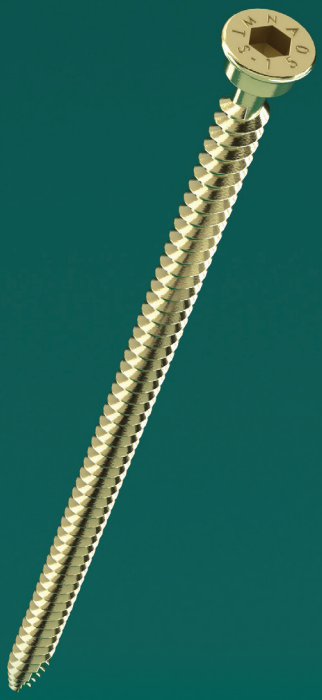
# Multinail
# Truss Tie Down Screw



**The Multinail Truss Tie Down Screw is designed to securely fix trusses or rafters to the top plate quickly and efficiently.**

## Benefits of the Truss Tie Down Screw

- Suitable for various types of trusses or rafter to top plate connections
- Fast and secure connection
- Self-drilling screw with no pre-drilling required
- Pan head screw with fully threaded shank providing better uplift capacity
- Fully engineered and tested to ensure the performance is fit for purpose
- A screw code and length stamped into the head for product identification and inspection
- Electro zinc plated with gold passivation for better corrosion resistance

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# Limit State Design Capacity

Table 1 to 4 gives the limit state design wind uplift capacity per Multinail Truss Tie Down Screw. The design capacities are obtained and derived from laboratory testing following AS1649 and AS1720.1.

**Note:**

1. Adopt lower joint group values (i.e., JD5 < JD4 < JD3) when top plate(s) and truss chord are in different materials and joint groups.
2. Refer to technical data sheets published by Engineered Wood Products (EWP), e.g., LVL, GL, regarding the Joint Group of EWP.
3. Limit state design capacities are obtained from laboratory testing and derived from AS1720.1 for houses where failure is unlikely to affect an area greater than 25m$^2$. For primary elements in structures other than houses or elements in a house for which failure would be greater than 25m$^2$ these capacities must be multiplied by 0.94. For primary joints in essential services or post-disaster buildings multiply by 0.88.

# Roof truss between studs

1. Position the point of the Truss Tie Down Screw to the centre line of the top plate, align the screw perpendicular to the wall top plate and to the centre line of the truss.
2. Drive the screw all the way in until the screw head is flush with the top plate. Do not overdrive the screw.

**Table 1:** Limit State Design Capacity (kN) per Truss Tie Down Screw – Wind Uplift for category 1

| Joint Group | Top Plate Thickness (mm) | | | | |
|---|---|---|---|---|---|
| | 35 | 45 | 70 (2/35) | 80 (35+45) | 90 (2/45) |
| JD4 | 3.5 | 4.1 | 5.1 | 4.4 | 3.8 |
| JD5 | 2.9 | 3.4 | 4.2 | 3.7 | 3.2 |
| JD6 | 1.8 | 2.1 | 2.6 | 2.3 | 2.0 |

*Refer to the Limit State Design Capacity section*

**Figure 1:** Roof truss between studs

# Roof truss above studs

**(with max. 10mm offset)**

1. Align the metal guide (included in the bag) under the roof truss. The screw tip should always be 70mm below the bottom surface of the truss, and the screw axis should be approximately 30 degrees to the stud. Follow the guide and drive the screw halfway into the timber.
2. Remove the guide and keep driving the screw all the way in until the screw head flush with the top plate. Do not overdrive the screw.

**Table 2:** Limit State Design Capacity (kN) per Truss Tie Down Screw – Wind Uplift for category 1

| Joint Group | Top Plate Thickness (mm) | | | | |
|---|---|---|---|---|---|
| | 35 | 45 | 70 (2/35) | 80 (35+45) | 90 (2/45) |
| JD4 | 3.5 | 4.1 | 5.1 | 5.1 | 5.1 |
| JD5 | 2.9 | 3.4 | 4.2 | 4.2 | 4.2 |
| JD6 | 1.8 | 2.1 | 2.6 | 2.6 | 2.6 |

*Refer to the Limit State Design Capacity section*

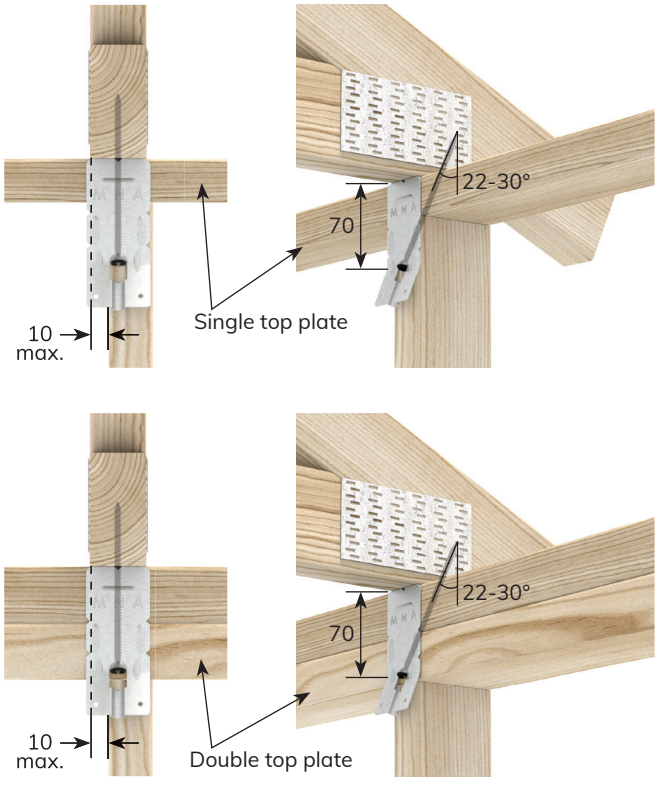


**Figure 2:** Roof truss above studs


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# Truss to supporting beam

**Using the provided metal screw installation guide**

1. Align the metal installation guide under the roof truss.
2. Drive the Truss Screw until the head of the screw is flush with the supporting beam surface. Do not overdrive the screw.

**Table 3:** Limit State Design Capacity (kN) per Truss Tie Down Screw – Wind Uplift for category 1

| Joint Group | Uplifting Capacity (kN) |
|---|---|
| JD4 | 3.5 |
| JD5 | 2.9 |
| JD6 | 1.8 |

*Refer to the Limit State Design Capacity section*

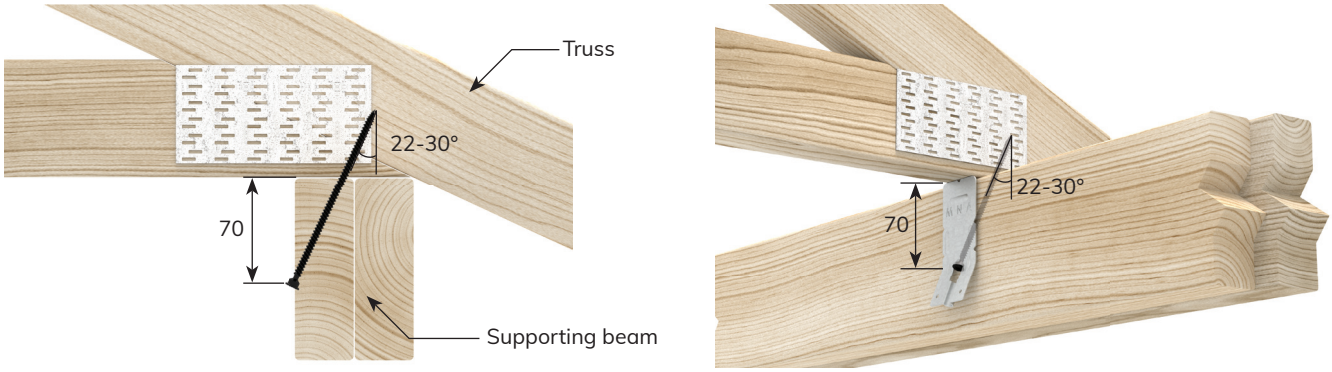


**Figure 3:** Truss to supporting beam.

# Gable End Roof Framing – Outrigger or Verge Sprocket Connection


**Figure 4:** Tie down outrigger to raking truss top chord

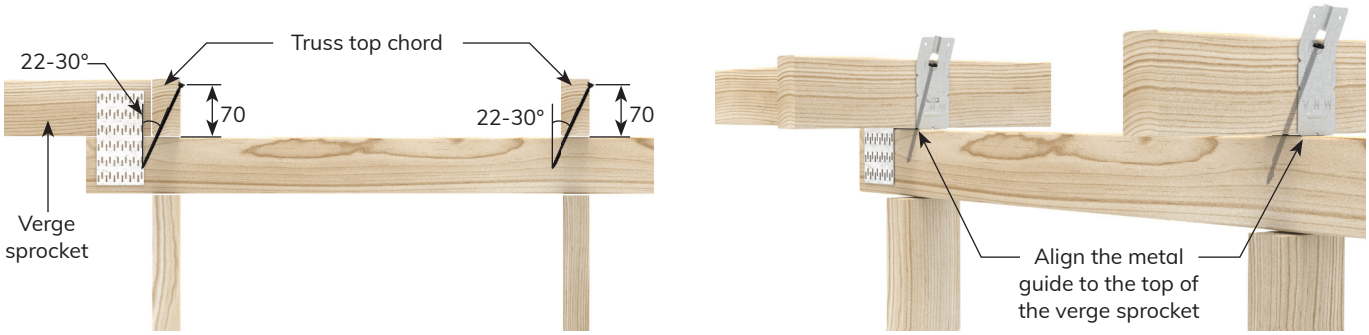


**Figure 5:** Fixing the verge sprocket to the truss top chord

**Table 4:** Limit State Design Capacity (kN) per Truss Tie Down Screw – Wind Uplift for category 1

| Joint Group | Uplifting Capacity (kN) |
|---|---|
| JD4 | 3.5 |
| JD5 | 2.9 |
| JD6 | 1.8 |

*Refer to the Limit State Design Capacity section*



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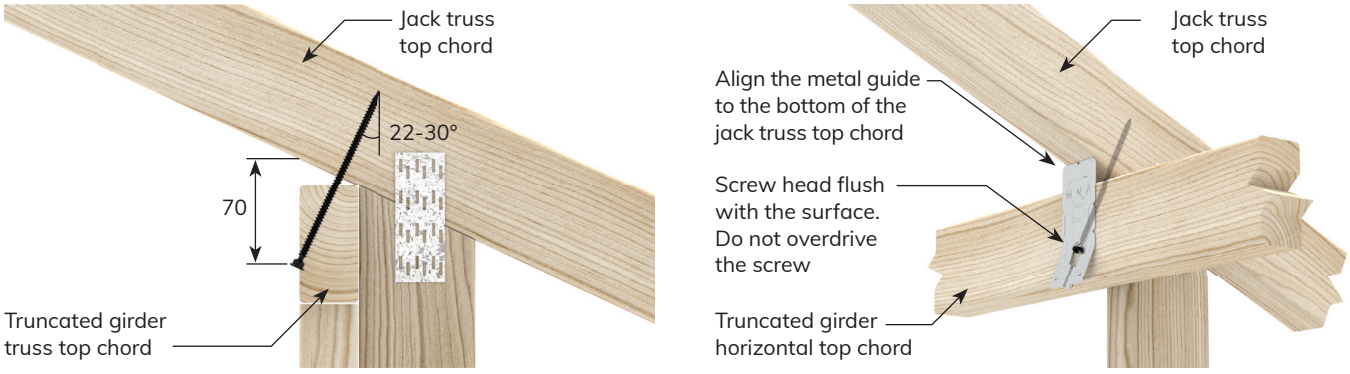
# Alternatives to AS4440 Truss Connections

**Multinail Truss Tie Down Screw provides alternative tie-down methods to AS4440 truss connections with equivalent tie down capacities.**

## 1. Hip-end connection for low wind area (N1 to N3, or C1)

**AS4440 - Connection detail B1** – Jack truss to horizontal top chord of Truncated Girder




## 2. Hip-end connection for low wind area (N1 to N3, or C1)

**AS4440 - Connection detail C1** – Extended Jack to horizontal top chord of Truncated Standard

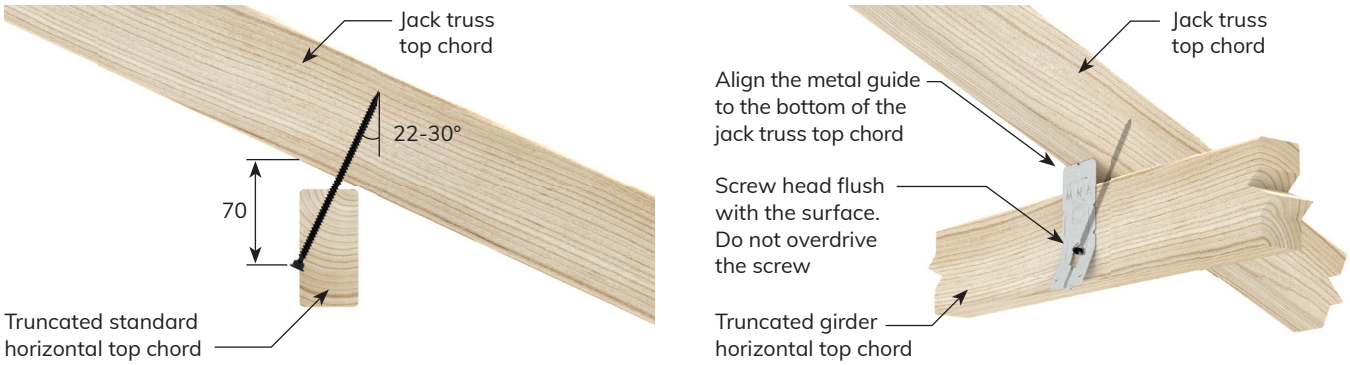



**Figure 7:** Extended jack truss to Truncated standard horizontal top chord

## 3. Hip-end connection for high wind area (N4, C1 or C2)

**AS4440 - Connection detail B2** – Jack truss to horizontal top chord of Truncated Girder

Apply to standard truncated girder station up to 2400mm ONLY

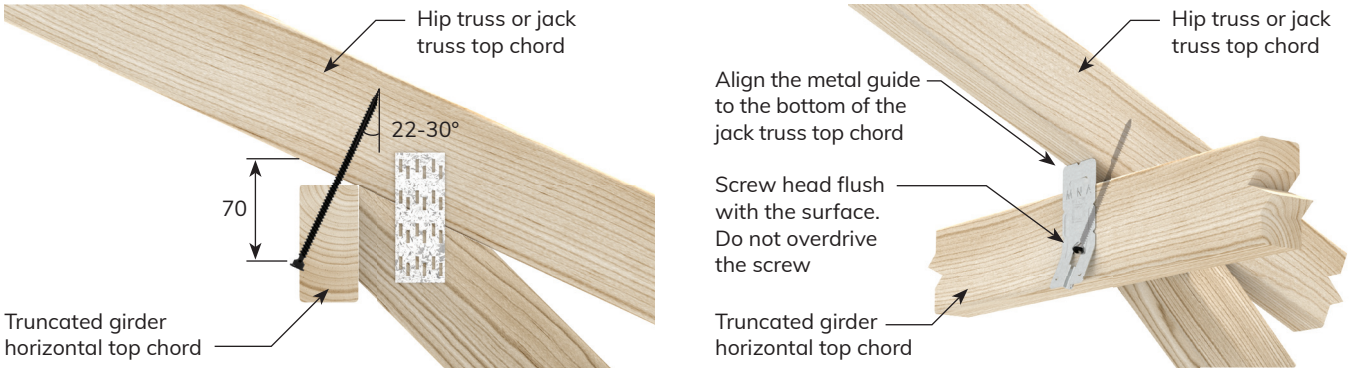



**Figure 8:** Jack truss to truncated girder top chord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## 4. Hip-end connection for high wind area (N4,C2 or C3)

**AS4440 - Connection detail D2** - Extended jack truss top chord to truncated standard truss

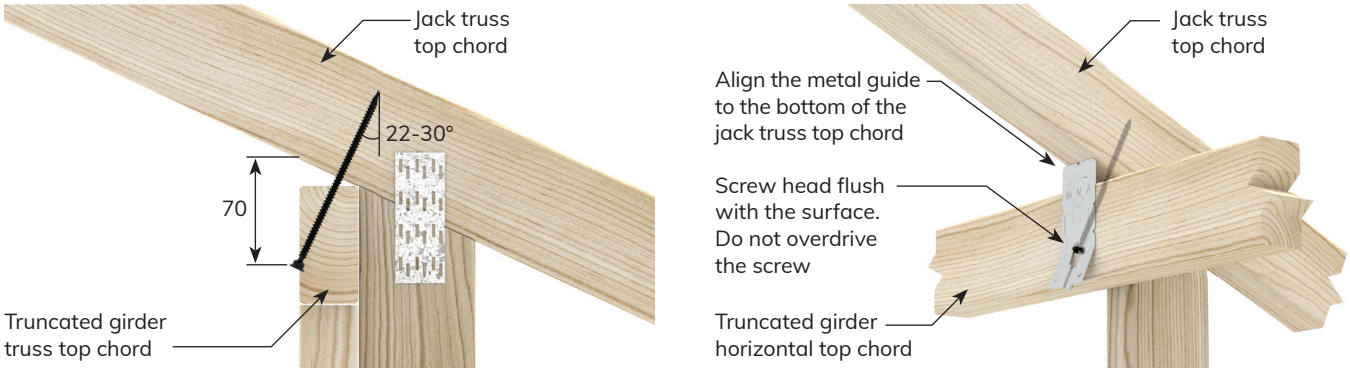



**Figure 9:** Jack truss to truncated girder top chord

# Correct installation

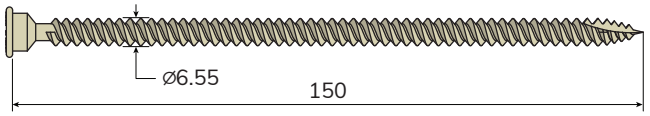
**Warnings:**

1. Installation of Truss Tie Down Screw shall be considered ineffective where the screw was installed in any ineffective zone, resulting in screw tip and/or threads protruding out of the surface of timber chords. Where ineffective installation was observed, install an additional Multinail Triple Grip/ Multi Grip or Cyclone Tie.
2. The Truss Tie Down Screw cannot be used in conjunction with stud screws due to the risk of clashing with the stud screw head.
3. Truss Tie Down Screw can no longer be used where there are already metal strap products at the design location of the Truss Tie Down Screw. Other roof-to-wall brackets need to be installed instead.


**Figure 10:** Correct vs incorrect installation

# Technical Specifications

| | |
|---|---|
| **Steel** | Electro zinc plated with gold passivation for better corrosion resistance. Ø6.55 screw diameter |




# Description and Packing

| Product Code | Description | Carton Qty | Pallet Qty | Carton kg |
|---|---|---|---|---|
| **TTDS150** | 150mm x Ø6.55mm | 500 | - | 11.8 |

Each box contains 5 bags of:
100 x screws, 1 x metal guide, 1 x hex bit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