ " sq.

Balcony code maximum space between balusters is - 4".

Show your calculations below:

**Convert decimals to fractions.**

Number of spaces \_\_\_\_\_ Number of balusters \_\_\_\_\_

On center distance of balusters. \_\_\_\_\_

Space between each balusters \_\_\_\_\_

Cut a 6' piece of the paper provided and tape the edges to your desk top. Draw a horizontal line down the center with a vertical line at each end  $62\frac{5}{8}$ " apart to represent the posts. Using the measurements calculated draw vertical lines to represent each baluster. Check the spacing between post to baluster and between each baluster. **They should all be equal!**

**Spacing of balusters for stair handrail/guardrail.**

**Closed system:**

When the stair system hand/guardrail has a knee wall, you would determine the baluster layout using the same method as above. The distance of the opening between posts must be measured **horizontally**.

**Open system:**

If the balusters rest on the stair treads, the layout should be even spacing between the two balusters on each tread, from tread to tread and post to tread baluster.

Because code requirements (-5") there will need to be at least two balusters per tread.

Draw three continuous  $10\frac{1}{2}$ " treads (no rise is necessary) to full scale on the backside of the paper used for balcony lay-out.

Calculate the baluster layout and spacing for a  $10\frac{1}{2}$ " treads and  $1\frac{3}{4}$ " balusters.

If each tread is to have two balusters what is the total space left on each tread? \_\_\_\_\_

How many spaces will each tread have? \_\_\_\_\_

The tread space divided by the number of spaces = the distance between

What is the distance between each baluster? \_\_\_\_\_

What is the distance between the first and last balusters and the newel posts? \_\_\_\_\_