Stair Railing Measurement Cheat Sheet

Hardware and measurements for a rock-solid, custom finish.

Confidently measure, space, and install a sturdy wood stair railing. Grab these spacing guides, hardware lists, and finishing steps.



Essential Project Measurements

34-38 in
Handrail height from stair tread nose

3.5 in
Maximum empty gap between balusters

1/2 in
Structural lag bolt for newel base

1.5 in
Brad nails for securing balusters

2.5 in
Trim screws for the handrail

3 in
Wood screws for rosette tie-in

Secret to Flawless Wood Stain

Apply a generous pre-conditioner coat on bare wood before coloring. Sanding up to 120-grit opens pores gently, preventing dark, muddy patches for an even, glowing finish.

Installation Sequence

1. **Reinforce the Connection** Bore into the structural joist, apply construction adhesive, and drive the bolt with an impact wrench.
2. **Mark the Layout** Use a combination square to scribe a consistent centerline down every single step.
3. **Cut to Pitch** Lock a sliding bevel gauge against the stringer to transfer the exact stair angle to your saw.
4. **Hide the Hardware** Nail square balusters into the deep overhead channel and glue wooden fillet strips to fill remaining gaps.
5. **Inspect the Transitions** Sand transitional seams perfectly flush to create a continuous flow without sharp lips or sudden bumps.

Match Methods to Your Space

Find your row: **Your specific setup**

Your specific setup	Your pick	Why
Anchoring base to subfloor	Hidden lag bolt base	Bypasses thin layers to grip joists.
Transitioning rail to drywall	Rosette wall tie-in	Provides a solid stud anchoring point.
Staining porous soft woods	Pre-conditioner coat	Prevents blotchiness for an even finish.
Concealing top assembly fasteners	Plowed rail profile	Hides hardware inside the channeled underside.

Pre-Installation Checks

- ◯ Map floor joists and wall studs with a magnetic stud finder.
- ◯ Trace the exact footprint of your new base onto the floorboards.
- ◯ Test stain mixtures on scrap wood under morning and evening light.
- ◯ Push-test the newel post to confirm zero flex at floor level.
- ◯ Run a bare hand over the handrail to catch any splinters.

Project Notes & Measurements

Enjoy the beautiful, sturdy custom staircase you built with your own two hands!