

FACT SHEET

SCAFFOLDS WITH SCREENING OR CONTAINMENT SHEETING

Scaffold sheeting or screening is used for both safety and environmental purposes. Where work is carried out close to pedestrian or vehicle access, scaffolds that are fully screened can minimise the risk to the public from falling objects. For this reason, toe boards must be fitted to screened scaffolds.

RISKS OF SCREENED OR CONTAINED SCAFFOLDING

Scaffolds fitted with screening have increased environmental loads (such as wind loads or rain loads). This increases the dead load of the scaffold, and the risk of it being blown over.

FACTORS TO CONSIDER WHEN SELECTING SCREENING MATERIAL

Consideration	Requirement
What is the wind loading?	
What degree of protection is required?	
Is the containment of dust a requirement?	
What chemicals are to be used from the scaffold?	
What are the ventilation requirements?	
How flammable is the screening?	
For ventilation purposes, how porous is the screening material?	
How much light is needed?	
What are the size of sheets or screen sections?	
What are the requirements for fixing the screening?	

DESIGN REQUIREMENTS

Sheeted scaffolds must be designed by a Chartered Professional Engineer unless there is sufficient information is available using the manufacturer's specifications and calculated or known loads. Information on environmental loadings can be found in AS/NZS1576.1: Scaffolding – General requirements and AS/NZS1170.0: Structural Design Actions – General Principles.

The design of a screened scaffold should consider the:

- > weight of the screening

- > environmental load on the scaffold and the supporting structure
- > position of the screened scaffold in relation to other structures
- > fixing in respect to the strength of the screening
- > ability of the fixing to fail
- > structure's ability to support any imposed loads.

Increased stability may be achieved by increasing the number or strength of ties or by using plan and dogleg bracing, buttresses or counterweights.

Fixing must have a fail capacity to prevent the structure being damaged if forces (especially wind) are beyond the ability of the ties or screening to withstand such forces.

INSTALLATION

When installing screening:

- > fix it to fully decked and guardrailed platforms
- > fit to the outside of the scaffold unless specified
- > flush the outside of the scaffold to prevent tubes or other items from protruding
- > make it continuous, either by using sufficient overlap (preferable) or by carefully butt-joining the screening
- > secure the top edge of the screening before fixing the bottom edge
- > use a tag line in windy conditions to control the screening during fixing
- > keep the screening taut
- > lap under from the top for containment and lap over from the top for protection
- > keep the ends of the scaffold as close as practical to the building or structure to prevent the wind getting behind the screening

- > ensure the screening blows into a scaffold so it has the support of the framework. Screening blown away from the scaffolding framework only has the ties to support it.

When using proprietary scaffolding that does not have a positive joint between the vertical standards in conjunction with screening, it is recommended that joints be spliced or that additional bracing be provided across the joints to prevent uplift of the join.

Proprietary systems with additional scaffolding components that are not covered by the manufacturer's specifications should be classified as special duty scaffolds.

All special duty scaffolds must be notified to WorkSafe NZ. For more information on notification, refer to Notification for Particular Hazardous Work www.business.govt.nz/worksafe/notifications-forms/particular-hazardous-work/particular-hazardous-work-notification.pdf.

CONTAINED SCAFFOLDS

While there are different varieties of shade cloth, wind must be able to pass through it depending on the screening's porosity. This not only reduces the wind loading on the scaffold and structure it also allows ventilation and light. Hessian must not be used as screening as it is not fire retardant.

COMMON MATERIALS USED FOR SCREENING OR CONTAINMENT

Shade cloth	Monoflex
Shrink wrap	Plastic
Sealed panel systems	Keder sheeting

Products such as Monaflex, shrink wrap, keder sheeting and sealed panel systems may create a scaffold that contains harmful substances such as asbestos. However these products greatly increase the loading and pressure on the scaffold and supporting structures.

Consideration must be given to relieving this pressure in emergency situations.

Poor ventilation and other hazards associated with confined spaces can occur when using these products.

Contained scaffolds should be notified to MBIE as special duty scaffolds.

TEMPORARY ROOFS

Temporary roofs are generally used as weather protection or for containment of hazardous substances.

Temporary roofs are commonly constructed using tube and fitting components and/or proprietary systems. They may be supported by an independent scaffold or directly from a supporting structure. They can be mono-pitched or multi-pitched (for example gable roofs).

Temporary roofs must be designed and certified by a Chartered Professional Engineer, unless sufficient information is available using the manufacturer's specifications and calculated or known loads.

Selecting a temporary roof

When selecting a temporary roof consider the following:

- > intended purpose
- > degree of protection required
- > whether it is used for containment of harmful substances
- > ventilation or containment requirements
- > the need for light transmission
- > span
- > access requirements through roof
- > penetrations
- > intended duration of use.

Temporary roofs are subject to environmental loads which affect the roof structure and the supporting structure. The environmental

factors should also be taken into consideration:

- > wind loading, acting vertical and horizontally
- > rain loading
- > snow loading.

Information on environmental loadings can be found in *AS/NZS1576.1: Scaffolding – General requirements* and *AS/NZS1170.0: Structural Design Actions – General Principles*.

Temporary roof design

The design of the temporary roof should take into account:

- > the span between supports
- > the clearance required between the temporary roof and supporting scaffold and the structure it is protecting (vertical and horizontal)
- > the area available for supporting scaffold or structure
- > the type and area of cladding for roof and supporting scaffold
- > how pressure can be relieved in the event of environmental loadings in excess of design loadings
- > whether the supporting structure can withstand any imposed loads
- > whether the slope is adequate for water run-off
- > anchorage methods to resist vertical and horizontal forces with the use of ties, buttresses, counterweights and additional bracing
- > how to safely erect and dismantle the structure.

If the temporary roof is supported by a scaffold, ensure the scaffold meets the requirements of the *Best Practice Guidelines for Scaffolding in New Zealand*.

ERECTING AND DISMANTLING THE TEMPORARY ROOF

- > Roofs can be erected in-situ or prefabricated and craned into position.
- > Use a sequential erection method which isolates workers on scaffolds from potential falls while erecting and dismantling roof structure.
- > Cladding should be attached and removed from within the scaffold or behind edge protection.
- > Consider using mobile scaffolding, elevating work platforms or cherry pickers for erecting and dismantling the roof structure and cladding.
- > Use a fall restraint system in preference to a fall arrest system only if no other fall prevention methods are practical. A rescue plan must be in place if using fall arrest systems.
- > Ensure that water cannot pool on the roof cladding and run-off will not create a hazard.
- > Take precautions to manage hazards specific to roofs. For more information refer to the [*Good Practice Guidelines for Working on Roofs*](#) and [*Good Practice Guidelines for Working at Height in New Zealand*](#).

Other hazards to take into consideration are wind gusts when fixing tarpaulins or sheets, and the use of heat guns and gas in confined spaces when attaching shrink wrap.

CONSTRUCTION MATERIALS

Temporary roofs are constructed using a variety of systems and materials.

Common systems are:

- > proprietary systems using keder sheets or cassettes
- > tube and fitting scaffolds or trusses clad with tarpaulins, sheeting, shrink wrap or corrugated steel.

EXAMPLES OF SCAFFOLDS SUPPORTING TEMPORARY ROOFS

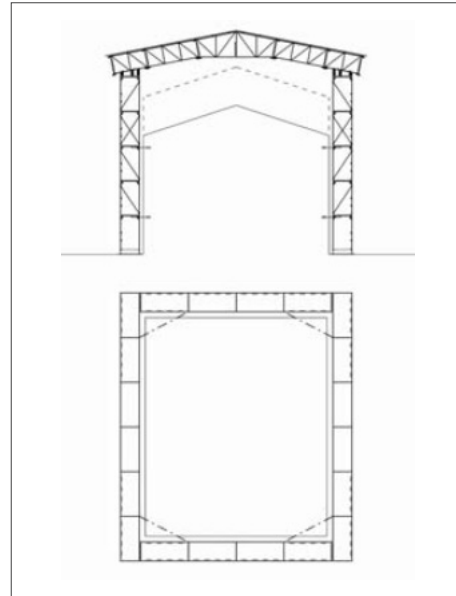


Figure 1: Positive ties with additional dogleg bracing and plan bracing

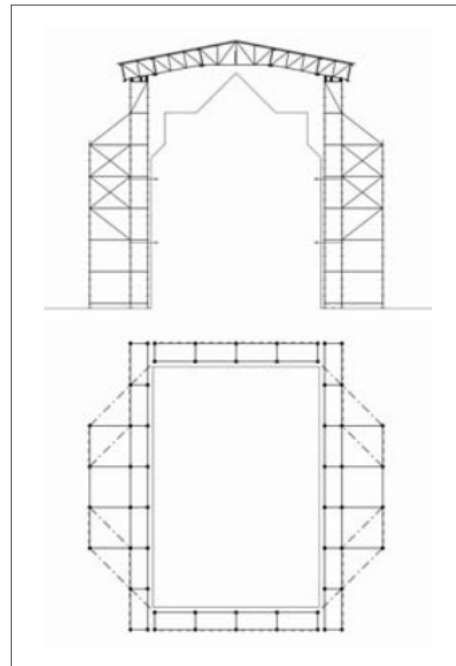


Figure 2: Buttresses with additional dogleg bracing and plan bracing

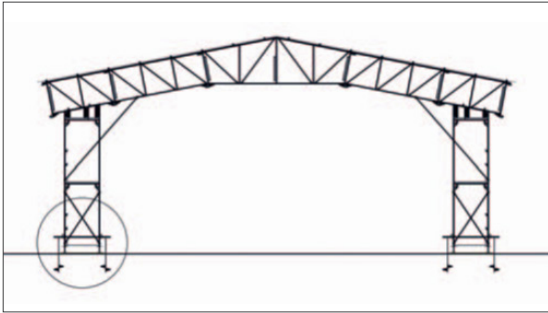


Figure 3: Scaffold tied with ground anchors and dogleg bracing



Fig 4: Strong winds tore a sheeted scaffolding system from this building

CURRENT STANDARDS

Structural Design Actions – General Principles.
AS/NZS1170.0

Scaffolding – General requirements AS/NZS1576.1

References and further information available from www.business.govt.nz/worksafe

GLOSSARY

Dead load – The dead load is the self-weight of the scaffolding. That is, all structural components and equipment that form the scaffold. It is generally a static load.

Proprietary system – Proprietary scaffold systems have been designed by a Chartered Professional Engineer as reflected in the manufacturer’s specifications for the design and use of the equipment.