Safe erection of roof trusses checklist

Guidance for employers, including principal contractors and contractors. It provides information and a checklist to help you meet your occupational health and safety (OHS) duties to keep employees safe when erecting timber or lightweight steel roof trusses in domestic housing construction.

Background

The erection of roof trusses is a high-risk activity due to fall hazards associated with working at heights and the potential of structural collapse during the erection process.

This checklist should ensure all safety basics related to the erection of roof trusses have been considered and applied.

This checklist has been developed in consultation with Foundations for Safety members (FFSV).

Employer duties relating to high risk construction work

The erection of roof trusses may place employees at risk of falling from a height that is greater than 2 m. Placing trusses onto housing frames using powered mobile plant, such as a vehicle loading crane, may also be required. In these situations, roof truss erection meets the definition of high risk construction work (HRCW) within Part 5.1 of the Occupational Health and Safety Regulations 2017 (OHS Regulations).

When employees are undertaking HRCW, employers must develop a safe work method statement (SWMS) in accordance with Part 5.1 of the OHS Regulations. Employers should ensure that the SWMS is:

- prepared in consultation with the employees who will do the HRCW and HSR's
- implemented in addition to their general duty to provide a safe workplace
- reviewed when the HRCW changes or there is any sign that the risk controls measures are not controlling risks.

Employers must also keep a copy of the SWMS for the duration of the HRCW.

Hierarchy of control

The hierarchy of control is a system for controlling risks in the workplace. The hierarchy of control is a step-by-step approach to eliminating or reducing risks and it ranks risk controls from the highest level of protection and reliability through to the lowest and least reliable protection.

Employers must know the controls covered in Part 3.3 of the OHS Regulations when developing the SWMS and when planning the measures to control any risk of falling (Regulation 44 Control of risk).

The hierarchy of control

Hierarchy of control measures for the prevention of falls	
The following measures show the structure of the hierarchy of control, from highest to lowest level of protection.	
Level 1	Work from the ground or on a solid platform. For example, use long handle tool extension poles or move the task to the ground.
Level 2	Use a passive fall prevention device. For example, an elevated work platform, scaffolding or guard railing.
Level 3	Use a work positioning system. For example, an industrial rope access system or travel restraint system.
Level 4	Use a fall arrest system. For example, an industrial safety net, catch platform or safety harness system other than a travel restraint system.
Level 5	If the above measures are not reasonably practicable for the task, it may be appropriate to use a ladder that is fit for purpose, suitable for the duration of the task and set up in the correct manner.

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Checklist

The following checklist covers:

- Truss design
- Preparing the site for truss delivery
- Use of a crane
- Development of site specific erection methods
- Formation and preparation of erection crew
- Factors that may impact handling and the number of persons required

Work through this checklist to help reduce and manage the risks associated with the erection of roof trusses.

Truss design		Yes	No	N/A
1	Alternative designs for large spans and/or high trusses to facilitate safer installation have been considered.	☐	☐	☐

Preparing the site for truss delivery		Yes	No	N/A
1	Vehicles will have safe access to the site.	☐	☐	☐
2	Deployment of any outriggers has been considered.	☐	☐	☐
3	Crane boom movement restrictions, such as existing structures including any overhead powerlines, have been considered.	☐	☐	☐
4	The supplier and delivery contractor have been consulted to ensure that the roof trusses will be delivered and unloaded in an order that minimises handling on site, including the sequential erection of trusses.	☐	☐	☐
5	Delivery contractor has been informed of where the roof trusses are to be stacked.	☐	☐	☐
6	The structural capacity of the building structure, as it will exist at time of delivery, has been reviewed.	☐	☐	☐
7	The Frame, including adequate bracing and load points have been inspected by a competent person and support the intended load.	☐	☐	☐
8	Direction has been provided for the designated landing areas.	☐	☐	☐
9	Direction has been provided for any temporary supports needed and maximum loadings allowed.	☐	☐	☐
10	Appropriate fall protection controls have been considered and implemented where truss delivery involves working at height. For example, where appropriate ladders are used to unsling the load.	☐	☐	☐

11	Traffic management arrangements have been made where required.	☐	☐	☐
12	Arrangements are in place for installation of work platforms or other fall protection requirements.	☐	☐	☐
13	Arrangements are in place for safe use of ladders and other equipment.	☐	☐	☐
14	Arrangements are in place for safe handling of trusses, bracing and other material and equipment.	☐	☐	☐
15	The site and its surrounds are accessible and clear of mud, building material and building rubble, so far as reasonably practicable.	☐	☐	☐

Use of a crane		**Yes**	**No**	**N/A**
1	Traffic management has been discussed with the delivery contractor and appropriate arrangements are in place.	☐	☐	☐
2	A designated standing area for the crane delivery vehicle has been arranged and meets loading conditions specified by the delivery contractor.	☐	☐	☐
3	The crane delivery contractor has informed the delivery crew about the correct placement of loads within the site.	☐	☐	☐
4	The crane delivery contractor has informed the delivery crew about any loading limitations that might affect the placement of loads onto the structure.	☐	☐	☐

Development of site specific erection methods		**Yes**	**No**	**N/A**
1	A SWMS for the specific roof truss erection process has been developed	☐	☐	☐

Safe work method statement (SWMS)

A SWMS ensures that the HRCW is documented — it should include specific factors such as:

- available site access and storage
- truss size and design
- type of fall protection to be used for persons working near the external perimeter of the building
- fall protection to any stair voids
- type and suitability of any internal platforms to be used
- type and suitability of any ladders to be used
- the way in which trusses are to be manoeuvred at ground level and at top plate level
- additional equipment needed to install trusses
- identifying the possibility of structural collapse
- the manner in which truss bracing and spacers are to be installed to minimise fall risks this information — may be found in Truss Installation guides and Australian Std AS4440 (Truss installation)
- weather conditions that might impact work
- safe use of power tools including electrical safety.

Note: Many employers involved in truss erection will have a basic or generic truss erection SWMS that forms the basis of their work procedure for most sites. However, it is likely that some of the assumptions will vary, including site conditions and truss designs. Employers must ensure that a generic SWMS is reviewed and adjusted as necessary for each specific site. For more information on SWMS, refer to Safe Work Method Statements (SWMS).

Safe Work Method Statements (SWMS)

Figure 1
Truss erection procedure including hanging bracket scaffold as external fall protection, internal working platform with trusses spread as internal fall protection.
Note: Internal worker remains behind brace truss and over platform.

- Trusses to be laid or spread out (preferably from underneath) and overlapped to form a temporary platform or internal fall protection above walls.
- Worker standing trusses remains central on planks or wall with trusses laid out either side to prevent falling through.
- Once first truss is erected and braced worker on top remains behind braced trusses standing one truss at a time in a sequential manner.
- Workers on outside remain on external scaffold to help with erection and bracing of trusses.
- Process needs to documented in Safe Work Method Statement (SWMS)

Figure 2
Truss erection procedure including internal trestles and planks so top plates acts as external fall protection, internal worker over internal wall with trusses spread as internal fall protection. Note: Internal worker remains behind brace truss and over platform. Workers must remain inside frame at all times.

- Trusses to be laid or spread out (preferably from underneath) and overlapped to form a temporary platform or internal fall protection above walls.
- Worker standing trusses remains central on planks or wall with trusses laid out either side to prevent falling through.
- Once first truss is erected and braced worker on top remains behind braced trusses standing one truss at a time in a sequential manner.
- Workers on trestles/planks remain inside frame with top plate acting as handrail to help with erection and bracing of trusses.
- Process needs to documented in Safe Work Method Statement (SWMS)

Figure 3
Worker positioning on internal top plate.
Worker remains behind braced truss with feet over top plate or work platform.

- Trusses to be laid or spread out (preferably from underneath) and overlapped to form a temporary platform or internal fall protection above walls.
- Worker standing trusses remains central on planks or wall with trusses laid out either side to prevent falling through.
- Once first truss is erected and braced worker on top remains behind braced trusses standing one truss at a time in a sequential manner.
- Process needs to documented in Safe Work Method Statement (SWMS)

Formation and preparation of erection crew		Yes	No	N/A
1	The size, experience and competence of the erection crew is sufficient.	☐	☐	☐
2	Experienced employees are available to provide adequate guidance and supervision to less experienced employees.	☐	☐	☐
3	The erection crew has been appropriately trained for the specific site.	☐	☐	☐
4	The erection crew understands the specific SWMS.	☐	☐	☐
5	The erection crew has been appropriately trained and instructed on roof truss inspection to identify any obvious defects before erection or reliance on other components of the truss for support.	☐	☐	☐
6	The availability of the erection crew to lift and manoeuvre trusses into place has been considered.	☐	☐	☐
7	The erection crew has been provided with clothing and footwear that is in good condition and suitable for the task.	☐	☐	☐
8	Appropriate supervision has been arranged to ensure adherence to the SWMS.	☐	☐	☐

Factors that may impact handling and the number of persons required

An assessment of the following factors should be done to determine how roof trusses are to be handled and the number of persons needed at each stage of the process.

Factors to consider include:

- size of trusses (including span height and weight)
- restrictions on handling imposed by site or house design
- cranage availability.

Related information

- **Occupational Health and Safety Act and Regulations**
- **The hierarchy of control**
- **Safe work method statements (SWMS)**
- **Compliance code: Prevention of falls in housing construction**
- **Roofing**