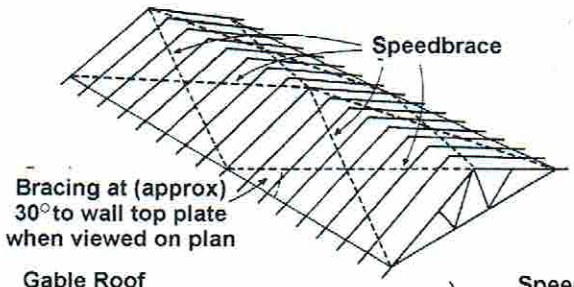
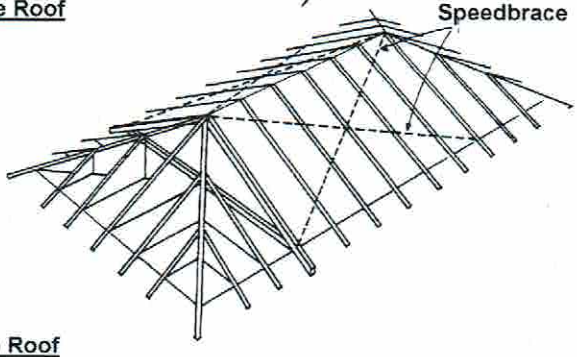
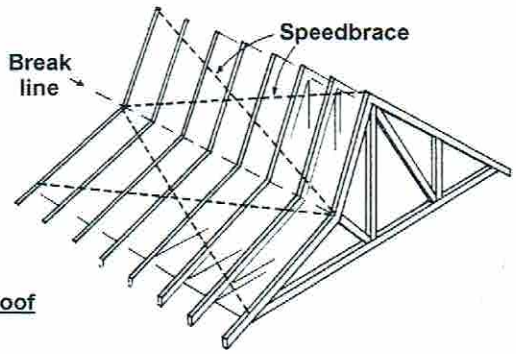
4.3.3 Typical Bracing Details



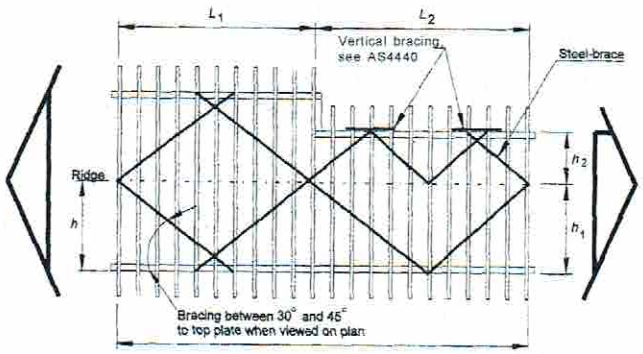
Gable Roof



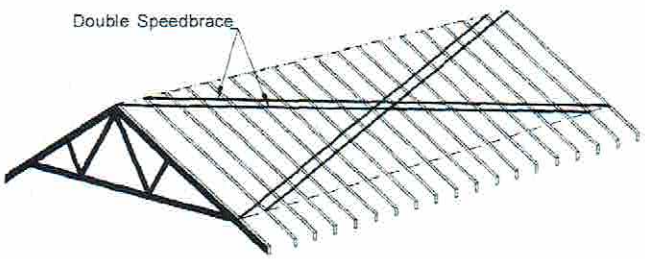
Hip Roof



Bell Cast Roof



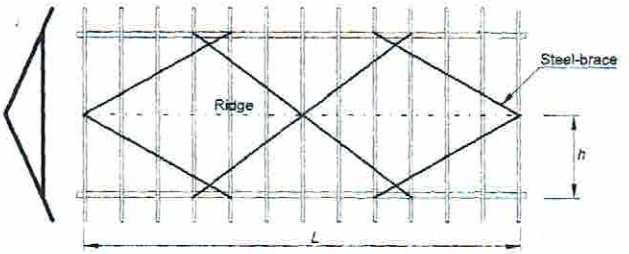
LENGTH (L) AND HALF SPAN (h)



DOUBLE STEEL-BRACE

4.3.4 Gable end roofs – spans up to 8m

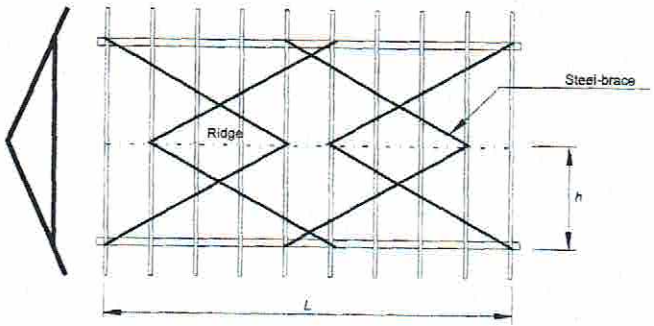
Refer to AS4440-2004 for details for specific roof shapes.



STEEL-BRACE LAYOUT FOR VERY LONG ROOF, SPANS UP TO 8 m

4.3.5 Gable end roofs – spans 8m to 13m

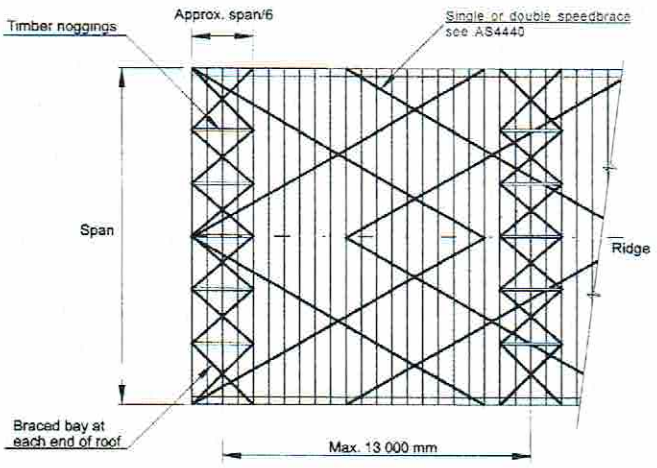
Refer to AS4440-2004 for details for specific roof shapes. In some instances double bracing is required.



STEEL-BRACE LAYOUT FOR LONG ROOF, SPANS 8 m TO 13 m

4.3.6 Gable end roofs – spans 13m to 16m

Refer to AS4440-2004 for details for specific roof shapes.



STEEL-BRACE LAYOUT FOR TRUSS SPANS 13 m TO 16 m

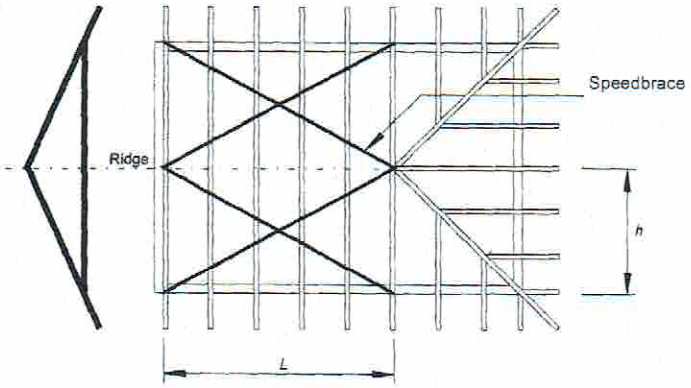
SPAN LIMITS for STEEL BRACE USE (for Span range 8m to 16m)

PITCH	SINGLE STEEL BRACE				DOUBLE STEEL BRACE			
(deg)	N1/N2	N3/C1	C2	C3	N1/N2	N3/C1	C2	C3
< 15	16.0	16.0	15.0	12.5	16.0	16.0	16.0	16.0
15 - 20	16.0	16.0	13.0	10.5	16.0	16.0	16.0	15.0
21 - 25	16.0	14.0	11.5	9.5	16.0	16.0	16.0	13.5
26 – 30	15.5	12.5	10.5	8.5	16.0	16.0	14.5	12.0
31 - 35	14.0	11.5	9.5	N/S	16.0	16.0	13.0	11.0
36 - 45	11.5	9.5	8.0	N/S	16.0	13.5	11.0	9.0

Note: 1. The above table is based on a typical standard truss shape, without stub heights.
2. It is assumed that a ceiling diaphragm exists at the bottom chord level.

4.3.7 Hip end roofs – General

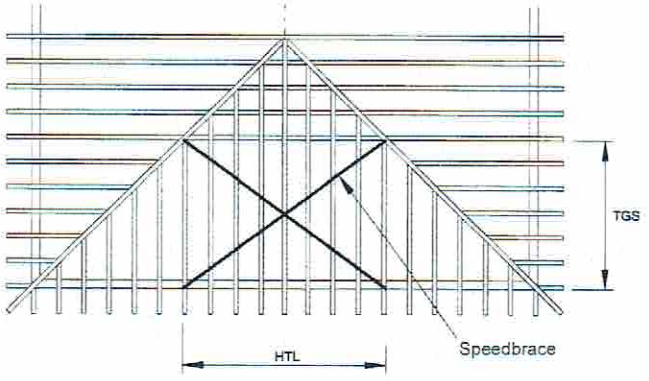
The portion of the roof between hip ends, ie along the length of the ridge, shall be braced as per gable roofs.



STEEL-BRACE LAYOUT FOR STANDARD TRUSSES OF HIP ROOF

4.3.8 Hip end roofs – jack truss

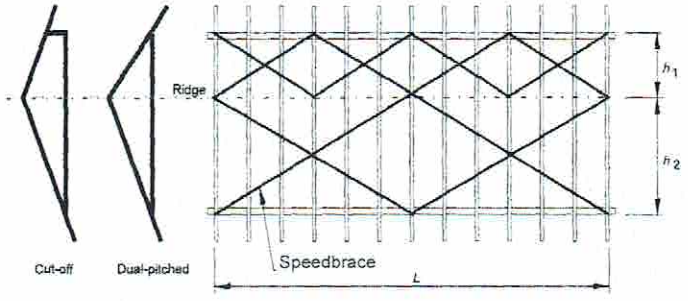
The jack trusses within the hip end itself, including Dutch gable ends, shall be braced as follows.



STEEL-BRACE LAYOUT FOR JACK TRUSSES (HTL = 1 TO 1.5 x TGS)

4.3.9 Asymmetric or dual pitch roofs

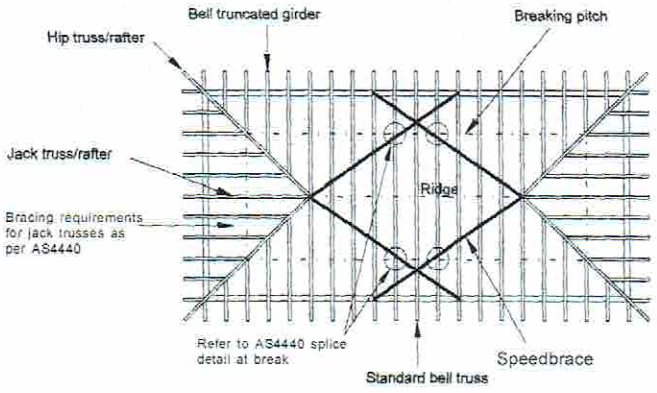
Consider each side of the ridge as a separate case, and use gable end details.



TYPICAL STEEL-BRACE LAYOUT FOR DUAL-PITCHED OR CUT-OFF ROOF

4.3.10 Bell cast roofs

The Speedbrace **must** be spliced at the breakline. (breaking pitch).



STEEL-BRACE LAYOUT FOR BELL ROOF

4.4 BOTTOM CHORDS

Generally ceiling battens or ceiling fixed directly to the underside of the bottom chords are sufficient for bottom chord bracing. The ceiling itself acts as a diaphragm to transfer wind and bracing loads to cross walls.

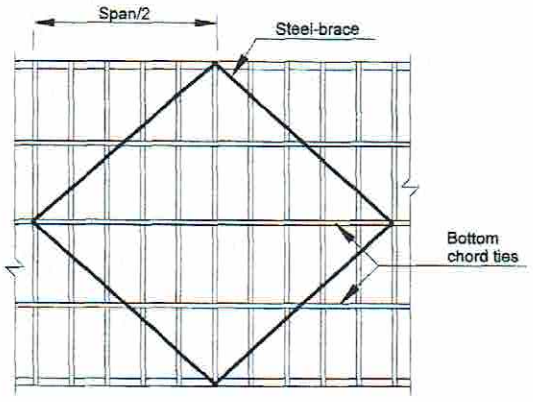
All bottom chord ties must be braced or fixed to the supporting structure.

a) For trusses over 12m span, or trusses where there is no ceiling, additional bottom chord bracing will be required.

b) Additional bottom chord bracing is also required where there are insufficient internal walls to brace the external load-bearing walls , or where large cantilevers are used.

c) Additional bottom chord ties and bracing are required when ceiling is connected through metal furring channels that are only clipped onto the bottom chord. The truss layout should indicate details of this.

In each of these cases, the requirement must be checked by an experienced truss designer, and the details supplied by the fabricator.

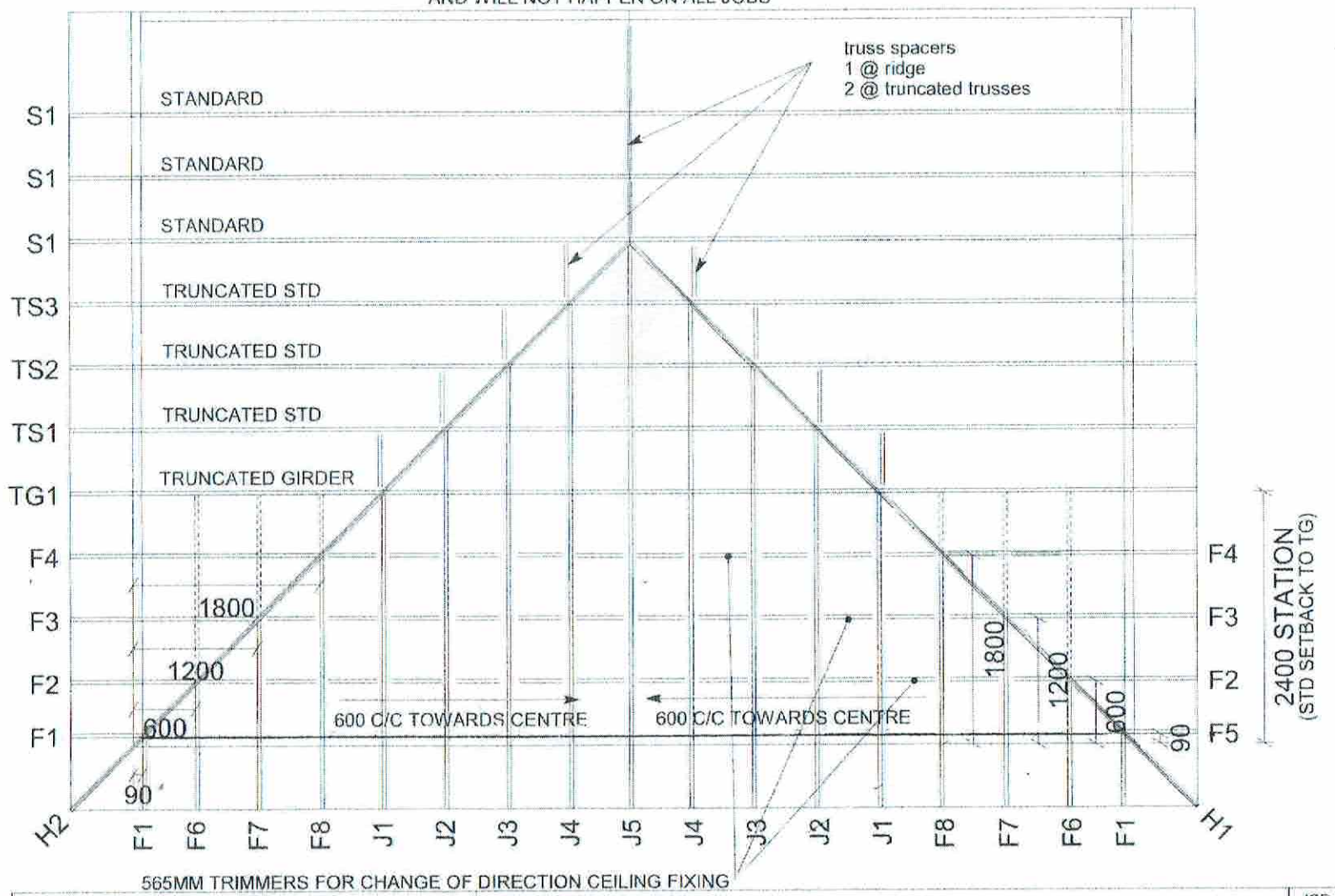


TYPICAL BOTTOM CHORD TIES BRACING LAYOUT

HIP END DETAIL [TYPICAL] [showing change of direction trimmers]

+ truss spacers [70x35 565mm llong]

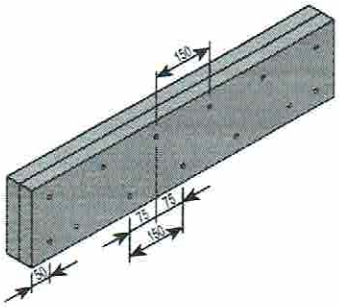
NOTE TRUSS AT APEX IS NOT STANDARD
AND WILL NOT HAPPEN ON ALL JOBS



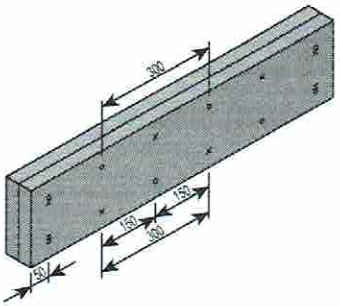
565MM TRIMMERS FOR CHANGE OF DIRECTION CEILING FIXING

Roof Design Wind Velocity:	40.00 m/s (Ult.)	MCM FRAME & TRUSS PTY LTD	JOB REF.
Detailer:	<None>	Unknown	hipnz
Roof Material:	Sheet steel (0.75mm)	Unknown	
Roof Pitch:	24.00 Deg.		

F17.1 Nail Lamination Detail

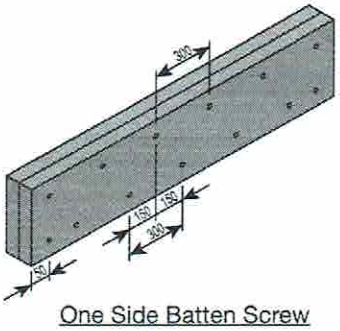


One Side Nailing

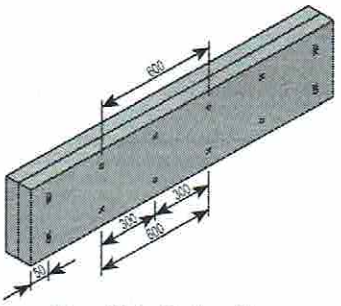


Two Side Nailing
- Nailed from this face
- Nailed from opposite face

Double Member Nail Laminated
Note 1: 2 x 35 - use 65 x 3.15 helical or annular nails, or
65 x 3.05 gun fired adhesive bound nails.
2 x 45 - use 85 to 90mm nails, as per above.
Note 2: Spacing - at max 150mm staggered centres, or
300mm centres staggered each side.



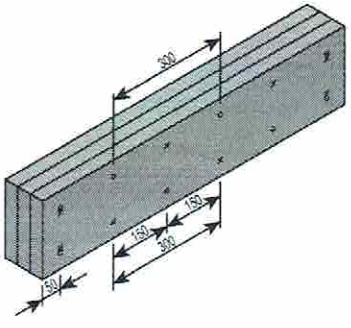
One Side Batten Screw



Two Side Batten Screw
- Screwed from this face
- Screwed from opposite face

Double Member Batten Screw Laminated
Note 1: 2 x 45 - use 35 x 4.88mm batten screws
2 x 65 - use 125 x 4.88mm batten screws
Note 2: Spacing - at max 300mm staggered centres,
or 600mm centres staggered each side.

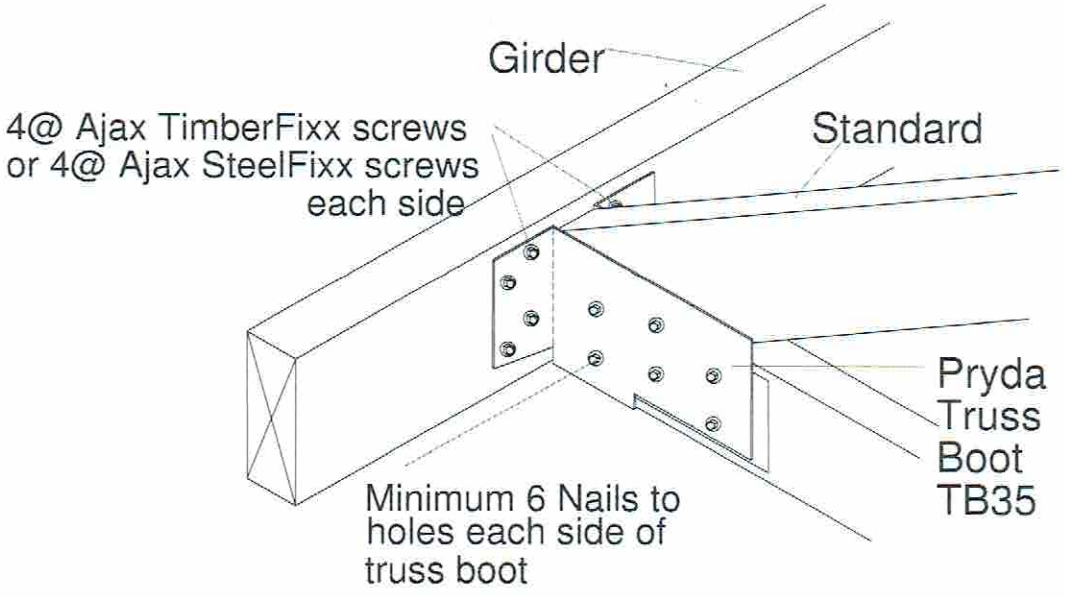
Triple Member Batten Screw Laminated
Note 1: 3 x 45 - use 75 x 4.88mm batten screws
3 x 65 - use 125 x 4.88mm batten screws
Note 2: Spacing - at max 300mm staggered
centres each side.



Two Side Batten Screw
- Screwed from this face
- Screwed from opposite face

TRUSS BOOT FIXING DETAILS

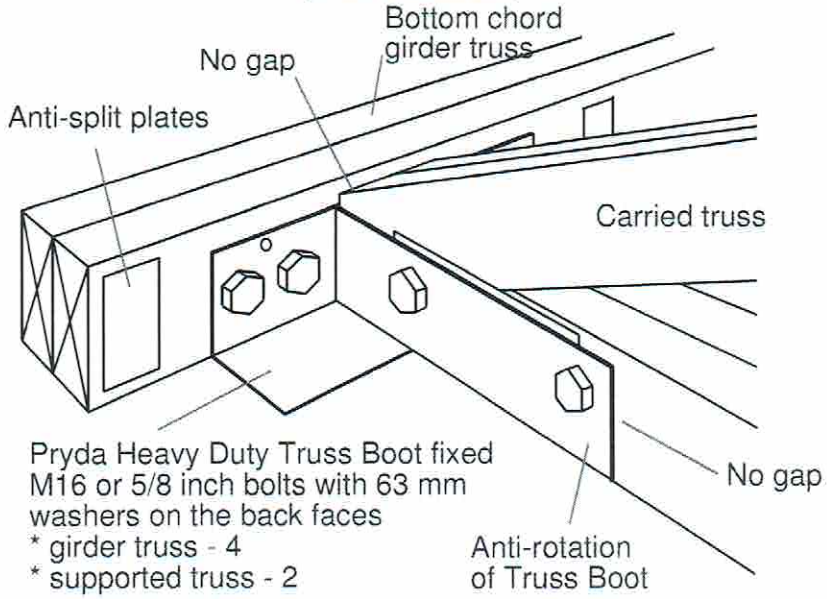
STANDARD TRUSS BOOT



FIX THE SUPPORTED TRUSS USING NAILS PROVIDED. MINIMUM 6 NAILS TO BE USED ON EACH SIDE OF THE TRUSS BOOT

HEAVY DUTY TRUSS BOOT

(IF APPLICABLE)



ENSURE THAT THERE IS NO GAP BETWEEN THE GIRDER TRUSS & END OF THE CARRIED TRUSS BEFORE BOLTING.

TIGHTEN ALL BOLTS FOR BOTH GIRDER & CARRIED TRUSS BEFORE ROOF IS LOADED. NO GAP BETWEEN THE CARRIED TRUSS & THE ANTI-ROTATION PLATE OF THE TRUSS BOOT

MCM

FRAME & TRUSS PTY LTD