SECTION 6:

SUPERSTRUCTURES, MID-FLOORS AND ROOFS

SECTION 6: INDEX

SUPERSTRUCTURES, MID-FLOORS AND ROOFS

6.1 SUPERSTRUCTURES AND MID-FLOORS

During the construction of the superstructure and mid-floors for all methods of construction, including timber frame, the key risks that must be assessed and controlled include:

- Work at height.
- Instability of newly constructed structures, e.g., block walls; and
- The security of external build components, e.g., tiled canopies

6.1.1 BRICK / BLOCK CONSTRUCTION (TRADITIONAL BUILD)

The build sequence for traditional construction is summarised below along with the control measures necessary:

Stage	Description	Section
1	Construct brick and block walls from ground level to mid floor level	6.1
2	Install mid floor, including sacrificial floor area and trap access	6.3
3	Continue to construct brick and block walls to roof	6.4
4	Construct roof	6.8

The construction of the external structure / finish of houses /apartments, etc. is carried out from an external scaffold working platform.

Note: Blockwork/Brickwork must only be laid to a maximum of 6/18 courses in one day to ensure the stability and allow for adequate curing time.

6.1.2 ACCESS FOR CONSTRUCTION OF EXTERNAL WALLS FROM GROUND LEVEL

The construction of the external walls, i.e., inner blockwork skin and external skin can be carried out from ground or slab level for the initial lift of brick/blockwork. Then a suitable working platform must be used, such as:

- An external perimeter scaffolding for external skin
- Bricklayer's hop-ups.
- Proprietary working platform.
- Scaffold working platform; and
- Podium steps (e.g., remedial works).

EXTERNAL SCAFFOLDING WORKING PLATFORM

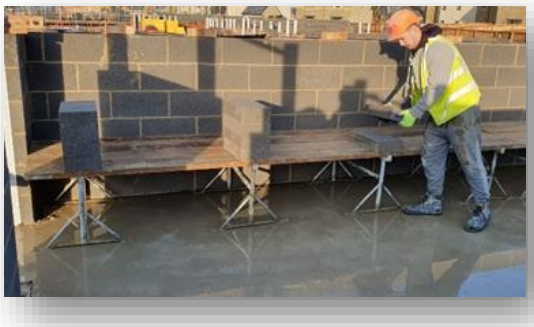
The construction of the external skin of brickwork (or blockwork) must be carried out from a suitable external scaffold, except for the first lift which can be constructed from ground level.

SAFE LOADING OF SCAFFOLDING

- Brick guards must be fitted to protect against falling material
- Position stacks of material (bricks) adjacent to the standards (one stack either side of the standard)
- Standard tube and fitted scaffolding are constructed to allow a maximum load of 200kgs per bay.
- Leave a passageway of at least two boards to allow access
- Not stacked higher than the second handrail

6.1.3 ACCESS FOR CONSTRUCTION OF INTERNAL WALLS

BRICKLAYERS HOP-UP (up to 500 mm high)



A bricklayer's Hop-up can only be used internally if:

- On a firm, solid, flat base e.g., ground floor slab or, for upper levels, a supported deck
- If hop-ups and boards in good condition.
- To a maximum height of 500mm.
- The platform is minimum four boards wide (the two inside boards kept clear from material to facilitate clear access).
- Scaffold boards supported at least every 1.2m; and
- Inspected before use by the Site Manager/supervisor of the trade using it.

Note: Bricklayer's Hop-ups are not permitted for use on scaffold working platforms. If used externally, hop-ups must be on some concrete, paved, tarmac or slabbed base.

PROPRIETARY WORKING PLATFORMS WITH HANDRAILS

Where a working platform height of more than 500mm above the floor level (either ground or mid-floor) is required, then either a 'proprietary working platform' or 'scaffold working platform' must be used with double handrails and toe-boards.

Proprietary Working Platforms with Handrails can be used where:

Staybills Safety Access Systems (01925 595001)

- Operatives erecting the specific system are trained in their use.
- A copy of the manufacturer's instructions is available on site.
- Operatives, erecting the specific system must provide a 'handover certificate'.
- Weekly inspections are carried out and recorded in the Working Platform/Scaffold Inspection Record Sheet (Construction HSE Plan Folder 2, F2.6); and
- Before each use, a visual inspection is to be made by the authorised user.

Safestand (020 8795 3579)

PODIUM STEPS

Podium steps can provide a suitable access platform for working at a height e.g., for making good, joist work and sacrificial joist work.

The operative must have received instruction / briefing in the safe use of the Podium Steps.

6.2 INTERNAL FALL PREVENTION

Once a suitable Access and Working Platform /Fall Prevention/Protection system has been installed, for example: Proprietary Decking System or Birdcage Scaffold, it must be inspected and handed over by the installer prior to the mid-floor being worked on. Once inspected and handed-over, subsequent tasks can therefore be carried out safely e.g.:

- Install joist and/or masonry hangers (see section 6.3.1).
- Install floor joists, including 'sacrificial' joists and bracing (see section 6.3.2).
- Install decking and 'sacrificial' floor area (see section 6.3.3); and
- Install Temporary access hatch (see section 6.3.4).
- Roof Construction (see section 6.8)

6.2.1 USE OF SAFE ACCESS and WORKING PLATFORMS

This section sets out the key requirements for the provision of safe Access and Working Platforms to assist the construction of timber mid-floors and roof structures.

Four options are available for providing Access/Working Platforms:

1. Birdcage Scaffold Platform (see section 6.2.2).
2. TRAD Safety Systems, decking system (see section 6.2.3).
3. G&M Safe Deck, decking system (see section 6.2.3); and
4. Rhino Deck (Sayfa Systems UK), decking system (see section 6.2.4)

Prior to the installation of an Access and Working Platform, plots must have clear access and adequate working space and be clear from debris, materials, and other trades.

The above systems are mainly designed to provide access and a working platform. Where loading is required on the working platform, for example the construction of the party wall, this must be undertaken in line with the controls set out further in this section.

Following the installation of an Access and Working Platform, access below the system is strictly prohibited unless authorised to do so by the Site Management Team. The Platform must be re-inspected prior to use, after any access below to confirm the stability and integrity of the system

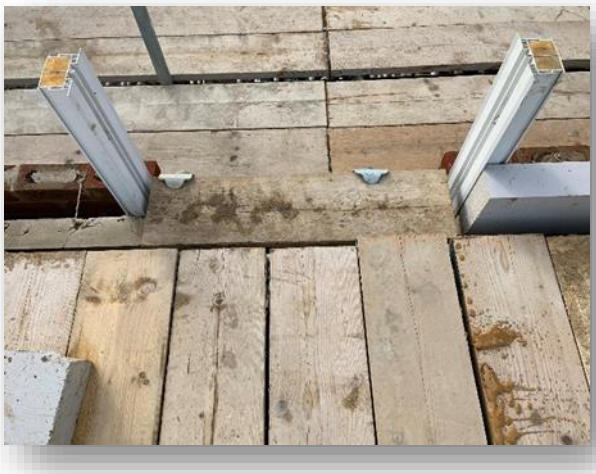
Note: In circumstances where Decking or Birdcage Scaffolding is not appropriate, a soft-landing system may be used after an assessment and confirmation with the RHSEA. (See section 6.2.5)

STORAGE OF MATERIALS

Consideration must be given to the storage of proprietary decking systems when not in use. These must be stored in a suitable stillage and returned to an adequate storage area when not in use.

G&M Safe Deck stillage

WINDOW INFILLS



Structural openings between working platforms and internal fall prevention systems, including proprietary decking systems require infills.

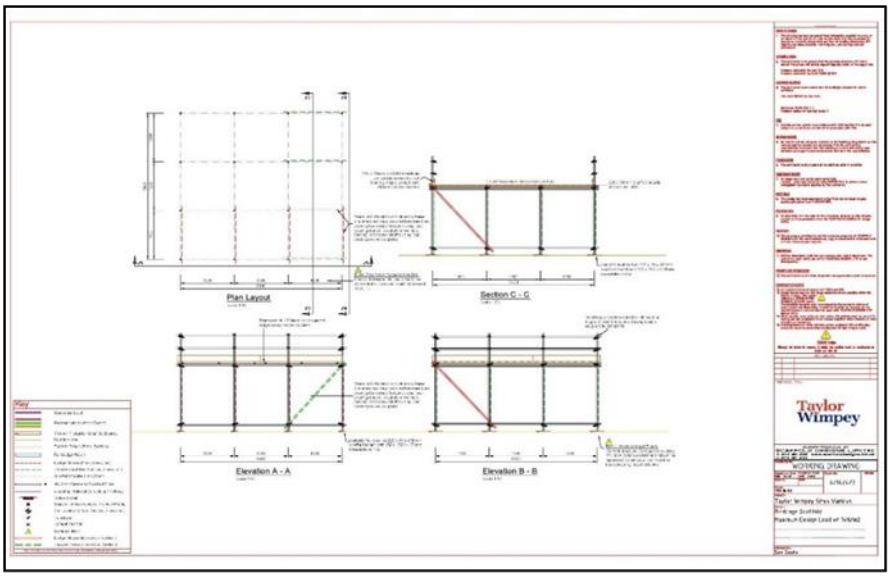
6.2.2 BIRDCAGE SCAFFOLD

KEY ASPECTS

Scaffold design

Prior to the erection of any Birdcage Scaffold a scaffold design must have been agreed with the scaffolders and made available to the site management team and the erecting scaffolders. Where loading out is to be undertaken, the permissible loadings must be included as part of the design. The design must be confirmed as appropriate by the Site Manager and Production Manager with assistance from the Regional/Site HSE Advisor.

An example of a design can be found on Inhouse (example below)



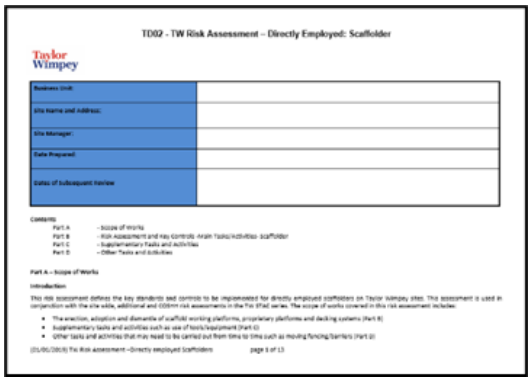
Installation on upper floors – under-propping details

Where a Birdcage Scaffold is to be erected on a timber mid-floor, the mid-floor must be back propped to prevent damage or collapse (see under-propping detail section 6.4.1 & 6.4.3. Confirmation is required from the joist manufacturer that their product can take the loading of the proposed Birdcage scaffolding with the agreed supporting propping in place.

PRE-INSTALLATION CHECKS

A visual user-check to confirm the plot is clean and tidy is to be carried out before birdcage scaffold is erected. Any concerns noted must be raised with the Site Management Team so suitable action can be taken.

INSTALLER


TD02 - TW Risk Assessment – Directly Employed: Scaffolder

Taylor Wimpey

Training:

- Scaffolders erecting, altering, and dismantling the birdcage scaffolding must hold a current CISRS Scaffolders card.
- Site Management Team must have completed the scaffolding inspection TWUK core Training.

Evidence of training must be available to the Site Management Team

Risk Assessment

Where Birdcage Scaffolds are used, the Scaffold Contractor must provide the Site Manager with a copy of their Risk Assessment that covers this task. All scaffold operatives involved in the erection/dismantling of birdcage scaffolds are to be briefed on the safe system of work by their employer, with a register of briefing maintained.

Directly employed scaffold operatives are to be briefed by the TW Site Manager or scaffolding supervisor using their trade risk assessment.

HANDOVER

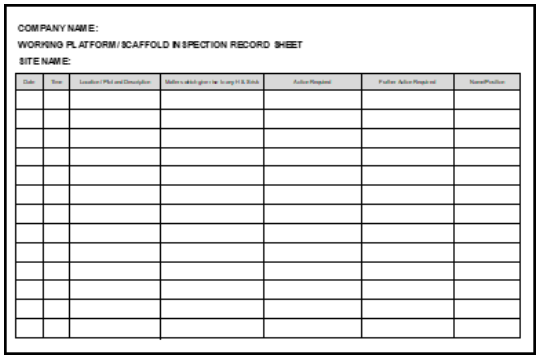
SCAFFOLD HANDOVER CERTIFICATE (TWUK SCAFFOLDER)

NAME OF CONTRACT:

A SIGNED COPY TO BE RETAINED WITHIN THE CONSTRUCTION HSE PLAN

Once the Birdcage Scaffold has been installed the Scaffold Contractor confirms it has been installed correctly by completing a 'Handover Certificate' and providing to the Site management team.
The Site Management Team must then carry out a visual check to confirm it is fit for purpose.

ONGOING ARRANGEMENTS



COMPANY NAME:
WORKING PLATFORM / SCAFFOLD INSPECTION RECORD SHEET
SITE NAME:

Inspections

Regular statutory inspections of the scaffolding must take place following erection or any adaption and at least every 7 days, or after any event likely to have affected the scaffold's stability such as adverse weather. Inspections are recorded on the Working Platform/Scaffold Inspection Record Sheet, CDM F2.06

DISMANTLING

All dismantling must be carried out by trained and authorised scaffolders. During the dismantling of the birdcage scaffold, access into the plot/area is restricted and an exclusion zone established to avoid unauthorised persons.

INSPECTION AND MONITORING SUMMARY

Checks/Inspections must be carried out as follows.

- Prior to installation, visual user-check confirming the plot is clean and tidy.
- After handover of each installation and prior to use, a visual check is carried out by the site management team and recorded in the scaffold register.
- Daily visual user-check before use.
- Every 7 days after the date of installation a Statutory Inspection is carried out by the site management team.
- Following adverse weather conditions or adverse impact, Statutory Inspection by the site management teams.
- The site management team regularly monitor the safe use of the platform.

6.2.3 'TRAD DECK' AND G&M DECKING SYSTEMS

TRAD Deck and G&M Safe Deck are proprietory access platforms made from composite plastic. Both systems must only be installed and dismantled by trained and authorised installers.

These decking systems are predominantly used as an access and working platform, however, were loading out is required on the working platform, this must be undertaken in line with the controls set out below

Trad Deck

G & M Safe Deck

KEY ASPECTS

Where these decking systems are installed on upper floors, confirmation is required from the joist/floor Manufacturer that their product can take the loading of the proposed decking system plus any blockwork and that back propping is not required.

TRAD Deck relies on blockwork to provide support to the system, consequently the Site Management Team via a visual check must confirm the blockwork mortar has sufficiently cured prior to TRAD Deck is installed.

G&M Safe Deck can be installed 'free standing' if this option is required, then this must be confirmed prior to installation.

If it is not required, then Site Management Team via a visual check must confirm the blockwork mortar has sufficiently cured prior to G&M Safe Deck is installed.

Note: Installers to be made aware. If any concerns over the suitability of the blockwork, they must make the site manager aware immediately.

PRE-INSTALTION CHECKS

A visual user-check to confirm the plot is clean and tidy is to be carried out before either decking system is erected. Any concerns noted must be raised with the Site Management Team

A visual check of all components is made by the installation operatives prior to use.
Any defective components must be marked up, isolated, and not used.

INSTALLER

Risk Assessment and Safety Method Statement

Where TRAD Deck or G&M Safe Deck is used, the supplier must provide the Site Management Team with a copy of their Risk Assessment and Safety Method Statement. The installation team involved in the installation and dismantling must be briefed, by their employer, on the safe system of work [note TRAD or G&M Safe Deck or Site Manager for directly employed] with a register of briefing maintained.

Training:

- **TRAD Deck Employee** must be FASET trained
- **G&M Safe Deck Employee** must be FASET trained.
- **Directly Employed Installer** must be FASET trained and have received product familiarisation for TRAD Deck via TRAD Safety Systems.
- **Scaffolder** must have product familiarisation from TRAD Deck and/or G&M Safe Deck.
- **Site Management Team** must have received TRAD Deck and/or G&M Safe Deck inspection training.


TRAD SAFETY SYSTEMS
FALL PREVENTION

Training Certificate

This is to certify that

Martin Farling

of

Taylor Wimpey UK Ltd

Has completed training on the

Safe Installation and Dismantle of the

TRAD Safety Deck System

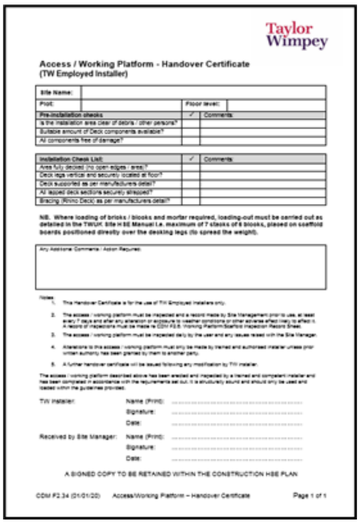
Date of Training: 24th August 2018

Training Manager: Nick Smith

Signed:

Evidence of all training must be available to the Site Management Team.

HANDOVER



Taylor Wimpey

Access / Working Platform - Handover Certificate
(TW Employed Installer)

Site Name:			
Plot:		Floor level:	

Pre-installation checks	✓	Comments
Is the installation area clear of debris / other persons?		
Suitable amount of Deck components available?		
All components free of damage?		

Installation Check List:	✓	Comments
Area fully decked (no open edges / area)?		
Deck legs vertical and securely located at floor?		
Deck supported as per manufacturers detail?		
All lapped deck sections securely strapped?		
Bracing (Rhino Deck) as per manufacturers detail?		

NB. Where loading of bricks / blocks and mortar required, loading-out must be carried out as detailed in the TWUK Site HSE Manual i.e. maximum of 7 stacks of 6 blocks, placed on scaffold boards positioned directly over the decking legs (to spread the weight).

Any Additional Comments / Action Required:

Notes:

1. This Handover Certificate is for the use of TW Employed Installers only.
2. The access / working platform must be inspected and a record made by Site Management prior to use, at least every 7 days and after any alteration or exposure to weather conditions or other adverse effect likely to affect it. A record of inspections must be made re CDM F2.6. Working Platform/Scaffold Inspection Record Sheet.
3. The access / working platform must be inspected daily by the user and any issues raised with the Site Manager.
4. Alterations to this access / working platform must only be made by trained and authorised installer unless prior written authority has been granted by them to another party.
5. A further handover certificate will be issued following any modification by TW installer.

The access / working platform described above has been erected and inspected by a trained and competent installer and has been completed in accordance with the requirements set out. It is structurally sound and should only be used and loaded within the guidelines provided.

TW Installer: Name (Print): ………… Signature: ………… Date: …………

Received by Site Manager: Name (Print): ………… Signature: ………… Date: …………

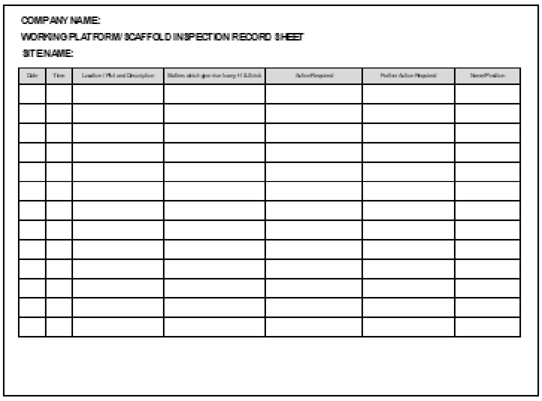
A SIGNED COPY TO BE RETAINED WITHIN THE CONSTRUCTION HSE PLAN

CDM F2.34 (01/01/20) Access/Working Platform – Handover Certificate Page 1 of 1

Once the decking system has been installed the installer must confirm it has been installed correctly by completing a 'Handover Certificate' and providing a copy to the Site management team.
The Site Management Team must then carry out a visual check to confirm it is fit for purpose before use.

For TW Employed installers use the Access / Working Platform – Handover Certificate, CDM F2.34

ONGOING ARRANGMENTS



COMPANY NAME:

WORKING PLATFORM/ SCAFFOLD INSPECTION RECORD SHEET

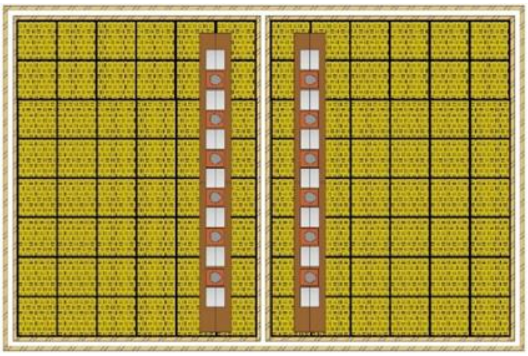
SITE NAME:

Date	Time	Location / Plot and Description	[illegible]	Action Required	Further Action Required	Name/Position

Inspections

Regular statutory inspections of the Decking Platform take place following erection or any adaption and at least every 7 days, or after any event likely to have affected the Decking Platforms stability. Inspections must be recorded on the Working Platform/Scaffold Inspection Record Sheet, CDM F2.06

Loading Out



On occasions TRAD deck or G&M Safe Deck may need to be loaded out with bricks/block and mortar to allow party wall construction. In these situations, the following control measures must be adopted. These measures restrict the amount of materials loaded and indicate key areas where loading is permitted.

No other materials such as trusses/spandrels etc. can be stored on TRAD deck or G&M Safe Deck.

- Maximum 7 stacks of 6 blocks positioned on each side of the party wall.
- Positioned directly over the legs; and
- Blocks to be stacked on double scaffold boards to spread the load.

- Boards used for spreading the weight must be sprayed up to highlight the permitted loading areas

DISMANTLING

All dismantling must be carried out by trained and authorised persons. During the dismantling of the decking systems, access into the plot/area is restricted to avoid unauthorised persons.

INSPECTION AND MONITORING SUMMARY

Checks/Inspections must be carried out as follows.

- Prior to installation, Visual check the plot is clean and tidy. The Site Management Team must make sure the blockwork mortar has sufficiently cured before allowing TRAD Deck and G&M Safe Deck to be installed.
- As part of the handover of each installation and prior to use, a visual check is carried out by the site management team and recorded in the Working Platform/Scaffold Inspection Record Sheet.
- Daily visual user-check before use.
- Every 7 days after the date of installation, a Statutory Inspection is carried out by the site management team.
- Following adverse weather conditions or adverse impact, Statutory Inspection by the site management teams.
- The site management team regularly monitor the safe use of the platform.

KEY CONTACTS

TRAD Deck available from:

TRAD SAFETY SYSTEMS LTD
www.tradsafetysystems.co.uk

Glasgow:	0141 647 8999
Leeds:	0113 380 7860
Manchester:	0161 320 4888
Birmingham:	0121 270 1477
London:	0208 517 5189
Bristol:	0117 938 6980

G&M Safe Deck available from:

G&M Safe Deck LTD
www.gmsafedeck.com

Middlewich:	01606 834 630

6.2.4 'RHINO DECK' DECKING SYSTEM

Rhino Deck is a proprietary work access platform made from metal and it may only be installed and dismantled by a trained and authorised person.

Rhino Deck is predominantly used as an access and working platform, however where loading out is required on the working platform, this must be undertaken in line with the controls set out below

KEY ASPECTS

Installation on upper floors

Where Rhino Deck is to be installed on upper timber floors, the mid floors need to be propped to prevent damage or collapse (see section 6.4.1 & 6.4.3).

Where RHINO Deck is installed on upper floors, confirmation is required from the joist/floor Manufacturer that their product can take the loading of the decking system plus any blockwork and that back propping is not required.

This must be confirmed for ALL installations, loaded, or unloaded.

PRE-INSTALLATION CHECKS

A visual user-check to confirm the plot is clean and tidy is to be carried out before Rhino Deck is erected.
Any concerns noted must be raised with the Site Management Team so suitable action can be taken.

A visual check of all components is made by the installation operative prior to use.
Any defects components must not be used and be marked up and isolated so out of use.

INSTALLER

Risk Assessment and Safety Method Statement

Where Rhino Deck is used, the Supplier must provide the Site Manager with a copy of their Risk Assessment and Safety Method Statement. The installation team involved in the installation and dismantling must be briefed by their employer, on the safe system of work [note Scaffold Contractor or Site Manager for directly employed] with a register of briefing maintained.

Training:

- **Rhino Deck Employee** must be FASET trained.
- **Directly Employed Installer** must be FASET trained and have received product familiarisation for Rhino Deck via Sayfa Systems.
- **Scaffolder** must have product familiarisation from Rhino Deck.
- **Site Management Team** must have received Rhino Deck inspection training.

Evidence of all training must be made available to the Site Management Team

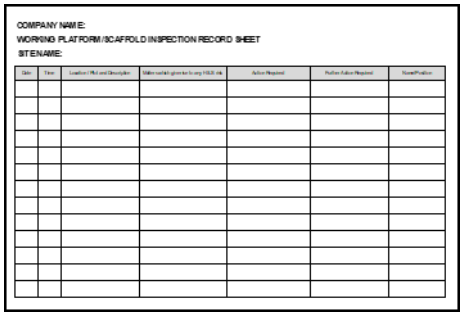
HANDOVER


Taylor Wimpey

Access / Working Platform - Handover Certificate
(TW Employed Installer)

Once the Rhino Deck has been installed the installer must confirm it has been installed correctly by completing a 'Handover Certificate' and providing a copy to the Site management team.
The Site Management Team must then carry out a visual check to confirm it is fit for purpose prior to use.
For TW Employed installers use the Access / Working Platform – Handover Certificate, CDM F2.34

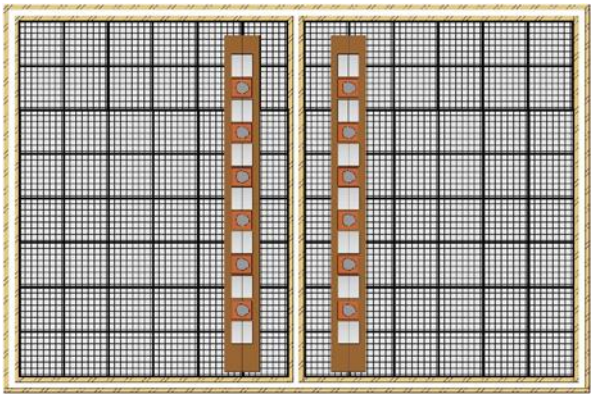
ONGOING ARRANGEMENTS


COMPANY NAME:
WORKING PLATFORM/SCAFFOLD INSPECTION RECORD SHEET
SITE NAME:

Inspections

Regular statutory inspections of the Decking Platform take place following erection or any adaption and at least every 7 days, or after any event likely to have affected the Decking Platforms stability. Inspections must be recorded on the Working Platform/Scaffold Inspection Record Sheet, CDM F2.06

Loading Out



On occasions Rhino deck may need to be loaded out with bricks/block and mortar to allow party wall construction. In these situations, the following control measures are to be followed. These measures restrict the amount of materials loaded and indicate key areas where loading is permitted

No other materials such as trusses/ Joists etc. are permitted to be stored on Rhino deck

DISMANTLING

All dismantling must be carried out by trained and authorised person. During the dismantling of Rhino Deck platforms, access into the plot/area is to be restricted to avoid unauthorised persons.

INSPECTION AND MONITORING SUMMARY

Checks/Inspections must be carried out as follows.

- Prior to installation, visual user-check confirming the blockwork is stable and the plot is clean and tidy.
- As part of the handover of each installation and prior to use, a visual check is carried out by the site management team and recorded in the Working Platform/Scaffold Inspection Record Sheet (Folder 2, F2.06)
- Daily visual user-check before use.
- Every 7 days after the date of installation, a Statutory Inspection is carried out by the site management team.
- Following adverse weather conditions or adverse impact, Statutory Inspection by the site management teams.
- The site management team regularly monitor the safe use of the platform.

KEY CONTACTS

Rhino Deck available from:
SAYFA SYSTEMS UK LTD
http://www.sayfasystems.co.uk/solutions/rhinoDeck/

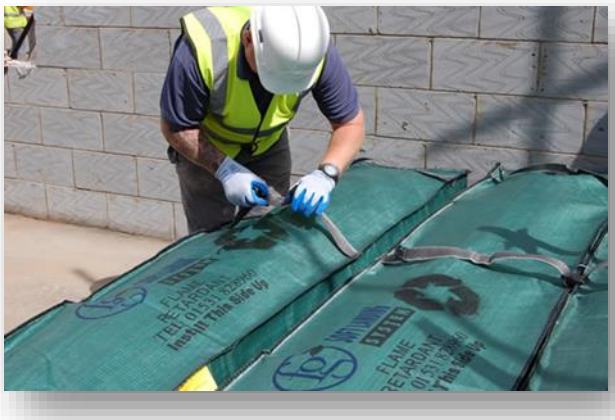
Jubilee House
No. 3 Gelders Hall Road
Shepshed, Loughborough
Leicestershire LE12 9NH

Tel: 01509 502155
Email:info@sayfasystems.com

6.2.5 SOFT LANDING SYSTEMS

The use of soft-Landing Systems is restricted to where:

- a birdcage scaffold or proprietary platform is not practical to install
- the floor to working platform height is no more than 2.6m,
- Site Management Team carryout an assessment confirming the use of a soft-landing system is appropriate and confirmed by the RHSEA



For the information on the installation and use of soft-landing systems, see Site Safe Briefing: Soft Landing Systems

6.3 INSTALLATION OF MID-FLOORS

In most of the TW Standard House Types, the joists are 'built in' and supported directly by the superstructure walls or internal load bearing walls.

Where hangers are identified, then the Site Management Team must:

- Have the approved drawings from the Technical or Design Team identifying the specific hangers to be used.
- Ensure that the correct fittings are supplied with the hangers; and
- Discuss with the installation Contractor to verify that they have the correct information, hangers, and fixings

6.3.1 INSTALLATION OF FLOOR JOISTS

The installation of the floor joists, sacrificial joists and bracing must be carried out from a suitable internal birdcage scaffold or proprietary access platform (see section 6.2)

Walking or working on 'open' joists or wall-heads is not permitted

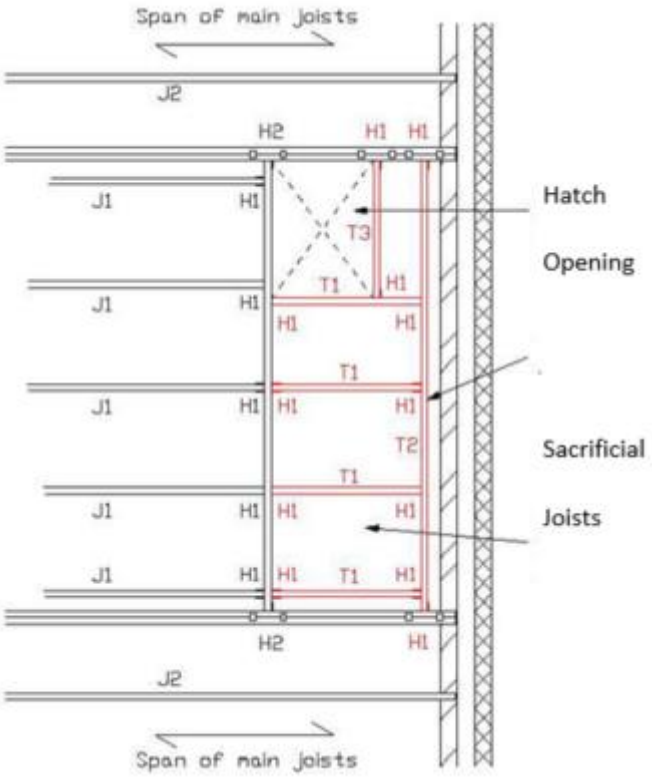
6.3.2 SACRIFICAL JOISTS

The Sacrificial Joist layout is included in the Joist / Flooring Pack delivered to Site. The following critical Items must be adhered in all installations:

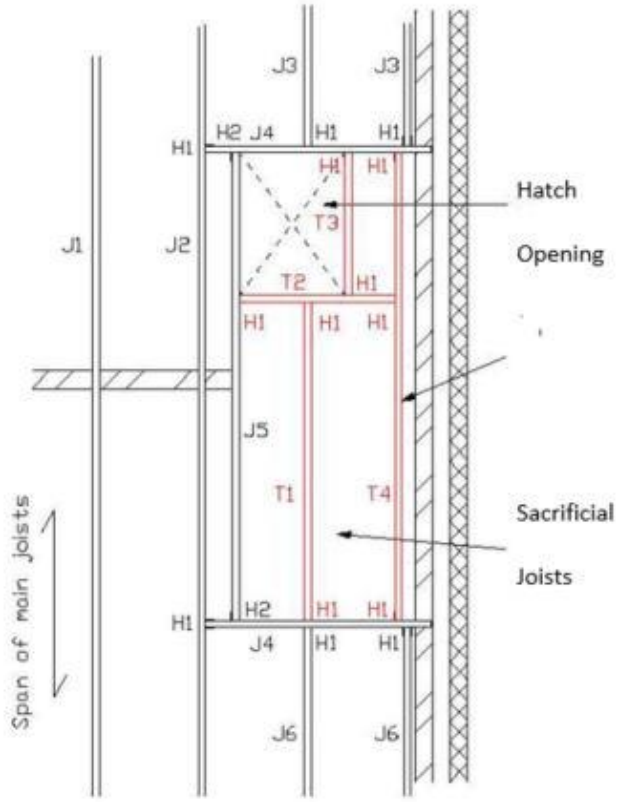
- Sacrificial joists are colour coded (e.g., red) for ease of identification.
- Sacrificial joist to be installed as per floor layout supplied with joist pack.
- All sacrificial joist lengths need to be checked for a maximum tolerance of 6mm once seated in the hangers provided (both ends). If the tolerance is exceeded, the sacrificial joist(s) must be replaced; and
- All hangers used as connectors to sacrificial joists to be Cullen LUI or UH backer less (face fix type) and installed using screws (6 No 3.5x30mm multi – purpose wood screws). See section 6.3.

There are currently three Sacrificial Joist configurations used in floor designs as illustrated on the following pages. A full drawing of the details illustrated in this subsection is available as the 'Sacrificial Joist Layout Designs' on Inhouse

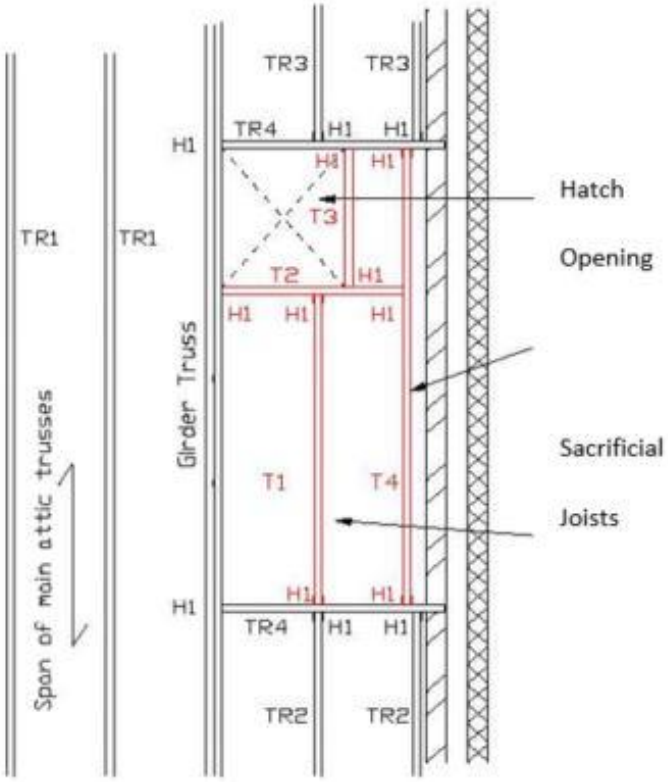
Sacrificial Joists 'Side to Side' Design



Sacrificial Joists 'Back to Front' Design



Sacrificial Joists 'Attic Truss' Design

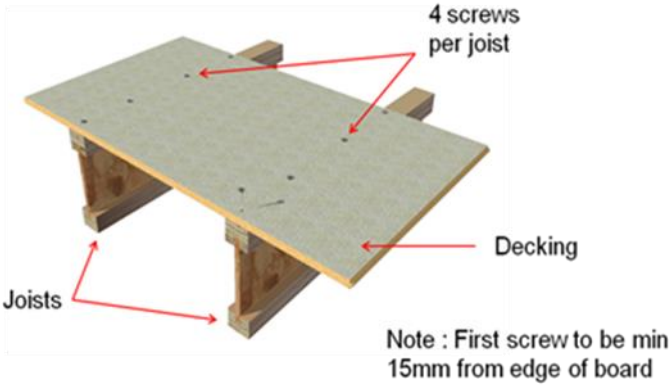


6.3.3 INSTALLATION OF FLOOR DECKING

The installation of the floor decking is carried out as one complete operation to cover the entire floor area (including the sacrificial area). Fall protection/ prevention in place, e.g., proprietary system or birdcage scaffold (see section 6.2) must be in place

Over the permanent area, the decking is fixed with nails and glue. However, the decking over the stairwell is fixed to the upper flange of the sacrificial joists with screws (3.5x40mm multi -purpose wood screws) at approx. 300mm centres.

When Softwood noggins/dwangs are required to support board ends overhanging by more than 75mm, these are skew nailed to upper flange.



The loading out of the floor decking is NOT permitted (except for supported decked floors – see section 6.4.1 or 6.4.3).

6.3.4 INSTALLATION OF THE TEMPORARY ACCESS HATCH

The hatch is to provide safe access onto the mid floor. The access hatch assembly consists of the following specification:

Timber Access hatch to the following specification:

- 800mm x 600mm opening.
- 18mm marine plywood hatch with a 50mm overlap for support on all sides.
- Cut-out on the opening side to facilitate the positioning of a ladder.
- Hatch must lift upwards on 'Tee' hinges (secured to 18mm marine plywood strip fixed to the decking).
- Painted red (on both sides to increase visibility).
- A ladder is to be positioned (and anchored) and only removed once the installation of the soft-landing system is complete (prevent someone falling on it), and.
- The hatch must be positioned to ensure hatch can close fully.

G & M Modular Access Platform Safety System

G & M Modular Access Platform Safety System has been introduced as an alternative method to the current sacrificial joist and trap hatch detail. The new system provides a temporary platform and accommodates most of the house types, accommodates most house types. For Stairwells that cannot accommodate by the GM System, please consult your RHSEA and Technical Director.

Before choosing to use the alternative method, the Site Management Team must have conformation from your technical, commercial and production for the use of the new system.

G & M Modular Access Platform Safety System

must be delivered to site within a propriety stillage

When the equipment is not in use, it must be stored within the stillage

G & M Modular Access Platform Safety System

consists of:

- Telescopic supporting beams x 3
- Deck panels
- Access and materials hatch
- Securing straps
- Box section infills

A visual check of all the components must be made by the installation operatives prior to use.

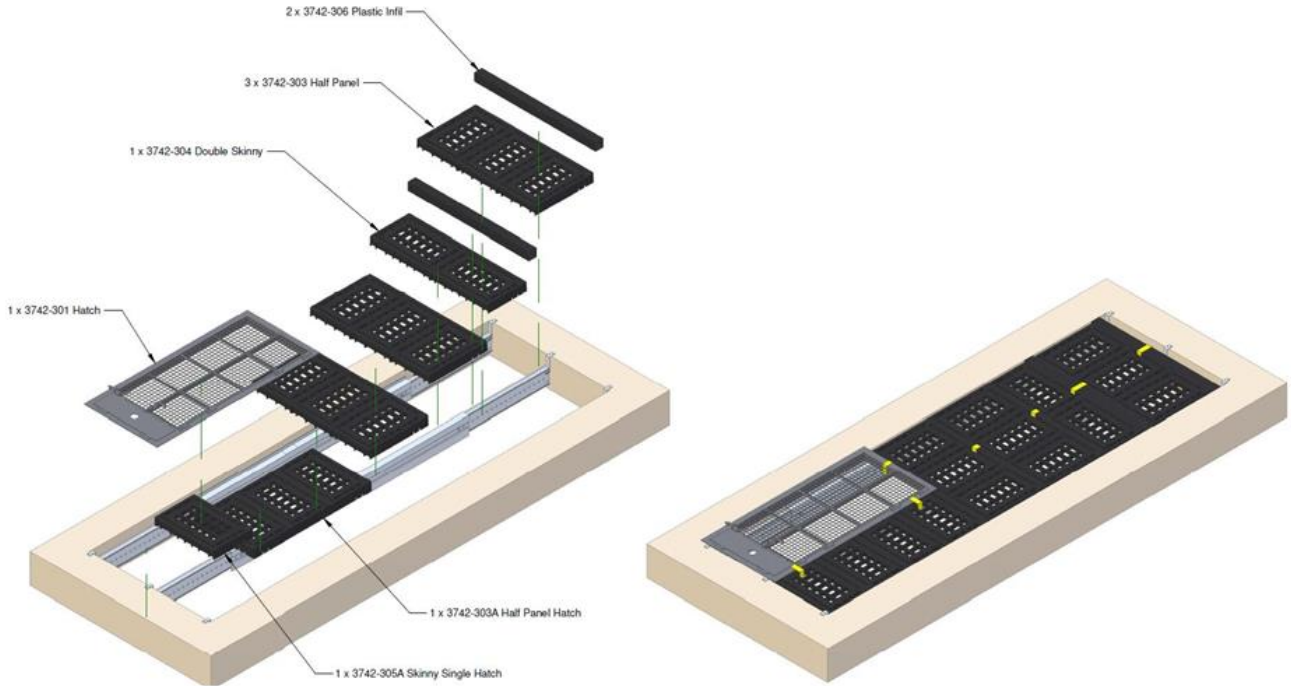
Any defective components must be isolated and not used.

Training/ Installation

Before the installation of the G & M Modular Access Platform Safety System can commence, the Installation operative's and the site management team must have received and reviewed the manufactures installation instructions and watched the installation video using the QR code below, Once the training has been completed, the briefing register must be completed.

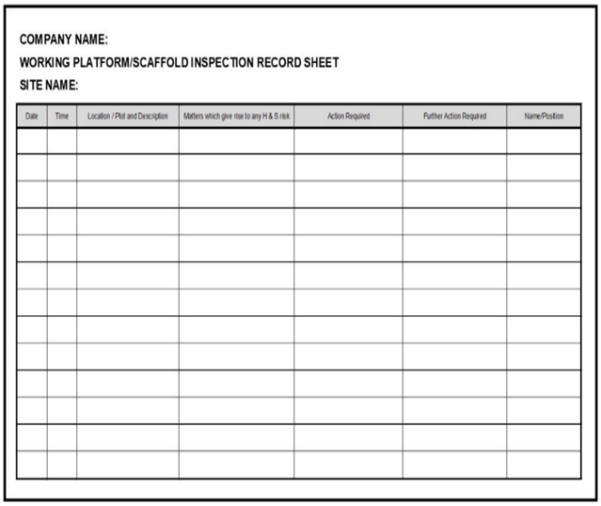
Telescopic Beams and the Access Hatch must be secured using Premium Multi-Purpose Screws 5.0 x 50 mm

GM Modular Access Platform Safety System QR Code and installation instructions and briefing register



The platform must only be installed as per the manufacturer's instructions

Inspection and Monitoring



COMPANY NAME:

WORKING PLATFORM/SCAFFOLD INSPECTION RECORD SHEET

SITE NAME:

Date	Time	Location / Plot and Description	Matters which give rise to any H & S risk	Action Required	Further Action Required	Name/Position

As part of the handover of each installation and prior to use, a visual check is carried out by the site management team and recorded in the Working Platform/Scaffold Inspection Record Sheet.

Daily visual user-check before use.

Every 7 days after the date of installation, a Statutory Inspection is carried out by the site management team.

Following adverse weather conditions or adverse impact,

The site management team are to regularly monitor the safe use of the GM Modular Access Platform Safety System

Order Codes: House Types in England and Wales

Item	Order Reference
MAP Full Set	GM01
Complete Telescopic Beam	GM02
Outer Beam	GM02/OB
Inner Beam	GM02/IB
Beam Foot	GM02/BF
Sword Pin	GM02/SP
Half Hatch Panel	GM03/A
Small Hatch Panel	GM03/B
Half Panel	GM03/C
Skinny Panel	GM03/D
Full Panel	GM03/E
Infill Beam	GM04
Hatch	GM05
Straps	GM06
Stillage	GM07

G & M MAP Safety System – G & M Modular Access Platform Safety System
G & M Safe Deck
7 A Brooks Lane
Middlewich
CW10 0JH
Tel : 01606 834630
Tel: 07736336990
office@gmsafedeck.co.uk
Markpickles@gmsafetynetting.co.uk

Order Codes: Scottish House Types

Item	Order Reference
MAP Full Set	S/GM01
Complete Telescopic Beam	S/GM02
Outer Beam	S/GM02/OB
Inner Beam	S/GM02/IB
Beam Foot	S/GM02/BF
Sword Pin	S/GM02/SP
Half Hatch Panel	S/GM03/A
Small Hatch Panel	S/GM03/B
Half Panel	S/GM03/C
Skinny Panel	S/GM03/D
Full Panel	S/GM03/E
Infill Beam	S/GM04
Hatch	S/GM05
Straps	S/GM06
Stillage	S/GM07

6.4 CONSTRUCTING SUPERSTRUCTURE FROM MID-FLOORS

Once the mid floor is complete, the superstructure can be continued either up to the next mid floor (for three storey houses) or roof level (for two storey houses).

In most cases, the work is carried out from the external scaffold working platform to construct the superstructure walls. Where there is a requirement to work directly from the mid floor, then the following key checks must be made:

- Identify the area of the mid floor to be worked from and loaded; and
- Identify how the load (blocks) are supported.

Where blocks are loaded on to the mid floor for constructing walls, then the floor must be supported. There are two options available:

Option 1: Blockwork loaded directly on to the mid floor and the floor temporarily supported from below (see section 6.4.1).

Option 2: Blockwork loaded on to an independent scaffold that is punched through the mid floor (see section 6.4.3).

6.4.1 SUPPORT FOR MID-FLOORS

Floors being loaded during build will require to be supported from below e.g., under-propping unless confirmation has been gained from the joist manufacturer.

Where it is intended to have a floor loaded without under-propping, e.g., 'Trad Deck' an assessment must be carried out by the joist manufacturer to confirm that the floor can carry the weight of the 'Decking System' without the need for under-propping.

If the mid-floor is used as a work area or carry loads, then:

Identify the area of floor to take the load (such as persons, materials, hop-ups, birdcage, etc.); and

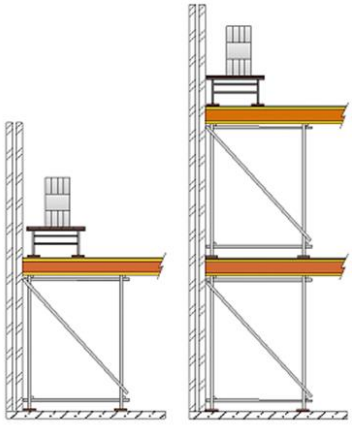
Install a means of support (see opposite) or have checks made (joist Manufacturer) regarding loading e.g., use of lightweight decking.

Example of scaffold used as support to a timber mid-floor

6.4.2 CONSTRUCTING BLOCKWORK FROM THE MID-FLOOR

Where blockwork is being loaded on to the midfloor, the following loading configuration must be used:

- Floor must be supported
- Material (blocks) must only be staked in the 'Load Zone' no more than 1.0 m clear distance from the joist support (Load Zone)
- Blocks must be placed on two scaffold boards (sprayed red) to spread load and prevent floor damage
- Not less than 1.0m clear distance between stacks
- Stack size not larger than:
  - 0.45m x 0.45m x 0.7m high for party walls
  - 0.45m x 0.45m x 0.9m high for perimeter walls
- Where joists are supported on masonry hangars confirm the proposed loading is acceptable to the joist manufacturer before loading out the floor.
- DO NOT place stacks on cantilever joist spans and covered stairwell openings.



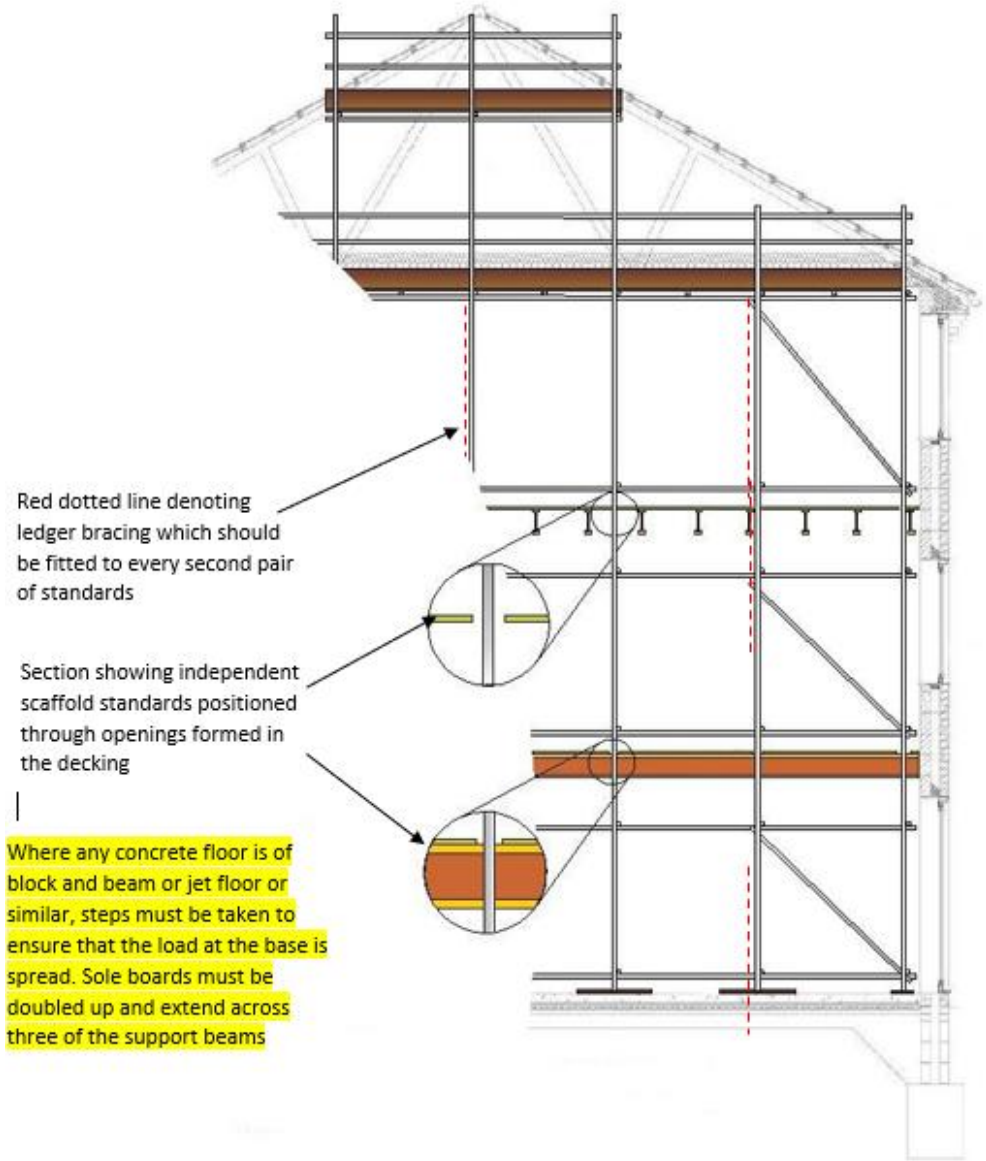
Bricklayers Hop-ups

- Bricklayer's hop-ups placed on scaffold boards
- Located in the load zone – 1.0m from external walls

6.4.3 SUPPORT FROM PUNCHED THROUGH INDEPENEDENT SCAFFOLD

Holes are drilled through the decking so that the standards and loads are carried directly off the ground floor. Façade bracing is installed, and ledger bracing is provided on every alternate pair of standards.

Note: Putlog scaffolding is not to be used for party wall construction.



6.4.4 STRUCTURAL STABILITY OF FREE-STANDING BRICK/BLOCKWORK

On upper levels of blockwork walls including the apexes of party and gable walls, there is an increased risk of exposure to high winds/adverse weather that may affect their stability.
Steps must be taken to ensure their stability by:

- Blockwork to be constructed to a maximum 6 courses per day, and
- Brickwork to be constructed to a maximum 18 courses per day.

If the brick/block wall is freestanding, e.g., Gable walls, and exposed to windy conditions, extra precautions must be taken to provide support.

An example of how walls can be supported is illustrated opposite where triangular bracing panels are used.

6.4.5 INTERNAL MORTAR TO GABLE APEX WALLS

The preferred method for accessing to gable apex walls, including for filling, pointing, and brushing off excess mortar, is 'overhand' from the external platform.

Where access is not practical from the external scaffold, then work must be carried out from a suitable internal platform, e.g.: Birdcage scaffolding on a supported deck or Proprietary access platform (Rhino, TRAD Deck or G&M Safety Deck (see section 6.2)

On some internal gable apex walls, it may not be possible to reach the top of wall from the internal platform. In these instances, a temporary working platform such as the Oxford trellis can be used.

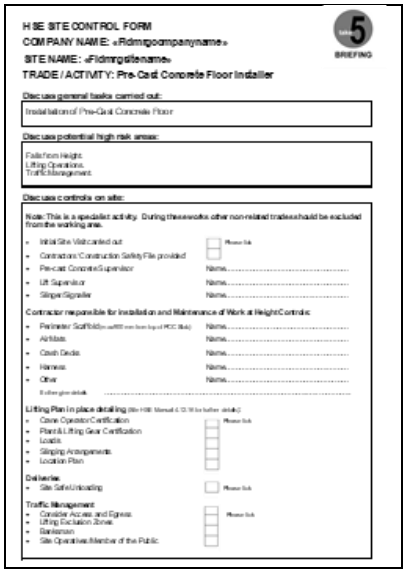
If a temporary platform is used the 'internal fall protection' must remain in place below.

6.5 INSTALLATION OF PRE-CAST CONCRETE FLOOR

The installation of pre-cast concrete floors is a specialist activity. There are several keys checks the TW Site Management Team, in conjunction with the Installation Supervisor, must make before the installation can commence:

- Enough time has been allowed for the slab bearing walls to be adequately cured
- Check that no visible damage to the slab bearing walls / surfaces
- Scaffold platform has been set at the correct height for the installation team to have safe access and visibility during the landing of the slabs / beams.
- The agreed fall prevention / protection system e.g., 'Air Mats' have been fully installed.
- The installation team have provided the TW Site Management Team with a copy of:
- Their Lifting Plan - Safety Method
- Safety Method Statement (agreed Safe System of Work)
- Completed copy of their 'Pre-Installation Checklist' (i.e., confirming that an inspection of all slab bearing walls / surfaces has been carried out by the Installing Supervisor).
- The installation team have been briefed by the Installation Supervisor.

No slab / beam installation can proceed without the above checks being made and a completed copy of the 'Pre-Installation Checklist' being received and checked.



HSE SITE CONTROL FORM
COMPANY NAME: «Fldmrgcompanyname»
SITE NAME: «Fldmrgsitename»
TRADE / ACTIVITY: Pre-Cast Concrete Floor Installer
5 BRIEFING
Discuss general tasks carried out:
Installation of Pre-Cast Concrete Floor
Discuss potential high risk areas:
Falls from Height
Lifting Operations
Traffic Management
Discuss controls on site:
Note: This is a specialist activity. During these works other non-related trades should be excluded from the working area.
Initial Site Visit carried out
Contractors Construction Safety File provided
Pre-cast Concrete Supervisor
Lift Supervisor
Slinger/Signaller
Contractor responsible for Installation and Maintenance of Work at Height Controls:
Perimeter Scaffolds
Airbags
Crash Decks
Harness
Other
Lifting Plan in place detailing
Crane Operator Certification
Plant & Lifting Gear Certification
Loads
Slinging Arrangements
Location Plan
Deliveries
Site Safe Unloading
Traffic Management
Consider Access and Egress
Lifting Exclusion Zones
Banksman
Site Operatives/Member of the Public

Before authorising the installation of a precast concrete floor, the Site Manager must, in advance, hold a 'Take 5' to discuss and review the Contractor's safe system of work, including any applicable critical points.
The 'Take 5' Pre-Cast Concrete Floor Installer Briefing (see section 3.2.2.7) and the HSE Site Control Form –STAC / HSE Control Forms Folder can be used.

6.6 TIMBER FRAME CONSTRUCTION

When constructing with timber frame, the following specific risks must be managed:

- Designed free-standing scaffold (see section 5.1.5).
- Inner gaps between scaffold and building skin (see section 6.6.2).
- Lifting pre-constructed units into place (see section 8.3); and
- Increased fire risk (see section 11.5).

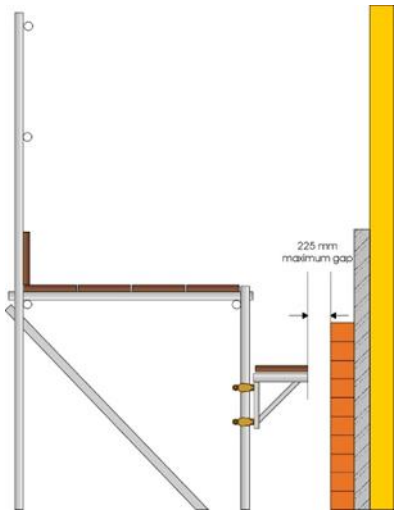
Internally, the fall protection measures are the same as for traditional build (see sections 6.2).

6.6.1 FREE-STANDING SCAFFOLD

A scaffold design is required for any free-standing scaffolds which must address:

- Stability (including in windy conditions); and
- Internal handrails and toe boards to prevent falls.

6.6.2 INNER GAPS BETWEEN SCAFFOLD AND BUILDING SKIN



Where the gap between the working platform exceeds 225mm:

- An internal handrail is required; or
- The gap reduced with an extra board or a (larger) hop-up bracket.

The scaffold design must also accommodate the change in the gap from before and after the outer leaf is constructed.

6.7 JOIST DESIGN FOR RENEWABLE TECHNOLOGIES

The installation of elements of renewable technology, such as large storage cylinders, can place additional loading on Timber Mid Floors. If not correctly addressed by design - excessive deflection, bounce and even joist failure could result.

6.7.1 MECHANICAL VENTILATION HEAT RECOVERY (MVHR) DUCTING

MVHR ducting requires large holes, typically 130mm wide. Although the joists can accommodate such openings, care must be taken to ensure the openings are located correctly and at the required distance away from main structural bearings to prevent weakening the floor or causing excessive deflection/ squeaking.

If the floor joist design does not incorporate the location of the MVHR duct runs - the ducting must not be installed. Contact the Technical Director for clarification. If the position of the duct runs needs to be changed - the joist design must be revised to reflect this.

6.7.2 CYLINDERS ASSOCIATED WITH SOLAR THERMAL INSTALLATIONS

These cylinders, used to store the thermal mass, can be typically around 400kg in weight. Our standard floor designs are not designed for these imposed loads.

If the floor design does not incorporate the weight/location of the cylinder being used - the cylinder must not be installed. The operation is halted immediately, and clarification obtained from the Technical Director.

If the location of the cylinder needs to be changed - the floor design must be revised to reflect this.

6.8 CONSTRUCTING ROOFS

Typically, there are two types of pitched roof construction carried out on TW sites:

- Traditional / Timber Frame / Apartments
- Modular Roofs (see section 6.11)

6.8.1 RISK ASSESSMENT

A full and specific risk assessment for installing any roof type must be undertaken by a competent person before any work commences. When completing a risk assessment, the following hazards must be considered as a minimum:

- Delivery to site
- Competency of individuals
- Loading and unloading
- Storage of trusses/roof components
- Movement of trusses/roof components
- Lifting of trusses/roof components
- Work at height
- Access and egress
- Slips and trips
- Structural collapse
- Manual handling
- Overhead services
- Temporary bracing
- Inclement weather

6.8.2 FALL PROTECTION FOR ROOFWORK

Prior to any roof construction work, suitable fall protection must be provided e.g.:

- Birdcage scaffold / proprietary access platforms (see section 6.2); or
- STS Trellis Mats (or similar)

Where the work is complex or time consuming, e.g., roof structure with a considerable amount of cut joints, then birdcage scaffolding/proprietary access platform must be provided

BIRDCAGE SCAFFOLD / PROPRIETARY ACCESS PLATFORMS

- Operatives installing the specific system must have been trained in its use.
- Inspections must be carried out and recorded before installation and recorded in the Working Platform/ Scaffold Inspection Record Sheet (Construction HSE Plan Folder 2, F2.6).

And for proprietary systems:

- A copy of the manufacturer's instructions must be available on site; and
- Operatives erecting the specific system must provide a 'handover certificate'

STS Trellis Mats

6.8.3 DELIVERY AND OFFLOADING

All roof truss packs, and spandrel panels delivered to site must have suitable pre-attached lifting slings (pre-slung) to enable them to safely be off-loaded from the delivery vehicle and without the need for anyone to access the load area of the delivery vehicle.

If any roof truss delivery is received without the factory fitted strapping or slings, then stop the operation and contact your Regional / Site HSE Advisor. A Non-Compliance Notice must be issued, and the trusses returned to the supplier if there is no alternative safe means of off-loading (e.g., using fall arrest 'bag wallets').

The Commercial Director must be made aware of the Non-Compliance Notice and to take up the issue directly with the truss supplier.

Trusses and spandrel panels are supplied with the following factory fitted lifting straps

Spandrel Panels

Have two types of lifting straps are supplied, long straps for offloading and short straps for lifting or transporting with a telehandler/mobile crane

Truss Packs

Have one type of lifting strap supplied, used for both offloading and for lifting or transporting with a telehandler/mobile crane

Security and stability of Trusses

As well has having pre-attached lifting slings, trusses must be secured together (bundles) and secured to the delivery vehicle to maintain their security and stability during both their journey to site and whilst being off-loaded.

- Trusses secured together and to delivery vehicle using colour straps:
- One colour to be used to secure truss bundles together, and
- Another colour used to secure the trusses to the vehicle

There are two options for offloading trusses and spandrel panels from delivery vehicles:

- Option 1 - Using a mobile crane or HIAB
- Option 2- Using a telehandler with the approved lifting accessories (hook or truss jib)

The preference is to arrange and co-ordinate delivery so that the trusses/spandrel panels can be off-loaded by a mobile crane or HIAB directly from the delivery vehicle – 'just in time'

Offloading using a Mobile Crane or HIAB

To minimise the need to carry trusses/spandrel panels around the site, arrangements are made, where possible, to have 'just in time' deliveries and truss racks positioned close to the plots.

This allows temporary storage of trusses/spandrel panels near to their point of installation and avoids any future need to transport them using a telehandler.

Roof Structures (e.g., roof trusses and spandrel panels) for anything other than low level roofs (e.g., garages) must be lifted into place by means of a mobile crane or HIAB, with a suitable lifting plan available (See Section 8.3).

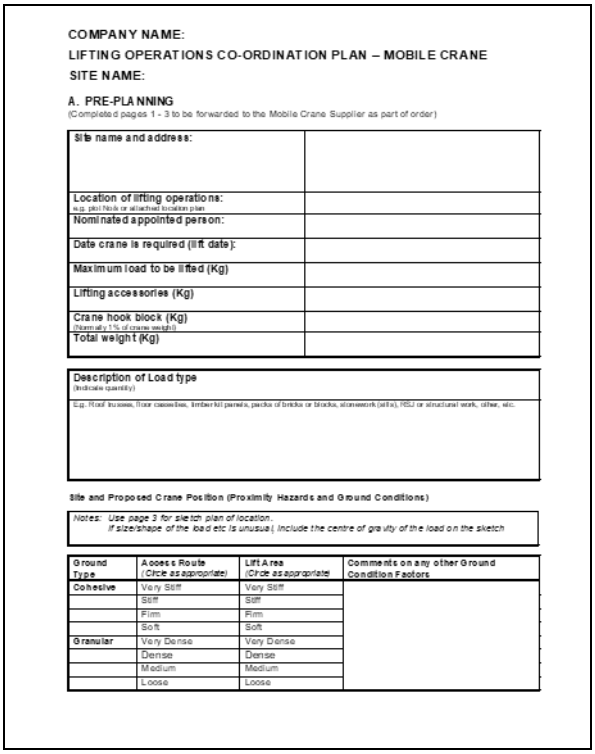
Planning a Crane Lift

As part of the planning of a new site, a crane location drawing should be produced, this must include the location of cranes and their swing radius so planning of truss rack locations can be carried out (see section 5.1.19).

The drawing and planning must also consider underground and overhead hazards e.g., soft ground, drainage, services etc. to ensure these are avoided when setting up cranes on site. The crane location plan must be reviewed on regular basis with your Site HSE Advisor

No lifting operation, no matter what type of crane/machine is being used can take place on site without the Site Managers permission.

Authorisation is given once the task has been reviewed and critical safety checks have been made including a check to ensure that adequate resources/manpower are available and the Lifting Operations Co-ordination Plan – Mobile Crane (Folder 2 F2.11a) has been completed.



COMPANY NAME:
LIFTING OPERATIONS CO-ORDINATION PLAN – MOBILE CRANE
SITE NAME:

A. PRE-PLANNING
(Completed pages 1 - 3 to be forwarded to the Mobile Crane Supplier as part of order)

Site name and address:	
Location of lifting operations:	
Nominated appointed person:	
Date crane is required (lift date):	
Maximum load to be lifted (Kg)	
Lifting accessories (Kg)	
Crane hook block (Kg)	
Total weight (Kg)	

Description of Load type

Site and Proposed Crane Position (Proximity Hazards and Ground Conditions)

Notes: Use page 3 for sketch plan of location. If size/shape of the load etc is unusual (include the centre of gravity of the load on the sketch

Ground Type	Access Route (Circle as appropriate)	Lift Area (Circle as appropriate	Comments on any other Ground Condition Factors
Cohesive	Very Stiff	Very Stiff	
	Stiff	Stiff	
	Firm	Firm	
	Soft	Soft	
Granular	Very Dense	Very Dense	
	Dense	Dense	
	Medium	Medium	
	Loose	Loose	

If the Site Management Team is responsible for preparing a Lifting Plan as part of a 'hire and manage' lift, then a Lifting Operations and Co-ordination Plan – Mobile Crane (Folder 2, F2.11a) must be completed by the Site Management Team in consultation with the Crane Hire Company (See Section 8.3)

If the Carpentry Contractor is responsible for preparing a Lifting Plan, then they must provide their Lifting Plan to the Site Management Team for review.

The Site Management Team must complete parts B and C of F2.11a (Lifting Operations and Co-ordination Plan – Mobile Crane) to authorise the lifting operation to commence (See Section 8.3).

Offloading using a Telehandler

Where it is not possible to use a crane or HIAB to offload the trusses/spandrel panels, then they may be removed from the delivery vehicle by the telehandler using the method described below.

When a telehandler is used for unloading there must be suitable arrangements for the Telehandler and Delivery Vehicle to be positioned so that there is direct access for the trusses/spandrel panels to be placed directly on to the designated truss rack.

The lifting straps (long straps for spandrel panels) are attached from ground level to the JCB Lifting Hook fitted to the telehandler (note: the trusses/spandrel must still be secured to the delivery vehicle).

- Delivery driver or other authorised person 'cuts' the colour coded securing straps by using a telescopic cutter.
- Telehandler lifts and then places the trusses/panel on the ground, ensuring the panel is stable against the vehicle

JCB Hook

- For spandrel panels the short strap is then attached to the lifting hook attachment ready for lifting onto a suitable truss rack
- Once the straps/short straps are attached the telehandler engages their stabilisers and lifts the trusses/spandrel panel 'just' off the ground
- Delivery vehicle then moves forward or back allowing the telehandler to boom out and place the trusses/spandrel panel directly onto a truss rack
- Before placing spandrel panels on the truss rack the long strap must be attached and the short strap detached to avoid the need to climb on the truss rack.

Note: The area must be segregated off and where visibility issues for the Telehandler Operator a traffic marshal is provided.

6.8.4 STORAGE OF ROOF TRUSSES/SPANDREL PANELS

Installing roof trusses, spandrel panels and the associated bracing, etc. requires specific construction skills, therefore, the installation of roof trusses, spandrel panels, etc. must only be undertaken by suitably experienced and qualified personnel.
There are two options for placing and storage of trusses/spandrel panels on site:

- Lifted either individually or in small groups and immediately installed in their permanent location; or
- On designated truss racks ready for future installation (ideally adjacent to the plots where they are to be installed)

On the Roof Plate

Trusses/spandrel panels are lifted directly from the delivery vehicle (either as a small number at a time or individually) via a mobile crane or HIAB and placed directly onto the roof plate of the required plot

Where groups of trusses are lifted, they must be laid flat across the roof plate, then manually positioned, and secured with the first truss temporarily secured to one of the table lifts

There are two different methods for temporary securing trusses at roof level, including:

Method 1

Trusses lifted singularly with first truss secured to a table lift, constructed with the following sequence:

- All joints above the last line to be spliced
- Structural transoms at each pair of standards within the table lift
- Ledger brace every frame of table lift
- Table lift fitted with third guardrail.

Method 2:
Trusses laid flat across the wall plate.

For information on the temporary bracing and installation of roof trusses please see section 6.9
The Site Management Team must check and confirm the temporary bracing requirements are included in the Carpentry Contractor's safe system of work and that the operatives involved have been briefed on Section 6.8.1. The operation must be carried out and completed by the same team.

Full truss packs must not be lifted on to the roof plate and stored vertically, they must be laid down across the wall plate.

Note: as part of pre-lifting checks and throughout the lifting operation the wind speed must be regularly monitored. Wind speed can be monitored either via the anemometer fitted to the mobile crane or via a hand-held anemometer if using a HIAB.

If gusts of wind are more than 11m/s (25mph), then the operation must not commence or be stopped.

On a designated truss rack

Where it is not possible to have the trusses delivered 'just in time', i.e., lifted directly onto the roof plate and immediately installed, then trusses must be stored in a safe manner on a suitable truss rack.

The types of suitable truss racks include:

Truss rack attached to scaffold

(See Section 5.1.19)

Free standing truss rack

(See Section 5.1.19)

Truss racks must be located where there are suitable ground conditions to allow safe access for any telehandlers or mobile cranes/HIABs

Locate truss racks so that they are within reach (radius) of mobile cranes/HIABs to subsequently eliminate or at least reduce the need to transport them via a telehandler

6.8.5 TRANSPORTING ROOF TRUSSES AND SPANDREL PANELS

When transporting trusses and spandrel panels around the site by telehandler, the approved lifting hook attachment or approved truss jib must be used.

(See Section 8.2.14)

Spandrel panels have two types of lifting straps factory-fitted by the supplier, short and long straps.
The long straps are used for offloading and the short straps for transporting and lifting.

The short straps on spandrel panels are used for transporting so that the centre of gravity of the load is kept low.

Truss packs and spandrel panels are restricted to a maximum weight of 600kg.

A tag line must be attached to the load and a Traffic Marshal used to control the load.

When Transporting Trusses with a truss jib, the trusses must be secured to the Truss Carrier preventing lateral movement e.g., clamp or tied

On spandrel panels the supplier must fit a small strap at the heel to attach the tag line to.

When transporting trusses or spandrel panels with the truss jib or lifting hook attachment, if there is any concern about the safety of the lifting operation the activity must be immediately stopped, and the Site Manager consulted.

Lifting straps must never be suspended directly from the forks or carriage of the telehandler.

Trusses must never be transported on the forks of the telehandler without a truss jib or lifting hook attachment.

The telehandler operator must be trained to offload and transport underslung loads using the truss jib or truss lifting hook attachment in accordance with the TW HSE Training Matrix.

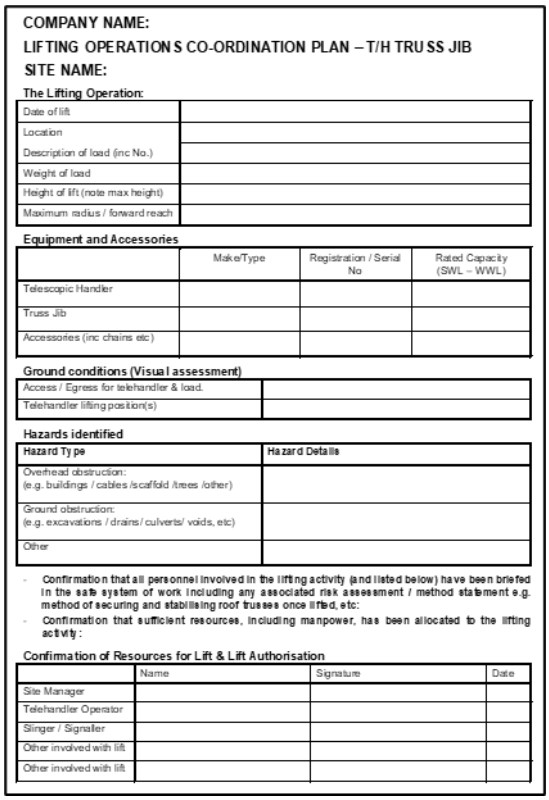
6.8.6 LIFTING AND PLACING TRUSSES AND SPANDREL PANELS

During the construction of smaller, low-level roofs e.g., garages, it may not be practicable to use a mobile crane (e.g., accessibility issues etc.) In such situations, a telehandler utilising a truss jib, or a lifting hook attachment can be used – but only if assessed and controlled in line with the telehandler controls set out (See Section 8.3).

Before any lifting operation is carried out using a Telehandler with the use of an approved Truss Attachment, an assessment must be made of the specifics of the lift, including:

- Location of roof.
- Weight and size of trusses / Spandrel Panel.
- Reach of telehandler.
- Ground conditions, e.g., excavations, manholes, etc.; and
- Any obstructions, e.g., overhead services, etc.

Where a TW telehandler is being used to place trusses e.g., garage roofs, the Site Manager, as the 'Appointed Person' for the lift must prepare a Lifting Plan in coordination with the Telehandler Operator using the Lifting Operations Co-Ordination Plan – T/H Truss Jib (Folder 2 F2.11b). Before a lift can be carried out using a truss jib attachment, you must arrange to have your proposed lift procees and lifting plan reviewed with your Regional or Site HSE Advisor.



COMPANY NAME:

LIFTING OPERATIONS CO-ORDINATION PLAN – T/H TRUSS JIB

SITE NAME:

The Lifting Operation:

Date of lift	
Location	
Description of load (inc No.)	
Weight of load	
Height of lift (note max height)	
Maximum radius / forward reach	

Equipment and Accessories

	Make/Type	Registration / Serial No	Rated Capacity (SWL – WWL)
Telescopic Handler			
Truss Jib			
Accessories (inc chains etc)			

Ground conditions (Visual assessment)

Access / Egress for telehandler & load.	
Telehandler lifting position(s)	

Hazards identified

Hazard Type	Hazard Details
Overhead obstruction: (e.g. buildings / cables /scaffold /trees /other)	
Ground obstruction: (e.g. excavations / drains / culverts/ voids, etc)	
Other	

- Confirmation that all personnel involved in the lifting activity (and listed below) have been briefed in the safe system of work including any associated risk assessment / method statement e.g. method of securing and stabilising roof trusses once lifted, etc:
- Confirmation that sufficient resources, including manpower, has been allocated to the lifting activity:

Confirmation of Resources for Lift & Lift Authorisation

	Name	Signature	Date
Site Manager			
Telehandler Operator			
Slinger / Signaller			
Other involved with lift			
Other involved with lift			

Responsibilities:

Site Manager.

When:

For each lifting operation using a telehandler to lift and place roof trusses e.g., single-storey structures e.g., garage

Purpose:

To ensure lifting operations are planned, managed, and carried out safely.

Key Points:

Location, including sketch.

Exclusion zone.

Load(s) to be lifted.

Equipment to be used; and

Ground conditions and obstructions.

Only operators, slingers and banksmen who have received specific training - use of the attachment in accordance with the training matrix- can be involved with carrying or placing trusses with a truss jib. This is in addition to receiving a Site Safe Briefing (see Site Safe Briefing: Safe Use of Telehandlers on TW Sites – Site Safe Briefing Folder).

Roof Structures (e.g., roof trusses and spandrel panels) for anything other than low level roofs must be lifted into place by means of a mobile crane, with a Lifting Operations Plan available (See Section 8.3).

No lifting operation, no matter what type of crane/machine being used can take place on site without the Site Managers permission.

Authorisation is given once the task has been reviewed and critical safety checks have been made including a check to ensure that adequate resources/manpower are available and the Lifting Operations Co-ordination Plan – Mobile Crane (Folder 2 F2.11a) or Lifting Operations Co-ordination Plan – T/H Truss Jib/Lifting Hook (Folder 2, F2.11b) has been completed.

6.8.7 ACCESS FOR ROOF INSTALLATION WORKS

Access for the roof truss installation is normally via the installed perimeter scaffold. Trusses must be temporarily braced (see section 6.9) as they are lifted into place and again as they are 'spread & spaced' to the required position along the wall plate.
Safe access to complete high-level apex bracing or complex bracing, e.g., steep pitched roofs and attic trusses etc. is provided with the use of the Safe Truss Access Ladder (STA):

Safe Truss Access Ladder (STA) and Access Boards:

- provides a safe means of access across truss chords and to higher levels of the truss where apex bracing needs to be fixed.
- the upper spreader bar spans the gap across the trusses at high level; and
- the welded spreader bar at the base of the ladder sits securely into the "V" point of the truss.

A Safe Truss Access Ladder [STA] set, including access boards, must be held on all sites carrying out roof truss installations.

STA Available From:

Safety Platform Ltd.
Unit V4, Carlinghow Mills
501 Bradford Road
Batley
WF17 8LN

Tel: 01924 420820

WWW.safetyplatforms.co.uk

See Site Safe Briefing: Use of Access Boards and Truss Ladder – Site Safe Briefing Folder)

In bespoke roof types, other access systems may be required to complete the roof structure or complex bracing. Examples are:

- Proprietary platforms.
- Scaffolding;

Proprietary Platforms:

- Are to be used when the installation is time consuming or complex

Scaffolding:

- Scaffold access provided in and around the attic truss top hat section

The Site Management Team must check and confirm that the Carpentry Contractor's safe system of work includes releasing, spreading and final bracing of the roof trusses and that the operatives involved have been briefed.

6.9 INSTALLING ROOF TRUSSES - TEMPORARY BRACING

This method of temporarily securing the trusses to the table lift can be used on all types of traditional roofs, i.e., houses, apartments, or timber frame buildings where the roof is constructed in-situ on the roof plate.

Install Structural Grade Timber to Table Lift

A qualified scaffolder must install the structural grade timber to the table lift standards, secured with transom clips prior to any trusses being lifted

Truss location and lift

- Mark out the wall plate to show the truss locations.
- Lift trusses either in small groups lay flat across the roof plate, or lift trusses individually

Temporary bracing

- Set and position first truss
- temporarily secure the truss to the table lift using 2no. C16 structural grade timber (150mm x 50mm)
- Using a temporary timber fixed to the first truss for the 2no. C16 temporary braces to fix to

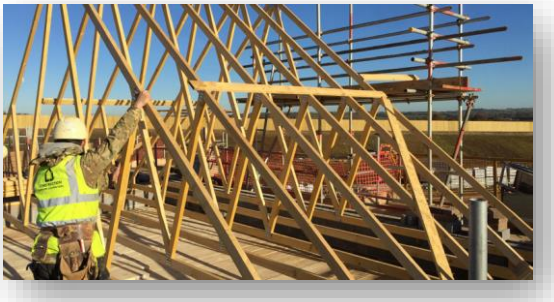
Install second truss

- Second truss positioned and secured into position

- Temporary lateral bracing structural timbers are added to each side, keeping them as close as possible to the horizontal brace on the first truss

Install third and fourth trusses

- The third and fourth trusses are installed by repeating the previous steps.
- When the third and fourth trusses are in position, nail fix a diagonal brace to the trusses on each side of the roof.



Install remaining trusses

- Continue to spread the trusses and fix by repeating the process until the roof is fully spread.
- With the permanent longitudinal and diagonal bracing installed as the trusses are installed as per the roof design to provide maximum stability
- Spandrel panels are installed once the roof is fully braced, strapped, and secure

Note: for large roofs, i.e., apartment buildings where the trusses cannot be fully installed in one-day the risk assessment must detail the sequence of work for each day and how the trusses are left secure overnight

Note: for timber frame where trusses are erected at ground level the same sequence of work is followed in respect of temporary stability of the trusses. Then when lifted into position, internal fall protection must be in place

6.10 INSTALLING SPANDREL PANELS

Before any Spandrel Panel is lifted on site, the roof trusses must be in place and permanent bracing installed. The Site Manager must have been provided with confirmation (in the form of a Design Specification) that the panels have been correctly designed and constructed for lifting into position at height. This must be provided by the supplier (or TW Technical Team). If not provided as outlined below, do not lift the panels, and contact your Regional HSE Advisor:

- All panels are supplied with factory fitted 'weight tested' lifting straps.
- All panels have been designed and constructed (with the necessary bracing support) to allow the panel to be lifted via the lifting straps; and
- Any panels that are fabricated in multi-sections. Details are provided on how each of the panel's sections is to be secured together (e.g., bolting or nailing schedule).

To ensure the safe slinging of spandrel panels being lifted into place, the following checks must be carried out:

- The manufacturer / supplier must supply the panels pre-slung with lifting slings.
- The crane operator to test the slings visually and by lifting each load just off the ground and checking lifting straps are secure - before proceeding lifting the panel to height; and
- Spandrel panels to be temporarily braced. Temporary bracing can only be removed once the trusses are installed and securely fixed.

See also:

- Section 8.2.14 if carrying, lifting and/or placing by a Telehandler; and
- Section 8.3 if carrying, lifting and/or placing by a mobile crane

6.11 PREFABRICATED ROOM-IN-A-ROOF SYSTEM

This arrangement covers the supply and installation of prefabricated roofs including roof cassettes, spandrel panels, GRP dormers and roof lights.

A pre-start meeting must be held by the supplier/installer and the Site Manager to the review the arrangements for delivery, scaffolding, lifting operations and installation safe system of work.

Table Lifts

- Before erecting a table lift, scaffolders must be familiar with the roof type and pitch.
- The table lift must be appropriate to the size and the pitch of the roof to minimise the risk of falls.
- Double handrails must be installed on the spandrel face (inside) of the table lift while the spandrel panel is being lifted into place and installed.
- The handrails must stay in place until the brickwork has been installed up to the working platform to prevent a fall between the table lift and spandrel panel.
- At this point, the handrails can be removed, only by a trained scaffolder if there is no risk of falls from the working platform of the table lift.
- Depending on the pitch of the roof and the coverage of the spandrel panel there may still be a risk of falls when the inside handrails are removed, in this case the scaffolder must assess what additional protection is required, which may include shorter tubes and/or handrails at the verge.
- Operatives must never access the area between the double handrail and spandrel panel.

Scaffolding

A designed scaffold is required to provide suitable access and egress for the installation.

Delivery

The roof cassettes, spandrel panels, etc. loaded and delivered to site in installation sequence.

Lifting

The roof cassettes, spandrel panels and glulam beams, top hats, etc. must be pre slung so that no operative needs to access the back of the lorry for the purpose of unloading any materials. Dormers, Roof lights and Fascia are offloaded by the site telehandler.

All lifting must be as per the lift plan and controlled by a crane supervisor and slinger/signaller and ensuring there is a designated exclusion zone when lifting.

The roof cassettes are lifted into position with pre-installed slings and with tag lines attached to assist lifting into position.

When lifting dormers and roof lights (windows) slings are attached to the designated lifting points (as per the manufacturer's instructions) and with tag lines attached to assist manoeuvring into position.

Bracing

The Spandrel panels are lifted and placed into position and temporarily braced (as per supplier specification). Temporary bracings are only removed once the installation is complete, and all items are permanently secured.

Installation

The glulam beam, top hat spandrel panel section is constructed on the ground and subsequently lifted into place.

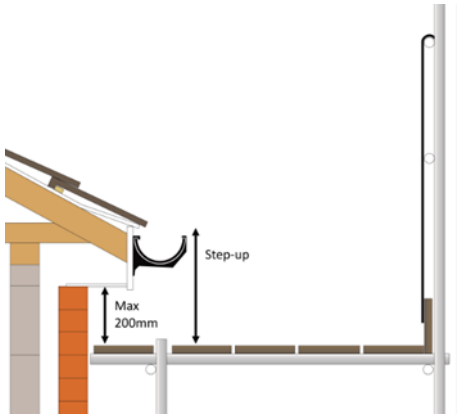
Once the top hat section has been secured then the remainder of the roof cassettes can be lifted and secured into position.

The roof cassettes are secured to the roof plate and top hat purlin before the slings are removed.

Once the prefabricated room in the roof is completed, all waste material, timber, etc. is removed from the working platform

6.12 ROOF COVERING

6.12.1 FALL PROTECTION



A maximum gap of 200mm from the underside of eaves to the external scaffold working platform below.

6.12.2 WORKING NEAR GABLE EDGES

When operatives work near a gable edge, suitable edge protection must be provided in the form of a table lift or an up and over scaffolding guard rail (or both). This applies to all roofs including single or double garages.

Table lift with half-gate for edge protection (to allow safe loading of material onto the table lift working platform)

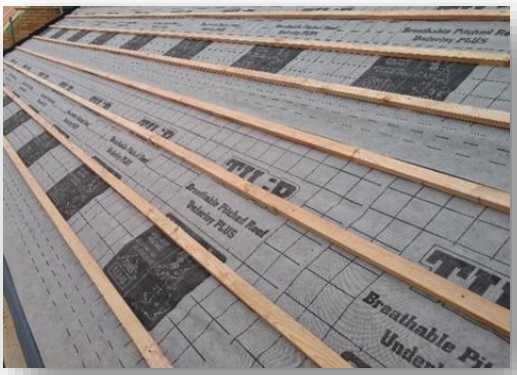
6.12.3 ROOF FELT BATTENS AND TILE / SLATE INSTALLATIONS

Before commencement of roof felt, battens and Tile/Slate Installation, a suitable Fall Protection system must be installed beneath, for example: Proprietary Decking System or a Birdcage Scaffold prior to the roof being worked on.

"The NFRC recommends that the internal fall protection is not removed by the home builder or main contractor until it is safe to do so; ideally when the roofing works have been completed, but as a minimum when the roof has been felted, battened and completely loaded out".

At no point is the internal fall protection to be removed before this point, unless the risk assessment deems that it is safe to do so.

Note: the risk assessment is based on the batten spacing, if the spacing exceeds 150-200mm, then fall protection must remain until the roof is tiled/slated



Timber battens can provide a secure foothold provided that the following measures are included:

- They are fixed to rafters set at centres not more than 600mm apart.
- All battens conform to BS 5534 Code of practice for slating and tiling and the NHBC standard for Roof Battens.
- All battens must be indelibly marked with the name of the supplier, size, and grading.
- The battens are a minimum size of 50mm x 25mm;

- The battens are at least 1.2m long to ensure they span a minimum of 3 trusses.
- They are fixed to trusses set at centres of not more than 600mm; and
- The battens are fixed only with the recommended nails.

6.12.4 CUTTING TILES AND SLATES

No cutting of Tiles/slates in-situ.

Roof Tile Cutting Jig

A cutting jig can be used for cutting/preparing tiles being fitted in the roof valley areas (see Roof Tile Cutting Jig, available on Inhouse.

The jig can be used within a drip tray to control any slurry created by the water suppression system. The jig can also be used for straight cuts required on other areas of the roof.

P.P.E

When cutting tiles, wear:

- Hearing protection
- Eye protection; and
- Respirator (minimum of FFP3 grade, as minimum and operative must have been face-fit tested.)

Tile Nibblers

Tile Nibbler can be utilised with certain slates and tiles and help minimise dust (i.e., not cutting)

6.13 SECURITY OF EXTERNAL BUILD COMPONENTS

External build components need to be secured in accordance with the installation design and manufacturer's instructions. Consideration must be given to suitable access arrangements for the task. A suitable working platform for all stages must be provided.

6.13.1 BRACKET SUPPORTED TILED PORCHES / CANOPIES

Failures have occurred where a contractor did not comply with the design e.g., fixing specification i.e., using standard plugs & screws instead of the fixings recommended by the manufacturer.

The key controls are:

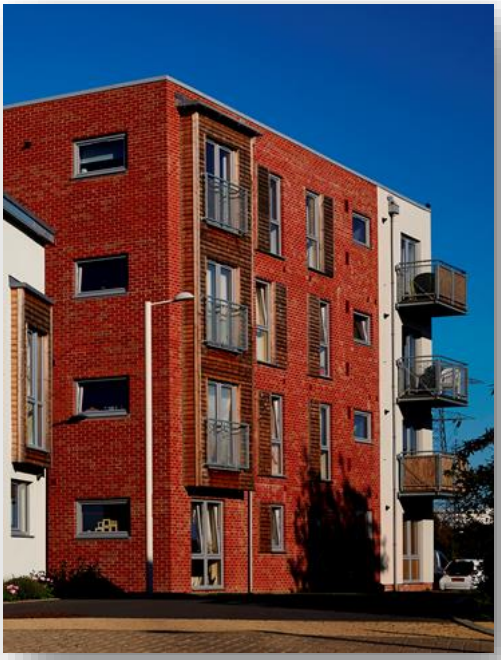
- An installation specification/working drawing detailing the number, location and type of fixings must be available to the Site Manager and Installer.
- A check must be made by the Installing Supervisor and Site Management Team that the porch/canopy has been installed in accordance with the installation specification using the prescribed fixings; and
- If the installation details or specified fixings are not available, the installation must not proceed

6.13.2 COPING STONES

Where coping stone are to be used on site you must.

- Have the approved drawing/specifications for the coping stones, corbels, and any applicable masonry fixtures.
- Have the specific fixing details installation guide.
- Ensure the correct fittings are supplied.
- Review with the contractor to confirm they have the correct information, fixings, and materials.
- If the installation details or specified fixings are not available, the installation must not proceed.
- Further information can be obtained from: Technical Bulletin No. 0117/06/15 available on Inhouse
- Structural Engineer to inspect the Stone Coping installation and Sign-off the installation once installed.

6.13.3 BALCONIES



To minimise working at height assemble, where possible, the balconies on the ground and then lift into position and secure (Section 8 lifting operations).

When assembling and securing at height either from the external scaffold platform or from a MEWPS (for MEWPS see section 8.3.5).

To ensure the stability of the balconies:

- Check fixing details available and followed.
- Check correct fixings are provided and used; and
- Monitor installation to ensure securely fixed.

If the installation details or specified fixings are not available, the installation must not proceed

6.13.4 SOLAR PANELS

The imposed loading of panels can vary depending if 'in-roof' or 'on-roof' panels. Increased loadings, including those from wind uplift, must be reflected in the roof / rafter design provided by the truss supplier
.

If the roof design does not incorporate the weight and location of the panels - the roof must not be constructed. Contact the Technical Director for clarification.

If the location of the panels needs to be changed - the roof design must be revised to reflect this.

If the installation details or specified fixings are not available, the installation must not proceed.