



## THE SAFE INSTALLATION OF ROOF TRUSSES

Never stand on or work from an external wall top plate without suitable fall protection.

### Elimination

Prefabrication on the ground allows completed sections or whole roofs to be craned into place, (see Figure 1). This greatly reduces the need for working at height. Where possible, pre-assembly of the roof and mechanical lifting should be carried out. A safe working platform will be required around the perimeter of the building to fix the trusses into position on the wall plate.



Figure 1: Craning a pre-assembled roof into position greatly reduces the need for work at height (Image courtesy of BJ Carter.)

### Isolation

If prefabrication is not possible and trusses are assembled in situ, a safe working platform (such as a scaffold) should be provided around the perimeter of the roof, (see Figure 3).

Measures to prevent or mitigate the distance of a fall must also be provided internally. This can be achieved by providing a working platform immediately beneath the underside of the trusses.

Either conventional scaffolding, or (if appropriate) proprietary decking systems can be used for this (see Figure 2). The use of safety mesh or other safety rated products that can span across the top of the framing can also be used (see Figure 3 and Figure 4).



Figure 2: Decking system that provides a working platform in the roof eaves (Image courtesy of Oxford Safety Components Ltd).



Figure 3: Safety Mesh (Image courtesy of Site Safe New Zealand Incorporated).



Figure 4: An example of a safety rated product that can span across the top of the framing (image Courtesy of Humpty's Fallbreaker Ltd).



## Minimisation

Safety nets can be used if a safe working platform cannot be provided, (see Figure 5). However, there must be a safe clearance distance below the net and a suitable fixing points. Alternatives to nets are soft landing systems such as bean or air bags (see Figure 6 and Figure 7). In some circumstances a safe clearance distance can be achieved by locating bracing of the framing on the outside of the structure.

Providing nets or soft landing systems is also particularly important when installing temporary or permanent bracing, or before boarding out along the bottom chord of trusses when access is required within the trusses. Any equipment used to gain access to higher levels of the truss should be properly designed and stable.



Figure 5: Safety nets installed on a house under construction.



Figure 6: Air bags being used as a fall mitigation measure during roof work (Image courtesy of Airtex Safety Products Ltd).



Figure 7: Bean bags being used as a fall mitigation measure during roof work (Image courtesy of Fall-Pac NZ Limited).

Working platforms can be supported by the truss members if they are stable and capable of sustaining the load. Guard rails should be provided unless truss members provide a similar standard of protection. Work below should be prohibited unless workers are protected from falling materials (see Figure 2 and Figure 3).

Systems such as nets or air and bean bags should only be relied on where a safe working platform to the standard described above is not practicable. Where it is used:

- attachment points must be fit for purpose, check that the supporting structure is capable of resisting the expected anchorage loads
- seek advice from the manufacturer/installer
- the risk of injury during the fall needs to be carefully assessed, e.g. from striking parts of the rafters or block work
- working platforms should be provided where possible in addition to the measures taken to arrest a fall.

## Erecting trusses

Where practicable, roof trusses should be placed by crane on the wall top plates at the time of delivery. The truss erector, supplier and transporter should liaise to confirm the order in which the trusses are to be loaded onto the truck.

The trusses should be able to be unloaded at the site to minimise the amount of handling by the truss erectors.



## PREVENTING FALLS FROM HEIGHT



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When working at height, the erectors should be able to access the next required truss from the top of the truss stack.

When handling the truss, enough team members will be needed on each level that the truss is raised to. Sufficient room is needed on each level for the members of the team and the truss. All members of the handling team should be protected from the risk of a fall.

For further information refer to the following guidance.

### MBIE guidance

- *Preventing Falls from Height Factsheet 2: Selecting the right equipment for working safely at height*].
- *Preventing Falls from Height Factsheet 3: Short duration work at height*.
- *Best Practice Guidelines for Working at Height*.
- *Best Practice Guidelines for Working on Roofs*.

### Standards

- *NZS3604: Timber-framed buildings*.