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Custom Home Know-How:
Why Shop Drawings are Critical

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Stairs are highly engineered works of art. How do shop drawings facilitate this engineering?

Engineering for us describes the structural part of the project and also describes how the pieces will fit together as an assembly also known as 'detailing".

Shop drawings are essential to help describe the working envelope we have to fit the structural component (timber or steel). Since AutoCAD represents full scale, you can count on all your dimensions in the drawing as actual.

The stairbuilder lives by detailing. The detailer in the design department has everything completely figured out including all angle cuts, lengths, and joinery. Without that information every aspect of the actual construction would have to be laid out by an expert on the shop floor.

What are the different elements of a stair shop drawing?

For stairs, everything is developed from the plan. We have to prove out the space in the plan view before doing any elevations that show the appearance of the stair and railing. We also do an unfolded elevation to help understand transitions as the stair turns a corner or has a pitch change.

How do you stay current with various code requirements?

We attend the annual Stairbuilders and Manufacturers Association (SMA) conference. There we receive updates and also meet in committees to develop code changes which are put in front of the code bodies at the code hearings.

How do three dimensional mock-ups and samples complement shop drawings?

Depending on the project and the customer, both mockups and 3D drawings can be extremely important. A partial mockup is often a good tool to fully understand shape and proportion. In fact, we often see a significant change in design once the customer sees the drawing go to mockup.

There are two types of 3D drawings. Most are renderings intended to provide more rotated views of the project. They are very helpful to show the customer how the stair will work in the space. Sketch up would be the most popular program used for this type of rendering. The other type of 3D would be a program that is convertible to CNC machining including the machining of complex twists in handrailing. Rhino, Solidworks and Inventor would be used to draw this type of 3D model.

Typically, how many hours are invested in stair shop drawings?

The amount of time is entirely dependent on the style and complexity of the job. Our process is based on CNC machining of most of the parts. Therefore, every line on the drawing is an actual cut and has to be perfect. It is very common to spend 40-80 hours creating shop drawings for medium sized custom stair job.