

Storage & Erection of Trussed Rafters on Site

A Trussed Rafter Association Product Data Sheet
Sheet No.3



Harlow

TIMBER SYSTEMS

Harlow Timber Systems Ltd
Walker Rd
Forest Business Park
Bardon Hill
Coalville
Leicestershire
LE67 1TU

t 01530 516990

f 01530 516991

e hts@harlowts.co.uk

w www.harlowts.co.uk

Registered No 1801353 England

Vat No 395 6607 09





Trussed Rafter Association

Product Data Sheet

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Guidelines for the Storage and Erection of Trussed Rafters on Site (Part 1)

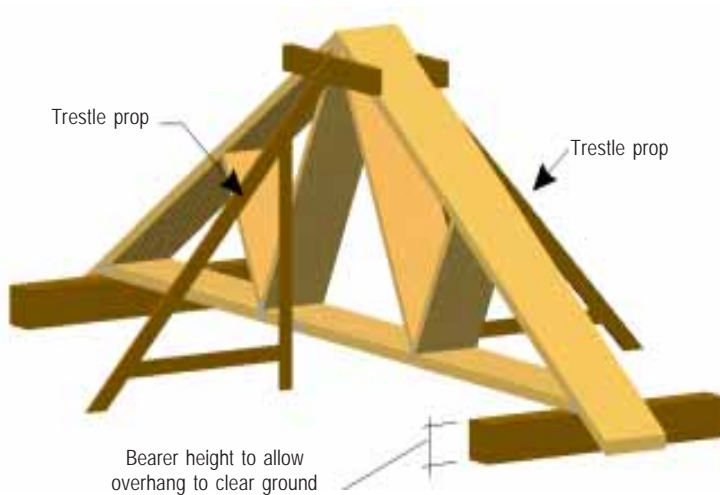


Fig. 1 Safe vertical storage

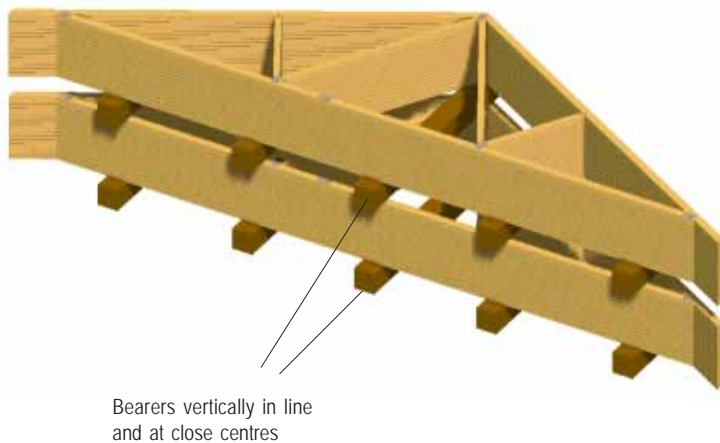


Fig. 2 Safe horizontal storage

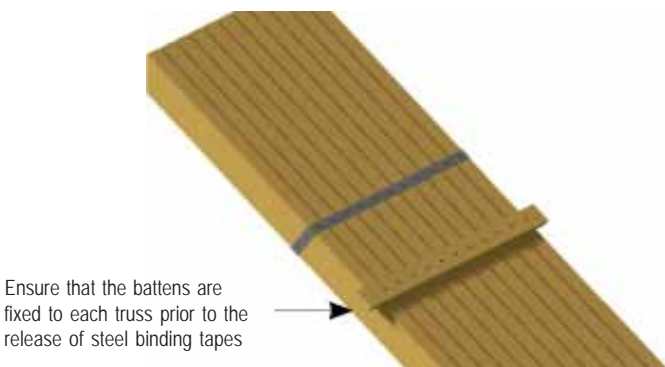


Fig. 3 Safe method of breaking a bundle of trusses

Unloading Trussed Rafters

When a delivery of trussed rafters arrives on site the contractor(s) involved should be prepared and have already allocated sufficient and suitable resources to ensure the trussed rafters are unloaded safely and in a manner such that they are not overstressed or damaged the trusses. This operation will have been subject to a Contractors General Risk Assessment and then detailed in a safe working method statement that has been approved by the principal contractor or the person responsible for Health and Safety on site. Normally, trussed rafters will be delivered in tight bundles using steel bindings. This will often require mechanical handling equipment, such as a forklift or crane, to enable the safe manoeuvring of these large units. The safe working method statement should accommodate any special handling instructions or hazards specified by the designer in his risk assessment for the truss design.

Site Storage of Trussed Rafters

Trussed rafters can be safely stored vertically or horizontally at ground level or on any other properly designed temporary storage platform above ground level. Whichever method and location is chosen the temporary support should be set out to ensure that the units do not make direct contact with the ground or any vegetation and be so arranged as to prevent any distortion.

The delivery of trussed rafters should, wherever possible, be organised to minimise site storage time; however, where longer periods of storage are anticipated then the trusses should be protected with covers fixed in such a way as to allow proper ventilation around the trusses.

When stored vertically bearers should be positioned at the locations where support has been assumed to be provided in the design with stacking carried out against a firm and safe support or by using suitable props (Fig. 1)

When trusses are stored horizontally level bearers should be positioned beneath each truss node (minimum) to prevent any deformation and distortion (Fig. 2). No other method of storing trussed rafters is considered to be suitable, except

where specific provision has been made in the design for an alternative temporary support load case.

Extreme care should be exercised when removing the pre-tensioned steel bindings from a bundle of trusses. As a precaution against destabilisation of the whole bundle of trusses, it is recommended that prior to the removal of the steel bands, timber battens are fixed across the bundle at several locations with a part driven nail into every truss. Such a simple precaution will allow the safe removal of single trusses once the steel bands are removed. A suggested arrangement of batten locations for a standard Fink truss is shown in Fig. 3.

Alternative details relating to this procedure and which involve the unbundling of the trusses whilst on the back of the lorry should be communicated by the contractor to the truss manufacturer prior to their delivery to site.

Erection Procedure for Simple Domestic Roofs

The following gives guidance on a typical erection sequence for a simple domestic type roof:

Step 1. Ensure wall plates are level and adequately secured to load bearing walls. Mark off positions of trusses along both plates.

Step 2. Either mechanically or manually lift the first truss up to the roof holding it in a vertical plane, as far as possible, at all times. Erect the first truss (Fig. 4) in such a way that it coincides with the position of the end of the rafter diagonal bracing when fitted. Temporarily brace first truss to both wall plates.

Step 3. Erect second truss ensuring that its production face matches the first truss as indicated by the labels affixed to the face. Then brace back to first truss with temporary horizontal battens along the rafters and, if necessary, ceiling tie members (Fig. 5).

Step 4. After checking for vertical, erect remaining trusses towards gable end ensuring correct orientation of common manufacturing faces as described above.

Step 5. Fix the permanent diagonal braces (Fig. 6) which should be at approximately 45° to final position of tile battens and fixed as high up the first truss as possible and nailed to the wall plate the other end. All permanent braces should be min 22 x 97mm timber and fixed with 2 no. 3.35mm dia. x 75mm long galvanized nails to each truss. Braces may be lap jointed providing the lap spans at least two trusses.

Step 6. Fix remaining longitudinal bracing to rafters, struts and ceiling ties as shown in Fig. 6. Note that all bracing is repeated for both sides of roof.

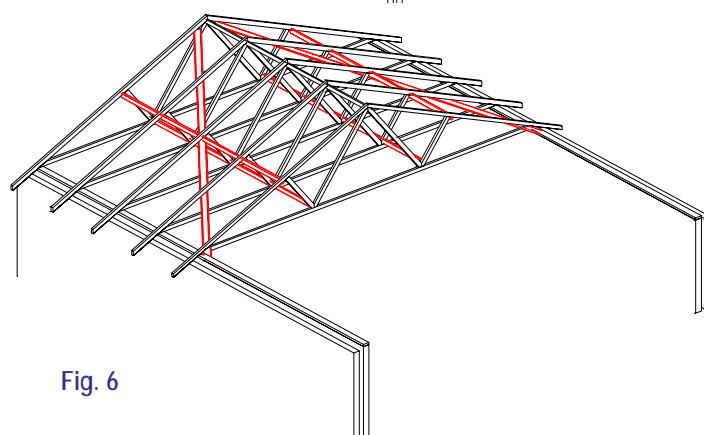
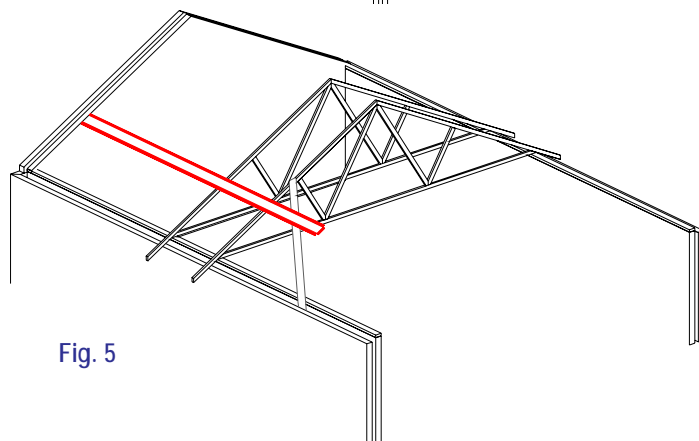
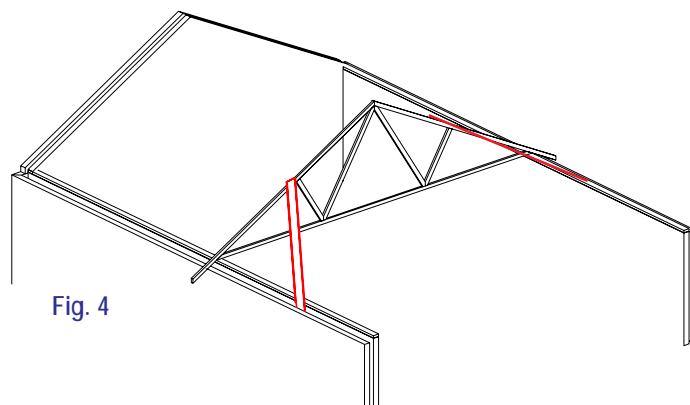
Step 7. All remaining longitudinal diagonal and chevron bracing specified for the roof should now be fixed together with galvanized metal retaining straps to walls and gable ends.

Step 8. Temporary bracing should now be removed and any additional trusses erected using the completed section of the roof as a means of temporarily bracing them.

Step 9. After erection and before felting and battening the roof check that all trusses are aligned vertically and each truss is restrained from bowing out of its vertical plane.

Important:

Trusses must never be cut or adjusted in any way without prior consultation with the roof truss designers. If site circumstances make modification unavoidable then changes should only ever be made with the prior knowledge and consent of the trussed rafter designer.



Tank Supports

If water tanks are to be supported on the trussed rafters the provision for such load must be taken into account at the design stage.

Furthermore it is essential that the load imposed by storage tanks is adequately distributed. Platform bearers should be located as close as possible to node points (see Fig. 9) and spanning a minimum of 3 trusses for tanks up to 230 litres maximum capacity or 4 trusses for tanks up to 300 litres maximum capacity.

Specific details concerning the sizing of support members can be provided by your trussed rafter supplier or by reference to Section 5 of the "Technical Handbook - Site Installation Guide" published by the Trussed Rafter Association.

Support joists should be located as shown in Fig. 8 for small tanks up to 230 litre capacity or Fig. 7 for large tanks up to 300 litre capacity.

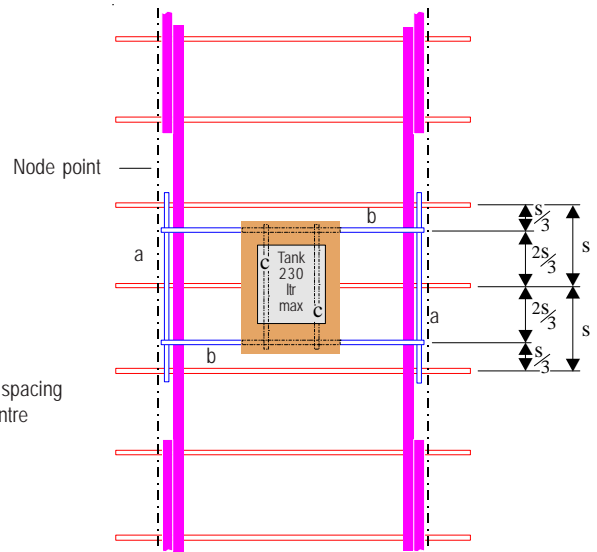
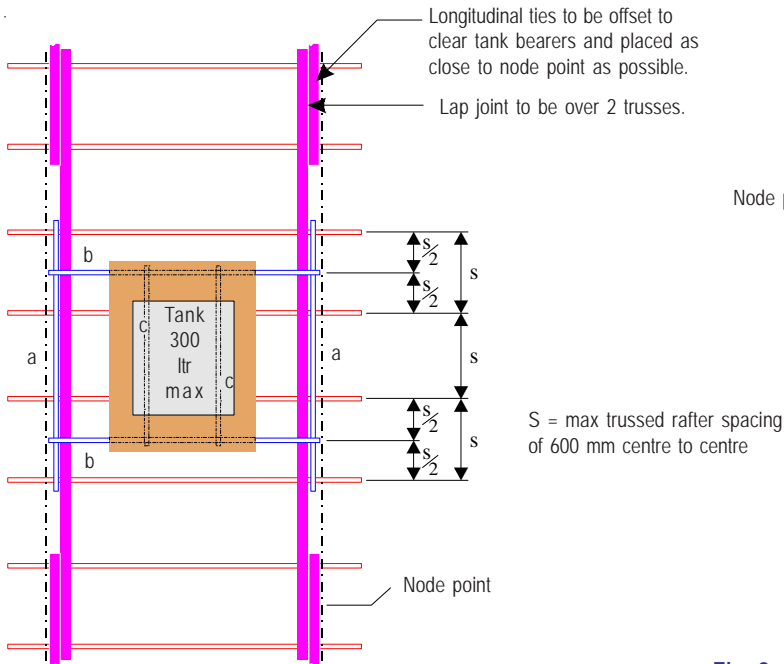


Fig. 8 Not greater than 230 litre tank on 3 trussed rafters

Fig. 7 Not greater than 300 litre tank on 4 trussed rafters

Trussed rafter spacings shown are based upon a maximum centre to centre spacing of 600 mm - Ties and bracing have been omitted for clarity

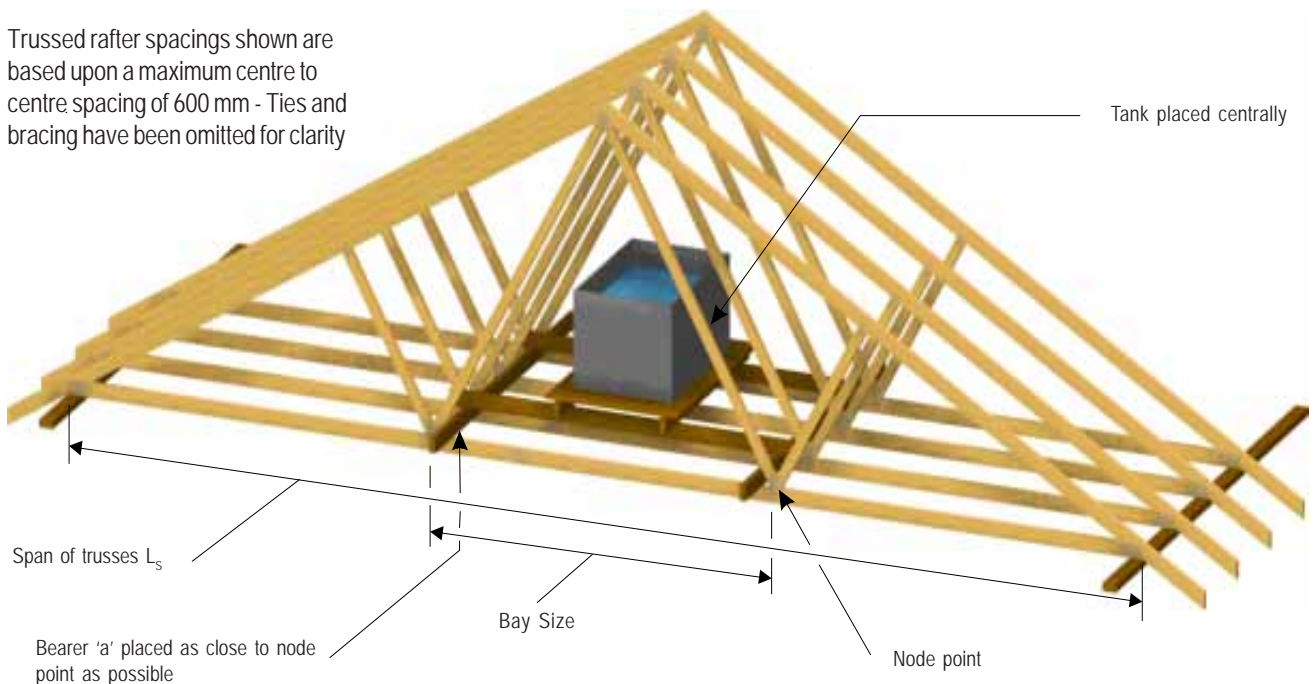


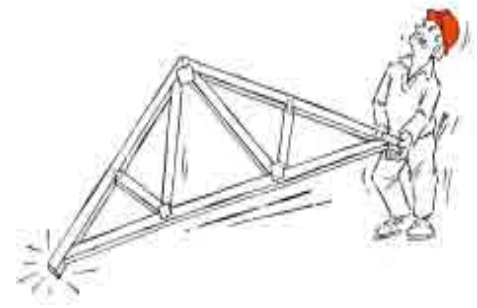
Fig. 9 Water tank support for standard 'Fink' trusses

Do's and Don'ts on Site

IF IN DOUBT - ASK



DO STORE CAREFULLY ON SITE



DO HANDLE WITH CARE



DO FIX CORRECTLY



TRUSSES DO NEED BRACING



DON'T CUT



DO SUPPORT THE TANK

This information sheet gives a brief introduction to the storage and erection of trussed rafters on site for a simple house roof. Other more detailed information will follow in this series of Product Data Sheets. It is not intended to be comprehensive and it is accepted that there may be many other solutions to the various aspects of construction discussed. Readers are advised to discuss their particular design situations with their specialist trussed rafter supplier.

The guidelines contained within this information sheet are given in good faith but without liability and its use shall be entirely at the risk of the user.

Further detailed reading on erection and bracing methods can be found in the 'Technical Handbook - Site Installation Guide' available from the Trussed Rafter Association, priced at £5 per copy (Remittance with order please).



Trussed Rafter Association

PO BOX 571
Chesterfield
S40 9DH

Telephone & Fax: 01246 230036

e-mail: info@tra.org.uk

website: <http://www.tra.org.uk>