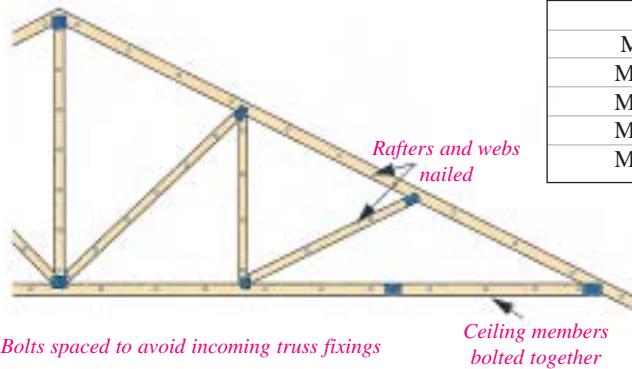


## Nailing and Bolting

### Scab Members

Rafter sizes in raised tie trusses often need to be increased, since the entire weight of the roof structure is supported on the extended rafters resulting in large bending forces. Even then, timber scabs or reinforcing members are often necessary and it is essential that they are correctly fitted whenever specified. Scabs may be required on one or both faces of the extended rafter and may also be required on multiple trusses. The truss manufacturer may fix the scabs in the factory prior to delivery or may provide the scabs loose, with a fixing detail to allow them to be secured on site. Scabs on multiple trusses will invariably require bolting - large plate washers should be used with all bolts.

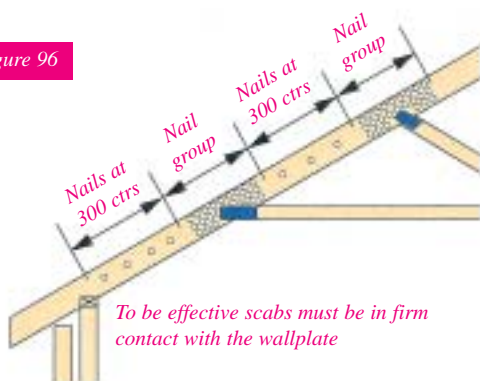
Figure 95



### Typical Scab Nailing Positions

Scabs may be fixed by the manufacturer or on site using a nailing or bolting details provided by the manufacturer.

Figure 96



### Girder Trusses

Girder trusses are designed to carry more load than that from the standard trussed rafter spacing. They consist of two or more trussed rafters fastened together. Typically, girder trusses carry other trussed rafters or infill timbers on shoes attached to the ceiling tie of the girder.

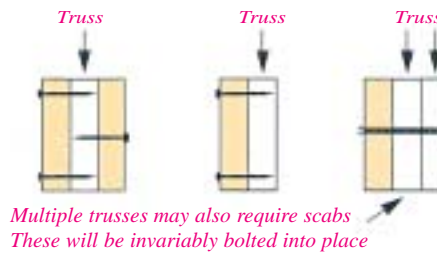
Girders are fastened together by nails or bolts. When fastened together on site, bolts must be used for at least the ceiling tie members, in positions marked by the truss manufacturer. In all cases, the nails or bolt must be positioned strictly in accordance with the manufacturer's instructions.

See TRA Information Sheet 9804 'Girder Trusses (Principal Trusses) Definitions and Connecting Together On Site'.

Washers must be used under the head and nut of each bolt.

Bolt Diameter	Washer Size	
	Diameter	Thickness
M8	24mm	2mm
M12	36mm	3mm
M16	48mm	4mm
M20	60mm	5mm
M24	72mm	6mm

Figure 97



Nails and bolts should either be inherently corrosion resistant or protected by a corrosion resistant coating.