

# Hazard & Procedure Information Pack - Unloading of Roof Trusses & Open Web Joists



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# Guidelines for the storage and handling of OPEN WEB JOISTS and the Do's & Don'ts

## Site Handling & Storage

Whilst the manufacturer is responsible for the safe loading and delivery of open web joists, the safe offloading, handling once onsite and erection are the responsibility of the contractor.

However to assist the contractor, the manufacturer will usually supply with the delivery, and on request, general guidance on their storage, handling and erection.

## Handling

- When unloading with a crane, fabric slings should be attached to the timber chords or lifting points not the metal webs. Metal chains / slings should not be used.
- Slings should be attached to the panel points closest to the quarter points
- If unloading with a forklift, care should be taken to ensure that the forks do not damage them.
- Joists may be lifted as either single units or packs but care should be taken to avoid bending, twisting or dropping.
- Open web joists should be lifted in a the vertical position.

## Storage

- Site storage is intended to be temporary immediately prior to erection so delivery should be arranged to minimise site storage time.
- Open web joists should be stored on firm level ground well clear of any vegetation.
- They should be protected with a plastic covering to protect them from short term exposure to inclement weather.
- Open web joists can be stored either vertically or on the flat. If stored vertically there should be adequate bearers under the node points. If stored horizontally they should be supported so as to prevent distortion.

## Do's & Don'ts

### Do's

- ✓ Store as shown in handling and storage section.
- ✓ Lift the joists in a vertical position.
- ✓ Use the open web feature for services.
- ✓ Protect joists from inclement weather.

### Don'ts

- ✗ Drill holes in the timber chords.
- ✗ Cut through the timber chords.
- ✗ Cut notches in the timber.
- ✗ Cut or remove the metal or timber webs.

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Fig. 1 Open Web Joists



Fig. 2 Bearers

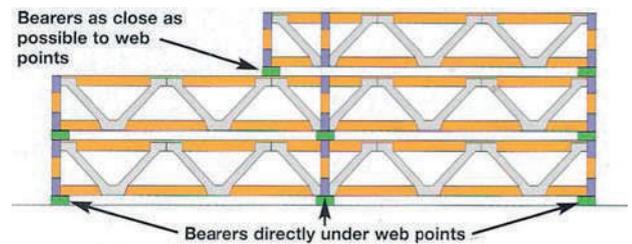
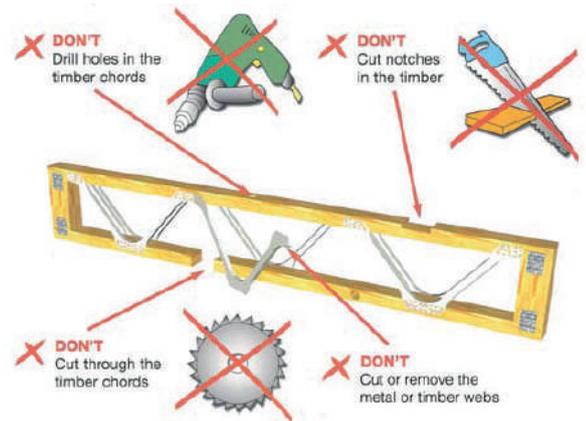


Fig. 3 Do's & Don'ts



## Guidelines for the storage and handling of TRUSSED RAFTERS on site and the Do's & Don'ts

### 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 so as not to overstress or damage the trusses. This operation will have been subject to a contractor's 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 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 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.

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 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 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 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 unbounding 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.

Fig. 1 Safe vertical storage

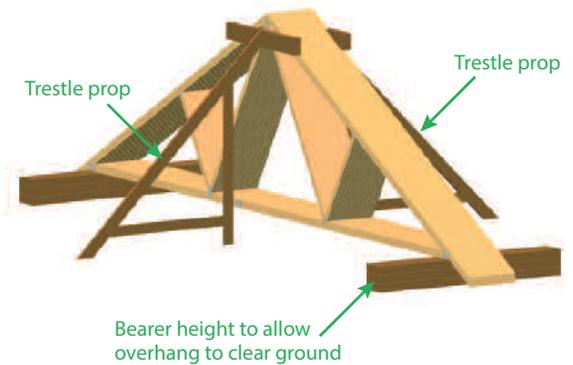


Fig. 2 Safe horizontal storage

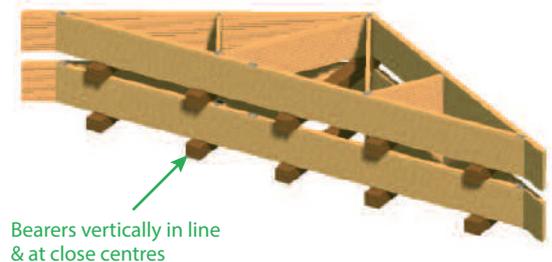
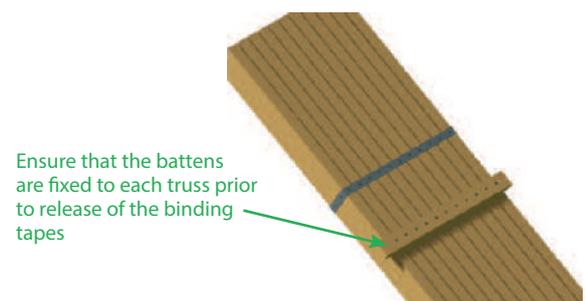


Fig. 3 Safe method of breaking a bundle of trusses

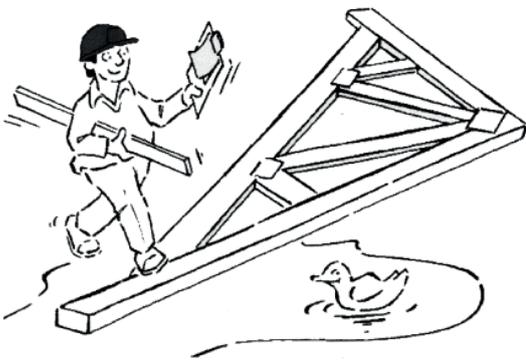


### IMPORTANT:

Trusses must never be cut or adjusted in any way without prior consultation with the 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.

## Guidelines for the storage and handling of **TRUSSED RAFTERS** on site and the Do's & Don'ts

### Do's & Don'ts on site If in Doubt - Ask!



**DO** store carefully on site



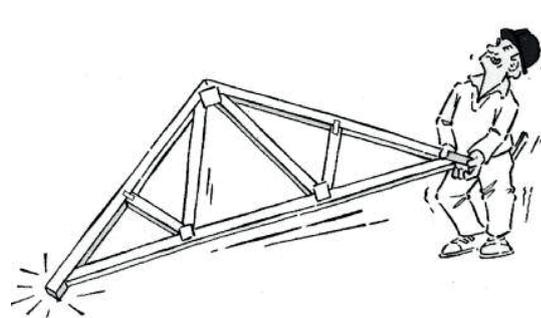
Trusses **DO** need bracing



**DO** fix carefully



**DON'T** cut



**DO** handle with care



**DO** support the tank

TRA publish the 'Technical Handbook' which includes general information relating to bracing methods on site as well as hints on correct storage and handling of trussed rafters. [www.tra.org.uk](http://www.tra.org.uk)

*This information gives a brief introduction to 'Guidelines for the storage and erection of trussed rafters on site' and whilst intended to provide general guidance, HTS accepts no liability and owes no warranty in relation to it and its contents. The guidelines contained within this information sheet are given in good faith but without liability and it shall be entirely at the risk of the user.*

# Health & Safety policy for the loading, unloading, haulage, delivery and erection of Trussed Rafters and Open Web Joists on site

## - A definition of responsibilities

(These Guidelines have been developed in association with the Health & Safety Executive (UK) as a voluntary code of practice for the Trussed Rafter industry)

### Loading

The fabricator will either be responsible for in-house haulage or for selecting a competent haulier. In either case he shall ensure that trailers suitably adapted for the safe delivery of trussed rafters/ open web joists are used.

The fabricator will be responsible for providing the contractor with details of the weight, physical dimensions, configuration and layouts to be delivered with the delivery.

Details concerning weights of bundles of trusses and their banding can be provided by the fabricator before the time of delivery.

### Haulage

Where haulage is not to be provided in-house, the fabricator is responsible for the appointment of a competent haulier. Competent in this context will mean a haulier that complies with all legislation and provides all the drivers to be employed in delivering with both general and product related training.

The fabricator will ensure that every driver has received suitable Health and Safety training before being allowed to leave the fabrication yard.

### Construction of roofs

The fabricator is not the building designer. The building designer, usually the architect, is assumed by the fabricator to be a competent person within the meaning of Health and Safety legislation and, or, joists for the floor solution, by specifying timber trussed rafters for the roof structure, is deemed to have taken responsibility for choosing a design solution which satisfies CDM requirements.

Where such information would not be obvious to a competent building designer, the fabricator will convey to him clear information on, for example, truss weights, dimensions, configurations and the layout and erection sequence for trusses.

The building designer will be responsible for ensuring the scheme of trusses proposed by the Truss Fabricator satisfies the requirements of the CDM regulations.

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### Unloading, transport on site & storage

The contractor is responsible for preparing a safe working method for the unloading, transport on site and storage of trussed rafters & open web joists.

Should the safe working method identify any unusual requirements the contractor should notify the fabricator before delivery.

The contractor is responsible for the provision of appropriate equipment and manpower to comply with this safe working method and for the training of the manpower and maintenance of the equipment.

The contractor is responsible for providing suitable access for the delivery lorry, level hard-standing for unloading and the provisions for the safe separation of pedestrians from the delivery and off-loading process.

Where a crane is used to off-load the contractor is responsible for providing a slinger/banks-man suitably trained in off-loading trusses. The hiring of the crane is the contractor's responsibility.

If asked by the contractor the fabricator and the haulier will, where appropriate, cooperate in the development of a safe working method for these activities.

Whilst on site the safety of the delivery driver shall be the responsibility of the contractor. However, the delivery driver shall be empowered to refuse to off-load if any aspect of the safe working method is contravened such that health and safety is compromised.

TRA publish the 'Technical Handbook' which includes general information relating to health & safety on site as well as hints on correct storage and handling of trussed rafters. [www.tra.org.uk](http://www.tra.org.uk)

## Recommended method of manually unloading trusses under 95kg

### Personal Protective Equipment (PPE) Required



### Main Hazards



### Method

1. The customer is responsible for providing an appropriate number of able bodied personnel for the unload of all materials.



2. The customer is responsible for the provision of sufficient labour to lift the product in accordance with the Manual Handling Operations Regulations 1992. The manual lifters **MUST NOT** lift and load beyond their lifting capacity.

**If the unload is deemed to be unsafe, the driver will contact his manager for instruction of which may result in the load being returned back to the manufacturer.**

3. The driver will position the vehicle where possible to ensure that truss packs are leaning towards the centre bars and are secured in position.



4. The manufacturer will supply truss packs secured to the trailer with blue 3 core rope / banding. You shall familiarise yourself with which rope attaches which pack to the centre bars.



5. The driver will cut the banding securing the truss pack to allow separation of the individual trusses. This must be carried out using a closed blade pruning staff.



6. Once the load stability has been checked the driver will loosen the transportation straps on the side being unloaded.



7. The driver will then separate each truss at the heel by placing a wedge between the first and second truss.



8. Once this wedge is in place the driver will then strap if possible the remaining bundle to the centre bars leaving the separated truss to be off loaded.



9. The team will then take hold of the truss while the driver cuts the blue rope. Once the blue rope has been cut the team will then off load the truss in a safe manner. Proceed with this recommended method for the remaining trusses.



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# Safe unloading of **TRUSSED RAFTERS** by a Forklift

## Personal Protective Equipment (PPE) Required



## Main Hazards

The driver should not have to climb onto the bed of the trailer. If for any reason he has to, he will position fall bags



## Method

1. The contractor is responsible for the provision of the forklift / Telehandler and its qualified operator.



2. After parking the driver should inspect the load to ensure it is still secure with all banding & rope in place. Once inspected the driver must sign in at the site office.

The suppliers do not physically offload. They do advise on unload order, the Safe System of Unload and will release the load on your instruction.

**If the unload is deemed to be unsafe, the driver will contact his Manager for instruction which may result in the load being returned back to the manufacturer.**

3. The supplier will supply truss packs secured to the trailer with 3 core rope or appropriate banding. You shall familiarise yourself with which rope / banding attaches which pack to the centre bars.



4. On instruction from the site responsible person the driver will release the transport straps on the side being unloaded ensuring no one is within the danger area as shown in the pics 5—8.



5. The operator must position the forklift in an appropriate area to ensure the trusses are lifted safely. The forklift will take the weight of the trusses on the forks ensuring no one is within the danger area.

6. **NEVER** stand between the forklift and trailer, do not allow others to enter this danger area. **NEVER** stand on or under the forks. Ensure the danger area remains clear at all times.



7. The driver will cut the individual rope / banding attaching the pack to the bars. This must be carried out from a safe position using a telescopic cutting staff.



8. The forklift truck operator must lift the trusses from the trailer and then move the trusses to a safe and / or off-load area.



9. Other products are removed from the load as per applicable SSoW. Metalwork bags and straps must be removed from the trailer in conjunction with the drivers specific manual handling training.



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## Risk Assessment - Manually unloading trusses under 95kg (at ground level)

PRE-ASSESSMENT RISK RATING: **HIGH** MEDIUM LOW

Machine	Vehicle delivery Trailer	Who might be at Risk	Delivery driver, customers and anyone passing by
What are the Hazards?	Symbols used	How might they be harmed?	What should you consider?
<b>DELIVERY VEHICLE</b>		Fall from height  Impact injuries from unsecured load causing bruising, fractures etc.  Cuts, abrasions, splinters from wooden load	Staff training - only authorised and competent employees or Contractors shall deliver roofing systems. All appropriate licences shall be current. A CSCS card (Construction safety certification scheme) is advised. The hydraulic/pneumatic hoses are sound and free from leaks. Leaks shall be cleaned up without delay to avoid slips and contamination. Make sure the trailer is clear of loose items and debris.
<b>SLIPS, TRIPS &amp; FALLS</b>		Bruising, grazes, impact injuries, fractures etc	Clean up spills without delay. Make sure the trailer is clear of loose items and debris. Good sensible safety footwear shall be worn.
<b>ROAD SIDE PARKING</b>		Impact injuries such as bruising, fractures, crushing or death from trusses knocked / falling after being released from restraint	Staff training - only authorised and competent employees shall drive delivery vehicles. Where possible, park with unloading side on kerb to generate a 'lean back' for the load. Use tape and cones to control pedestrian activity through you unload area. Refer to pictorial Method Statement
<b>SUBSTANCES</b>		Refer to COSHH assessment and Material Safety Data Sheet (MSDS)	Where possible ensure timber is dry before delivering Be aware of lubrication oils on nail plates and trailer, drive unit etc Wear appropriate Personal Protective Equipment (PPE)

## Risk Assessment - Manually unloading trusses under 95kg (at ground level)

<p><b>UNLOAD</b></p>		<p>Slips, trips and falls. Impact injury Upper limb disorders (ULDs), strains, sprains and cumulative strains. Cuts, bruising, abrasions and splinters</p>	<p>Staff training – only authorised and competent employees shall unload vehicle trailers.</p> <p>Care shall be taken to follow safe system:</p> <ul style="list-style-type: none"> <li>• Only release load from a safe position</li> <li>• Customer to ensure appropriate manning available</li> <li>• Driver shall advise on order of unload and control removal of restraints</li> <li>• Ensure area is clear of non-essential persons</li> </ul> <p>Manual handling training is required <b>It is recommended that a Manual Handling RA is carried out</b></p>
<p><b>MAINTENANCE</b></p>		<p>Electrocution Entrapment, crushing. Cuts, bruising, grazes etc Foreign bodies to eyes Slips, trips and falls Impact injuries Upper limb disorders</p>	<p>Staff training - only authorised and competent employees shall maintain this equipment.</p> <p>Contractors shall be vetted and authorised</p> <p>Maintenance should be controlled by an agreed inspection schedule.</p> <p>Machines must be isolated by a controlled procedure before carrying out any repairs.</p> <p>Faults in machinery or electrics should be reported by users immediately.</p> <p>Daily safety checks are recommended.</p> <p><b>Please note: a separate risk assessment for maintenance is recommended</b></p>
	<p><b>LEFT BLANK ON PURPOSE</b></p>		

## Risk Assessment - Manually unloading trusses under 95kg (at ground level)

No:	Site specific changes made	Date changes made
1		
2		
3		
4		
5		
6		

**POST ASSESSMENT RISK RATING:** HIGH MEDIUM LOW

Implemented by:	Print:	Sign:	Date:

*Produced in association with the Trussed Rafter Association -  
The Building Centre, 26 Store Street, London, WC1E 7BT, Tel. 020 3205 0032 Fax. 020 7291 5379 [www.tra.org.uk](http://www.tra.org.uk)*

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