GANG-NAIL GUIDELINES No.122

ANOTHER MITEK ADVANTAGE

THE LEG BONE'S CONNECTED TO THE . . .

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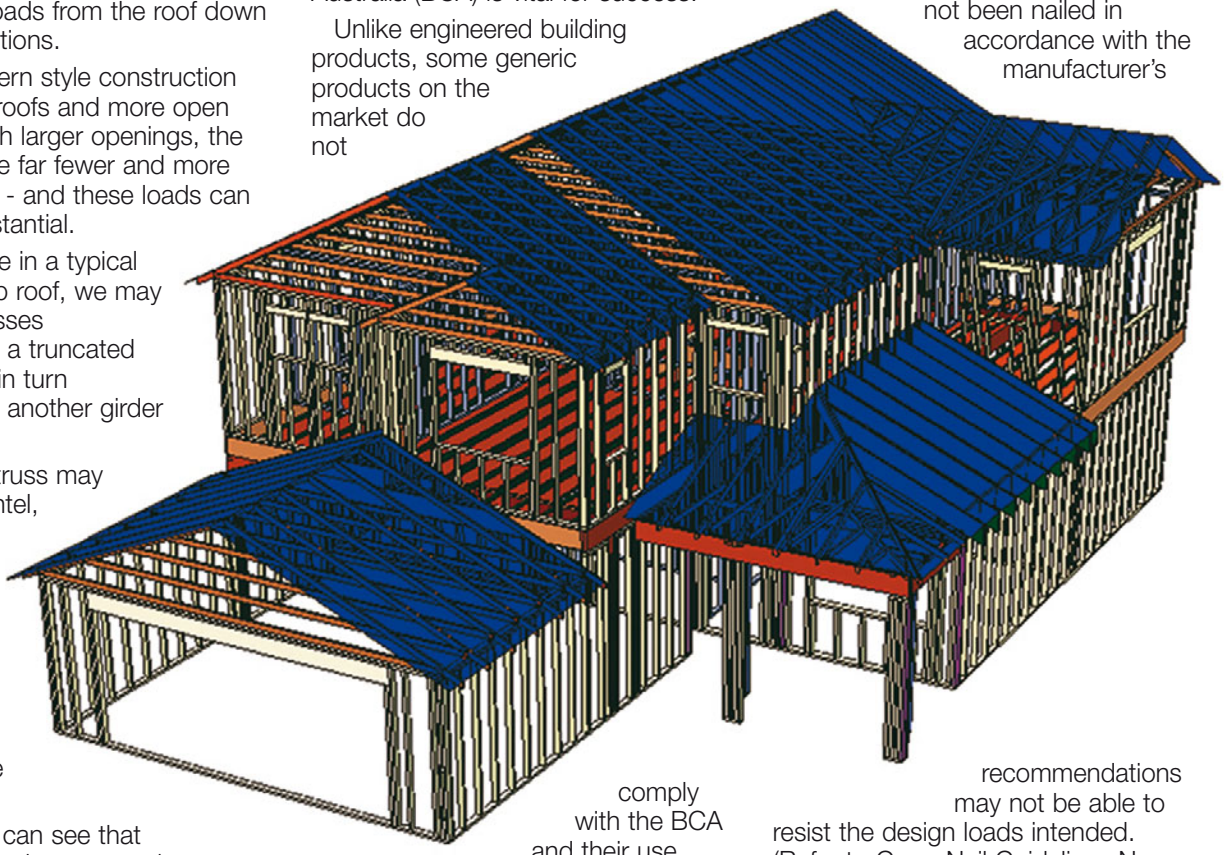
We all know that buildings are built from the ground up. But as designers, we must think from the top down and as an engineer, I am always conscious of the applied load paths.

In older conventionally framed buildings, there are a multitude of load paths with a number of internal and external load bearing walls to transfer the loads from the roof down to the foundations.

But in modern style construction with trussed roofs and more open plan living with larger openings, the load paths are far fewer and more concentrated - and these loads can be quite substantial.

For example in a typical two storey hip roof, we may have jack trusses supported by a truncated girder that is in turn supported by another girder truss.

The girder truss may land over a lintel, which is supported by jamb studs bearing on a floor beam that is borne by a column resting on the foundations.



Hence one can see that there are many instances where critical connections are required to transfer applied loads from one member to another - and every combination of dead load, live load and wind load needs to be considered.

Choosing the appropriate connection is essential to ensure loads are adequately transferred and that the intended load paths are linked.

Australian Standards "*AS1684.2-2006 Residential Timber Framed Construction*" and "*AS4440-2004 Installation of nailplated timber roof trusses*" can be used to select an appropriate connection.

Alternatively one can refer to the product brochures of a reputable manufacturer.

Choosing products which meet the requirements of the Building Code of Australia (BCA) is vital for success.

Unlike engineered building products, some generic products on the market do not comply with the BCA and their use could severely compromise the safety and stability of the structure.

Why insist on engineered building products? In all cases, they:

- have been designed for specific applications, whereas the suitability of generic products may be unclear;
- have higher load capacities determined from load tests and have supporting data sheets, whereas generic products rarely have any supporting technical data;
- have clear and specific installation instructions to achieve maximum load capacities; and
- are designed and manufactured to Quality Control ISO9001 to guarantee the product quality.

Whilst selection of the right connector is critical, the application or installation is of equal importance.

Following the manufacturer's recommendations ensures achieving the correct load carrying capacity.

For example, a Trip-L-Grip that has not been nailed in accordance with the manufacturer's recommendations may not be able to resist the design loads intended. (Refer to Gang-Nail Guidelines No 115 for further information.)

The chain of responsibility for products and connections include the manufacturer, the designer, the supplier, the installer and the inspector or certifier. In the unlikely event of a problem occurring, the ensuing litigation will call upon all responsible parties.

To reduce the risk of problems, make sure that the appropriate products are designed, specified and supplied; and that the installer is clear on the recommended fixing instructions.

Using engineered building products is a safe step along the way. TTN