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GUIDELINE FOR THE ERECTION OF SUPALOC STEEL TRUSSES

This document has been prepared to assist in the safe erection of metal roof trusses. The document is not to be used as a substitute for a “High Risk” Safe Work Method Statement or replace the need for a Site Specific Risk Assessment to be undertaken, however is intended to provide the installer of Supaloc Steel trusses a guide to the practical and safe erection of Supaloc Steel trusses for single storey residential applications.

It is important that a person conducting a business or undertaking (PCBU/Contractor) whom erect and install Supaloc frames and truss, understand the guidance and advice from the designers, manufacturer and suppliers installation requirements as detailed in the Supaloc Installation Manual.

Additional responsibilities prevail under relevant state Legislation for “Duty of Care” and the obligations for PCBU’s to produce a written “High Risk” Safe Work Method Statement (SWMS) for “Working at Heights” (where there is a risk of a person falling more than 2m) before construction work commences.

The Principal Contractor has obligations to ensure this has been completed adequately and where missing or inadequate must supply a “High Risk” Safe Work Method Statement (SWMS).

For further guidance on your jurisdictional requirements and specific guidance material relating to fall hazards in housing construction, contact your local WorkCover or WorkSafe Authority.
Supaloc pre-assemble and stack the main trusses in sequential installation order in preparation for transport to site. Prior to the delivery being undertaken, Supaloc in conjunction with the Builder (Principal Contractor) undertake a site inspection to confirm that the site is ready to accept safe delivery of relevant frames & trusses.

Where there is a lack of room on site the delivery may be staggered i.e. frames first and trusses the next day, subject to logistical planning arrangements and contractual agreements.

Supaloc also provide the Builder (Principal Contractor) with fully detailed frame and truss layouts which the frame erector must have available on site prior to commencing installation. The frame erector must familiarize themselves with the plan details prior to undertaking any work and also ensure they have completed their Site Specific Risk Assessment (SSRA) reviewing any foreseeable hazards on site or with the predicted process of steel frame erection.

TYPICAL HAZARDS TO REVIEW:

Access & Egress
For delivery, handling & whilst erecting the frames & trusses

Manual Handling Capabilities
3 man crew? & if a crane & dogman has been engaged for trusses

Working at Heights >2m
Potential falls from heights
- Appropriate step ladders
- Trestles & planks (below <2m)
- Scaffold system

Falling Objects
Erect frame & trusses as per manufacturers instructions & guidelines

Engage a competent crane driver & dogman
To facilitate a safe lift & erection process

Please note this is not an exhaustive list but a guide to ensure safety on site with key issues.

Ensure steel frame erectors have the capabilities to understand the above requirements and ensure they know who to request assistance if any of these requirements cannot be completed safely.

Figure 1 Standard Truss configuration

Supaloc detailed frame and truss layouts provide the locations and fixing points for all trusses and these must be utilized in conjunction with Supaloc Installation Reference Manual for specific fixing methods and detail.

PREPARE TRUSSES PRIOR TO ERECTION

Prior to erecting roof trusses, mark out the roof purlin spacings on truss top chord while trusses are in the roof pack, this can be done on the ground. Refer ID-RF-201.

Figure 2 Mark out purlin spacings at ground level

MAIN ROOF TRUSS BRACING AND STABILISERS

Where the main roof trusses are large or high pitched and trusses contain webs greater than 1.8mtrs in length, install bracing as per ID-RF-501 to help prevent lateral deflection.

Figure 3 Install web bracing at ground level prior to installing truss
INSTALLING SUPALOC STEEL ROOF TRUSSES

LIFTING ROOF TRUSSES ONTO WALL FRAME TOP PLATES FOR ERECTION

Prior to commencing truss erection, the Steel Frame Erection SSRA needs to consider:

1. Ensure lower frame stability is adequate for distributing roof trusses to top plate
2. The method of lifting trusses
3. The weight & complexity of the trusses being lifted
4. The capability of the Steel Frame Erection team to undertake the work safely

The person erecting trusses should assess the team’s capability to handle the roof trusses. If the size, weight and positioning of the roof trusses pose a risk to the health and safety of the person erecting trusses, then a crane with a certificated operator must be employed to help undertake this task.

Table 1 provides typical truss weights for a Standard Truss at 26° pitch various span widths.

<table>
<thead>
<tr>
<th>SPAN WIDTH METERS</th>
<th>SUPALOC STEEL TRUSS KG</th>
<th>TIMBER TRUSS KG</th>
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</table>

Reference AS11701 - Timber truss weight calculated utilizing 120x35mm chord and 75x35mm web by member length by density of 540kg as per AS1170.1 with same member length as Supaloc standard truss.

As Table 1 highlights, the lightweight Supaloc steel truss significantly reduces the weight involved and therefore reduced manual handing risk versus standard timber truss.

METHOD 1: MECHANICAL LIFTING

Cranage may be required where the erection height is too great or trusses too large for manual handling. Single lift trusses, ensuring the trusses are slung from chord and web connection points and referring to the roof framing layout, crane lift the main truss into position, ensuring the locating tab on the truss aligns with the slot on the top plate. Fix in place as per ID-RF-302. Temporarily brace the first truss using 40mm top hat profile or 75mm stud material to an internal wall frame or direct to the slab.

Figure 4 Location of sling points chord/web connection location

Figure 5 Lift truss into location and align tabs with slots in the top plate
INSTALLING SUPALOC STEEL ROOF TRUSSES

Access to the roof truss area should be via a double planking system not less than 450mm wide (i.e. 2 x 225mm planks) laid on the bottom chord and sequentially moved forward.

Alternatively, use a ladder in accordance with the NATIONAL CODE OF PRACTICE FOR THE PREVENTION OF FALLS IN HOUSING CONSTRUCTION Section 2.6 Level 5 controls: Use of portable ladders and administrative controls. If a perimeter scaffold system is installed this work can be done from the outside rather than using internal working platforms or ladders.

Complete loading and installing and bracing trusses and complete with hip and jack trusses as per framing layout and Supaloc Installation Reference Manual ID-RF-101 to ID-RF-702 prior to removing temporary braces.

METHOD 2: MANUAL LIFTING

In circumstances where trusses can be handled safely and practically, which may include short span trusses, smaller hip and jack trusses, it is important to access and plan the task prior to commencing.

Ensure that the area in which you are working is clear of hazards and establish appropriate working platforms with a platform height less than 2 metres from the floor level at each end where the truss is to be fixed to the top plate.

Note: If setup correctly the internal top plate should be no lower than 900mm & will serve as a hand/guardrail during the installation process.

Use a minimum of two people, one at each end, slide the truss onto the top plate and stand into position.
INSTALLING SUPALOC STEEL ROOF TRUSSES

An additional team member may be required at mid-span to assist in stabilising a long span truss with a notched end push stick.

Continue installing trusses in sequence and brace with suitable material, such as 40mm top hat profile or 75mm stud material to ensure trusses are sufficiently braced to withstand wind loads during installation.

Complete loading and installing and bracing trusses and complete with hip and jack trusses as per framing layout and Supaloc Installation Reference Manual ID-RF-101 to ID-RF-702 prior to removing temporary braces.

When working at heights greater than 2 metres ensure work platform comprises of 2 x 450mm planks.

Temporarily brace the first truss using 40mm top hat profile or 75mm stud material to an internal wall frame or direct to the slab.

Complete loading and installing and bracing trusses and complete with hip and jack trusses as per framing layout and Supaloc Installation Reference Manual ID-RF-101 to ID-RF-702 prior to removing temporary braces.
CEILING BATTEN

Once the installation of the of trusses has been completed and all temporary props have been checked, commence the installation of the 22mm ceiling batten to the underside of the bottom chord as per ID-RF-502. This not only assists in stabilizing the trusses, but also acts to reduce the opening size at the base of the trusses.

WORKING AT HEIGHTS

Work undertaken above 2 metres is a “High Risk” activity with the potential for falls from heights. An appropriate and compliant fall protection system must be installed to ensure falls are eliminated before the work activity commences i.e.

- Scaffold System
- Guardrail System
- Light Weight Duty Platform (LWDP)
- Or other agreed safe systems of work with the builder.

ROOF PURLIN (BATTEN)

At no time is any person to stand on or work from an external wall top plate without suitable fall protection.

Working off a ladder or a working platform, place the battens to be used on top of the trusses or pass them up from the ground.

Commencing fixing purlins as per ID-RF-501NSW from the lower parameter of the roof, utilising the marked out locations done while the trusses were at ground level. Once the parameter roof purlin has been fixed, continue to work in a sequential manner placing roof purlins the spacing as defined in ID-RF-501NSW, while secure remaining battens sequentially up to the apex of the roof by positioning the body over the truss (see Figure 13) making sure that there is at least one secured batten at waist level or above to minimize the risk of a fall.

Figure 13 Position yourself above the roof truss while sequentially installing roof purlin
For Further Information

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Reference Documents

Safe Work Australia, National Code of Practice for the Prevention of Falls in Housing Construction, April 2010
Supaloc Installation Manual, October 2011
Supaloc Components Manual, October 2011