

## IMPROVE YOUR DETAILING ACCURACY

With radical advances being made in the development of modern day, whole house, CAD based detailing software, builders are desiring more work to be done off site, and are asking for timber structures to land on site largely prefabricated. Within these increasingly complex buildings, fabricators are providing solutions with higher levels of accuracy, meaning less margin for error than ever before.

Taking into account the above desire for prefabrication, along with the aim of installers and builders to put up more buildings quicker, there has never been a time where detailers have been more relied upon to get things right. Shop or manufacturing drawings, unlike working drawings, are a set of highly specialised and accurate instructions that are followed exactly by factory staff.

So knowing the above, how can fabricators be confident that they are reaching a commercially acceptable level of accuracy, and are errors inevitable?

### Checking Detailing

Accurate manufacturing drawings result in a structure that is;

- Geometrically accurate
- Buildable
- Design compliant

There are several different procedures that are able to achieve this. Certainly the most common of which is to instigate a strict and repeatable checking procedure, ensuring that the entire responsibility does not fall on the detailer.

Dedicated checking staff may be employed, or alternatively detailers are given the role of checking designs created by their colleagues. It is not essential that a checker has experience as a detailer, but they should definitely possess the following, similar skillset;

- Experience in procedures
- Strong spatial awareness
- Attention to detail



### Developing a Checking Procedure

Before a checking procedure is implemented, the scope of the most critical details must first be identified before a system can be developed to address these criteria. The two areas that the key job criteria fall into are: building geometry and design specification.

Although neither is more important than the other, building geometry, which includes things like roof pitch, truss span and lintel height, typically have a larger bearing on the accuracy of the fabricated structural elements. This is because the dimensional parameters have a role to play in two of the three key factors that determine manufacturing accuracy (as listed above), i.e. geometrical accuracy and buildability.

Design specification details, which include key criteria like; roof material loads, occupancy category and wind speed, also require addressing in a checking system. These details have a direct impact on the third of the three key factors that determine detailing accuracy, being design compliance.

## Checking Systems

The goal of a checking system is to provide commercially acceptable levels of accuracy. The fabrication environment is one that relies on clear and precise communication, so this must also be reflected in any implemented processes.

Whether the checking process exists as a hard copy, paper solution, or within a software package like MiTek SAPPHIRE, the fundamentals remain the same. The system captures a list of criteria that must be accurately addressed in the detailing stage of the project, then checked prior to the job being output.

In a practical sense, the checker either prints the manufacturing (shop) drawings, layouts and 3D projections, or views them on screen, and addresses each of the criteria using a colour coded method of marking up. A simple method to adopt would be as follows:

- Green mark up: The criteria has been successfully addressed
- Red mark up: The criteria has been unsuccessfully addressed
- Yellow mark up: A previously determined unsuccessful criteria has been rectified

## Software Checking Systems

Given the flexible nature of software available now days, it is likely more efficient to build a checking system inside the same software that is being used to detail structures. MiTek SAPPHIRE comes with tools like; "Plan Checker" and "Search & View", that can be fully customised. Inside these tools user defined checklists can be built, resulting in an efficient way of reviewing critical job details quickly.

## Smooth Operating

It is worth investing the time to build systems that are able to retrospectively confirm that vital job details have been adhered to. At the end of the day, even the most diligent designer has the potential of overlooking crucial job information.

Just think how much more smoothly your fabrication environment would run, if the error rate was reduced by half, or potentially further.

Building systems that allow you to deal with the increasingly complex nature of the prefabrication portion of the construction industry is critical, given the opportunities on the horizon.



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