Information Book

e-book

National Licence RTO-VET
Learning Materials

SAMPLE

Licence to erect, alter and dismantle

Scaffolding

– basic level

EASY GUIDES
Australia Pty Ltd

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SAMPLE

Element 1

Plan Job

Please note: Some illustrations in this guide have the ladder or stair or some ledgers braces or transoms removed for clarity of the image.

This element covers performance criteria:

1.1 Task to be undertaken is assessed.

1.2 Potential workplace hazards are identified.

1.3 Hazard control measures are identified consistent with appropriate standards to ensure the safety of personnel and equipment.

1.4 Site information is obtained.

1.5 Scaffold, associated equipment and scaffolding equipment are identified from site information and in consultation with appropriate personnel (where applicable).

1.6 Safety equipment is identified.

1.7 All forces and loads exerted on and by the scaffold and/or scaffolding equipment are determined and calculated.

1.8 Appropriate communication methods are identified with appropriate personnel.

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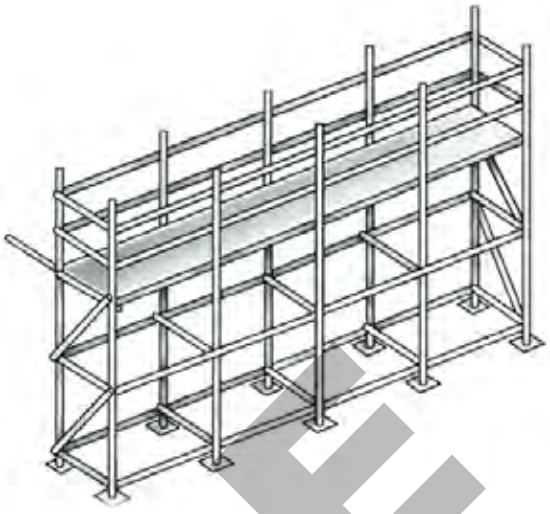
Do you need a licence?

Only a licensed person can put up scaffolding 4 metres (2 lifts) or higher.



When you get your basic licence you can use tube and coupler scaffold for:

- Tie-ins
- Internal ledger braces
- Handrails
- Security of kickboards
- Gin wheels.

Basic scaffolding licence

The scope of work for this licence is scaffolding work associated with—

(a) prefabricated scaffolds;

Sch. 3

(b) cantilevered hoists with a maximum working load limit of 500 kilograms (materials only);

(c) ropes;

(d) gin wheels;

(e) safety nets and static lines;

(f) bracket scaffolds (tank and formwork)—

but does not include work involving—

(g) cantilevered crane loading platforms;

(h) cantilevered and spurred scaffolds;

(i) barrow ramps and sloping platforms;

(j) scaffolding associated with perimeter safety screens and shutters;

(k) mast climbers;

(l) tube and coupler scaffolds (including tube and coupler covered ways and gantries);

(m) hung scaffolds, including scaffolds hanging from tubes, wire ropes and chains;

(n) suspended scaffolds.

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Potential workplace hazards are identified.

Performance Criterion **1.2**

What is a hazard?

A hazard is anything that can hurt you or others while you work. Find out about workplace hazards before you start work. Look for hazards. Look above you, look around you, and check the ground below you. These are only examples and you may find others in your workplace.

Above head height

You should check above eye level for:

- Powerlines and other overhead service lines
- Buildings
- Bridges
- Trees
- Surrounding structures and facilities
- Other obstructions
- Falling objects.

Ground level (and below)

You should check the ground to see if:

- The surface is stable and level
- The surface is wet or soggy
- Debris or rubbish
- Underground services
- The surface is strong enough to support the weight of any equipment or materials
- Recently filled trenches/excavations
- The scaffold be built on sloping ground.

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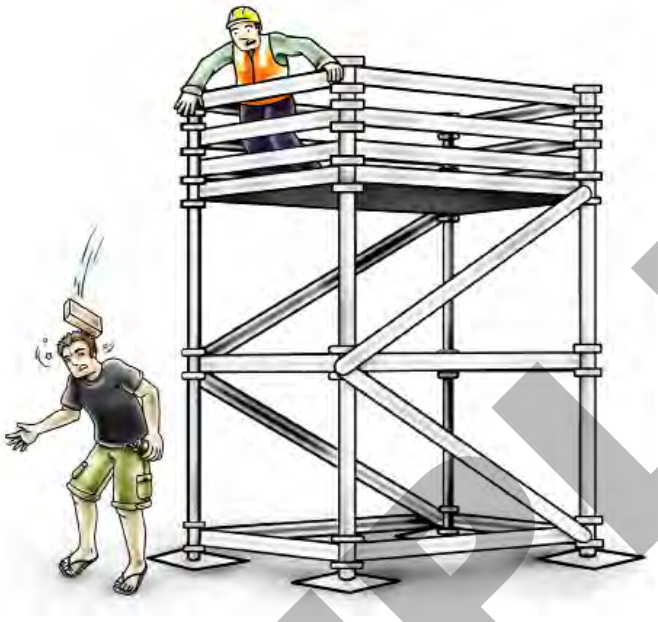
Traffic

Pedestrians

People walking around are one of the biggest hazards on a work site. Always make sure the area you work in is clear of people who do not need to be there while you erect the scaffold. Put up hoardings or gantries over footpaths.



Vehicles

Traffic damage to scaffolding is common. Always check the traffic routes on site.

Put up clearly marked signs and barricades to stop any vehicles driving through the work area.

Other mobile plant

Other equipment, such as cranes, may be working on site. Keep the area clear of other equipment while you erect the scaffolding so it doesn't hit the scaffold. This may require planning to make sure everybody is aware of the work you are doing so you do not get in each other's way.

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Bad weather

High winds

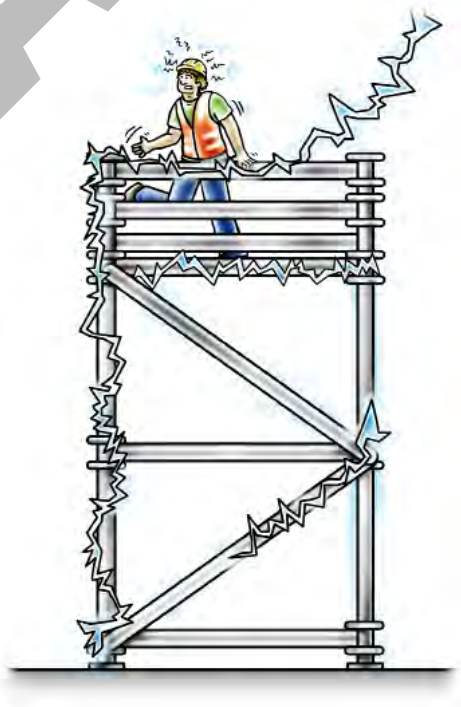
High winds can blow you over or make you drop what you're holding.

Storms

Heavy rain makes it hard for you to see, and makes the ground soft and surfaces slippery. Stop work until the rain clears. Then check the ground to see if the scaffold is stable enough to keep working in the same area.

Lightning

If there is lightning, stop work until the lightning passes. Lightning could strike a scaffold and make it unsafe. When there is lightning do not touch any part of the scaffold even if you are on the ground.



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Hierarchy of Hazard Control (continued)

3. Isolation (keep apart)

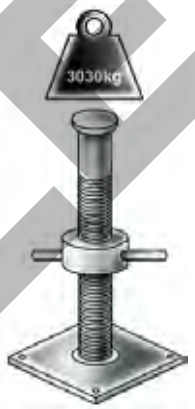
Put up barriers or fencing around the hazard to lower the risk of damage or harm. You call this restricting or preventing access to the hazard.

For example, put up barriers or fencing to restrict access to the area for an amount of time or to put a distance restriction in place.

4. Engineering control measures (install safety features)

Install safety features to improve work equipment and processes to reduce risk.

For example, use adjustable base plates or sole plates to distribute the load on a scaffold.



5. Administrative controls (follow the rules)

Follow the rules/policies to reduce risks.

For example:

- Change breaks and work tasks to reduce the time a job exposes workers to a hazard
- Use signs to make workers aware of a hazard
- Have emergency procedures in place.

6. Personal protective equipment (PPE) (wear safety clothing)

Wear safety clothing and PPE to control hazards. Avoid relying on these as the only way to control hazards. Make sure the PPE is right for you and the company has trained you in how to use it. For example, wear high-visibility clothing so workmates can see you more easily.

Skin cancer is a major hazard for people working outdoors. The best action to take when working out in the sun or other hot environments is to **SLIP on a shirt, SLOP on some sunscreen** and **SLAP on a hat.** Sunglasses will also help to protect your eyes.

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Personal protective equipment (PPE)

PPE is an item that is worn on the body to help protect it from injury.

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Tiger tails

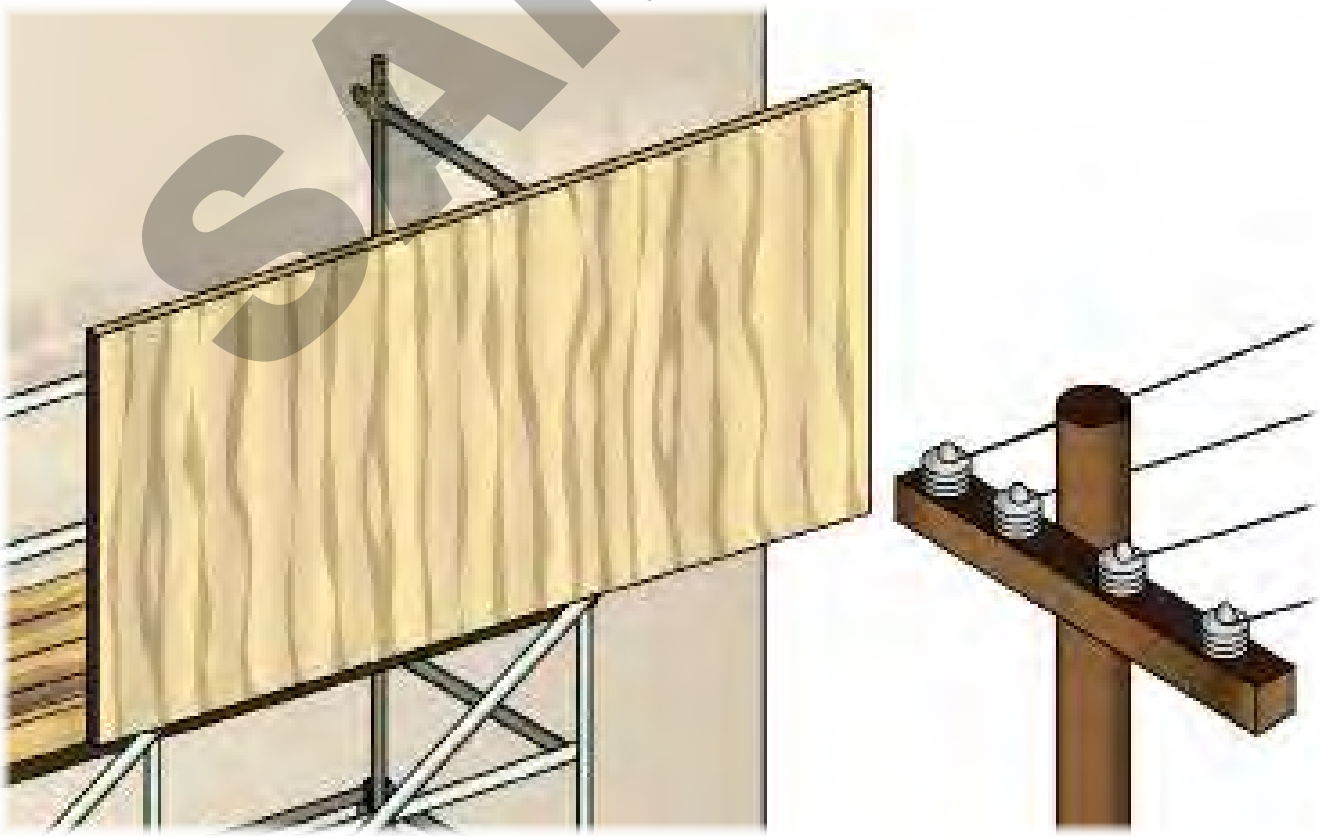
Tiger tails are black and yellow striped tubes that hang off powerlines. They show you where uninsulated powerlines are. Not all states/territories use tiger tails.

Tiger tails **do not** provide insulation and must not be used for this purpose.

Only WA lets scaffolders use tiger tails for insulation – but only on low-voltage powerlines and only in windy weather when the powerlines might swing closer to scaffolding.

Insulate the scaffold tube

- Insulate the scaffold tube with 19 mm thick plywood
- The plywood boxing must be supported
- The plywood must continue beyond the scaffolding by 1 m
- If the plywood is held in place by something that can conduct electricity (for example wire) the wire must be fitted so that the wire cannot come into contact with the electrical conductors.



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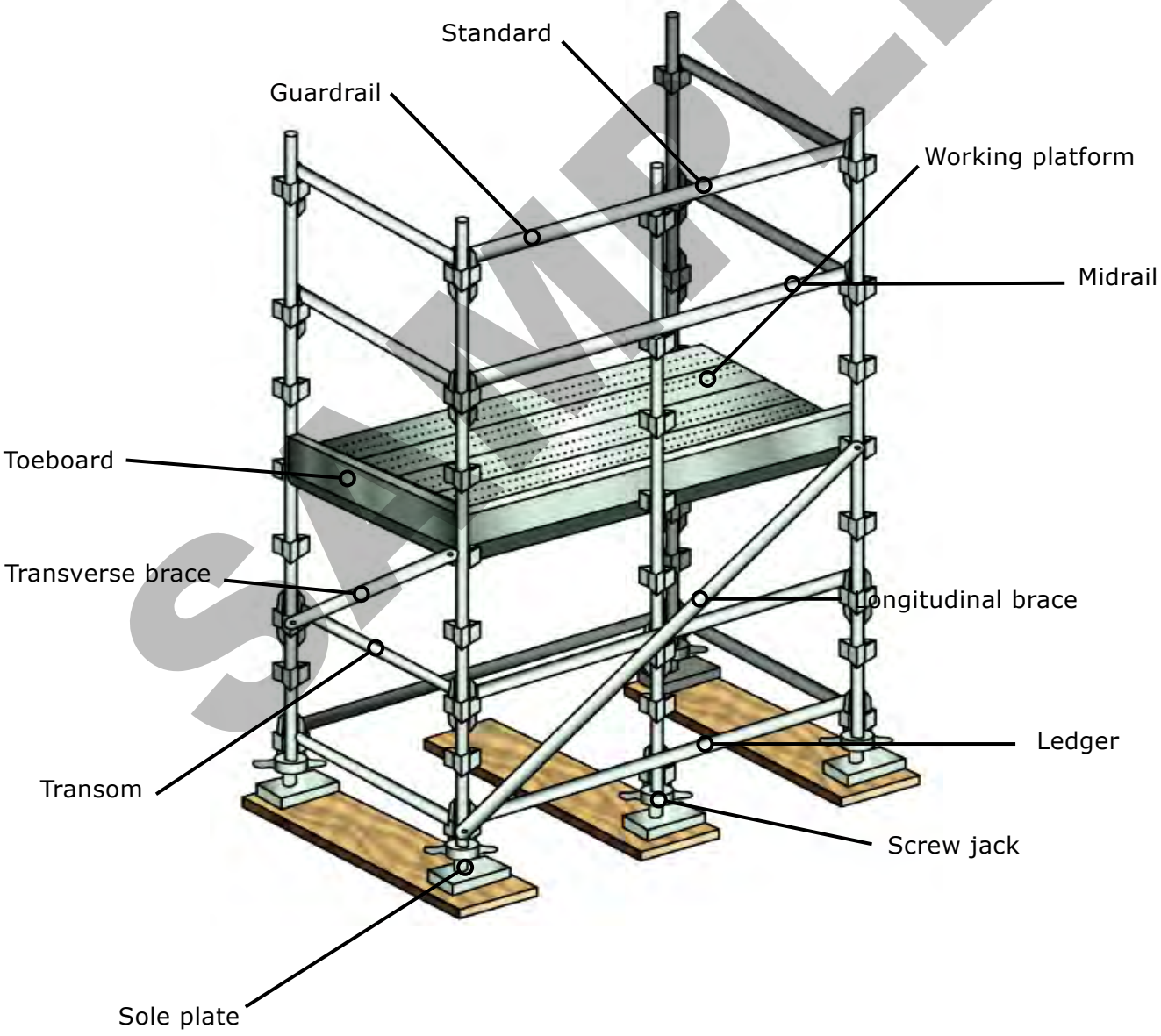
Scaffold, associated equipment and scaffolding equipment are identified from site information and in consultation with appropriate personnel (where applicable).

Performance Criterion **1.5**

Identify scaffold and associated equipment

For basic scaffolding, you need to know a wide range of scaffold and associated equipment. The diagram below, for example, shows the basic parts of a modular scaffold.

Modular scaffold



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Element 2

Select and Inspect Plant and Equipment

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This element covers performance criteria:

2.1 Scaffold, associated equipment and scaffold equipment are selected and inspected according to procedure and site information.

2.2 Safety equipment is selected and inspected according to procedures.

2.3 All defective scaffold, associated equipment, scaffold equipment and safety equipment are isolated according to procedures.

2.4 All defective scaffold, associated equipment, scaffold equipment are reported and recorded according to procedures.

2.5 Communication equipment is selected and inspected for serviceability (where applicable).

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Scaffold, associated equipment and scaffold equipment are selected and inspected according to procedure and site information.

Performance Criterion **2.1**

Select and inspect scaffolding equipment

When you start a job, select and check all scaffolding equipment so you know it is right for the job.

You will need to inspect all scaffolding and associated equipment according to procedures which may include:

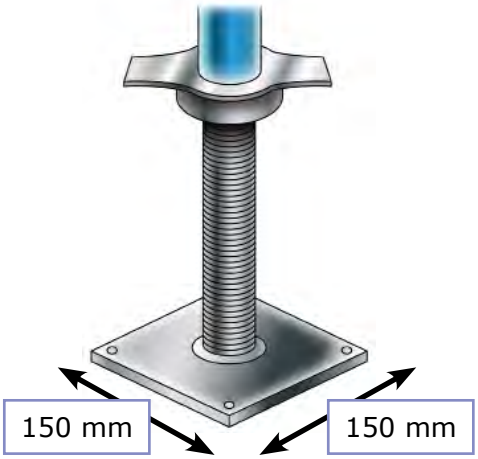
- Manufacturer's guidelines
- Industry operating procedures
- Workplace procedures
- Reporting and recording procedures.

Select equipment for the task

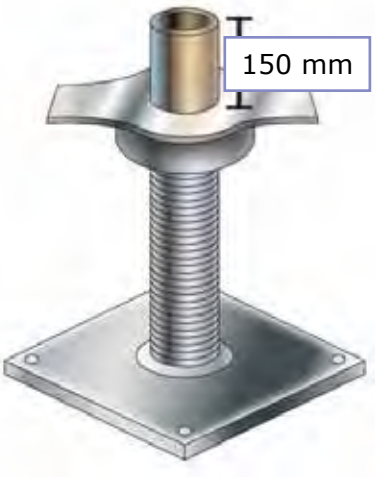
It is essential that the equipment you use meets all regulatory requirements and is the most appropriate for the job you are to do.

Adjustable base plates

A screw jack should be at least 150 mm x 150 mm with a minimum thickness of 6 mm.



The spindle of an adjustable base plate should extend 150 mm above the maximum nut extension.



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The maximum extension on an adjustable base plate is 600 mm.

The maximum load allowed on an adjustable base plate is 3030 kg.

The minimum width of timber used as a sole plate is 225 mm.

Planks

A normal scaffold plank is 225 mm wide.

A solid timber (hardwood) scaffold plank is 32 mm thick.

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Select equipment for the task (continued)

Gin wheels

Check the gin wheel has the right working load limit (WLL).

This should be marked on the gin wheel.

The minimum diameter of non-conductive rope you use for a gin wheel is 16 mm.

The minimum diameter of natural fibre rope you would use for a handline is 12 mm.

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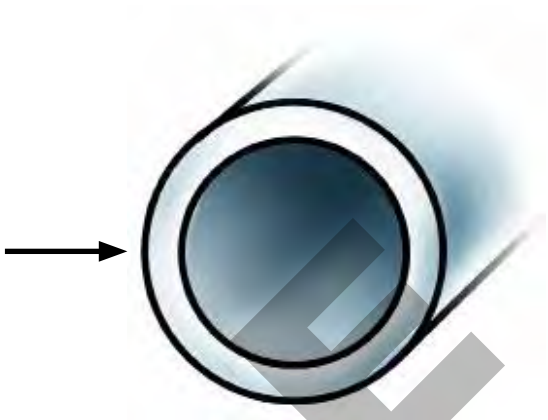
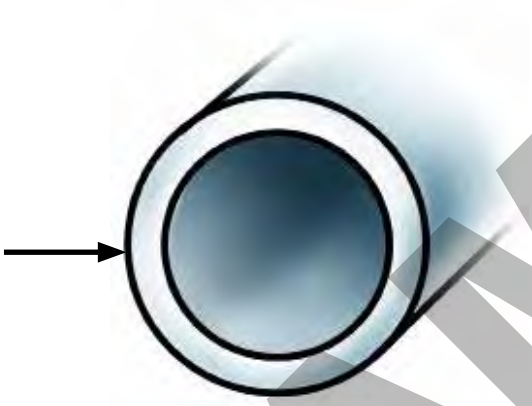
Scaffold tube defects

Do not use a scaffold tube if it has any of the following defects:

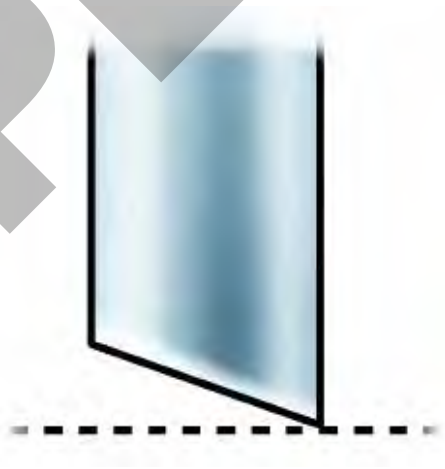
Outside diameter less than 48.3 mm



Steel wall thickness less than 3.6 mm



Aluminium wall thickness less than 4.5 mm



End cut not square to axis

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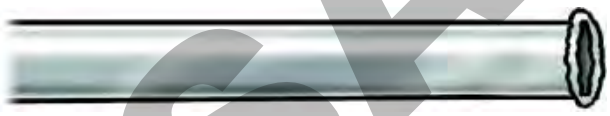
Do not use a scaffold tube if it has any of the following defects:

End of tube flame cut or cross-cut

Tube is pitted

Distortion or twisting of tube

Bent tubes or split ends



Mushroom heads

Acid damage

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NOTE:

Common causes of the corrosion of scaffolding tubes are salts, acids and alkalis.

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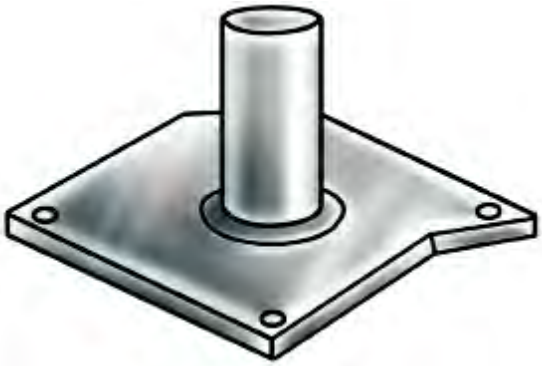
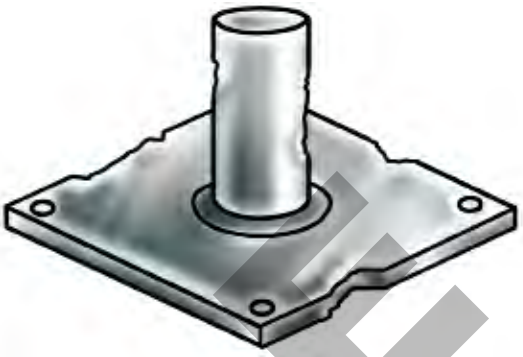
Base plate defects

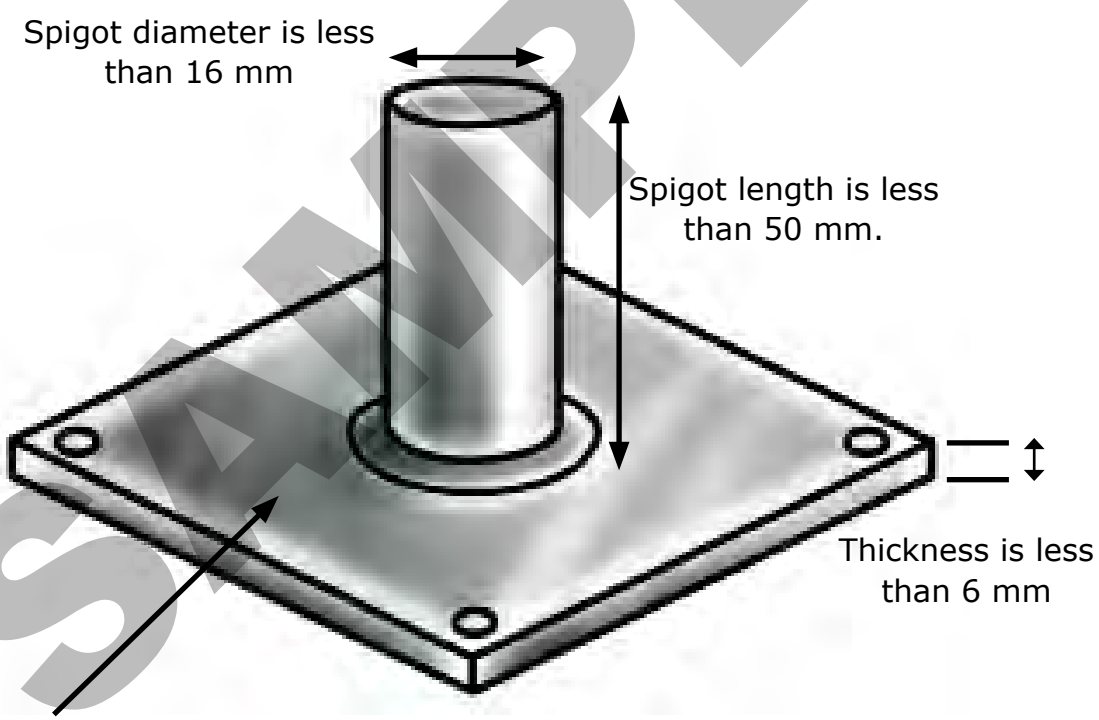
Do not use a base plate if it has any of the following defects.



Base plate is bent



Base plate is distorted



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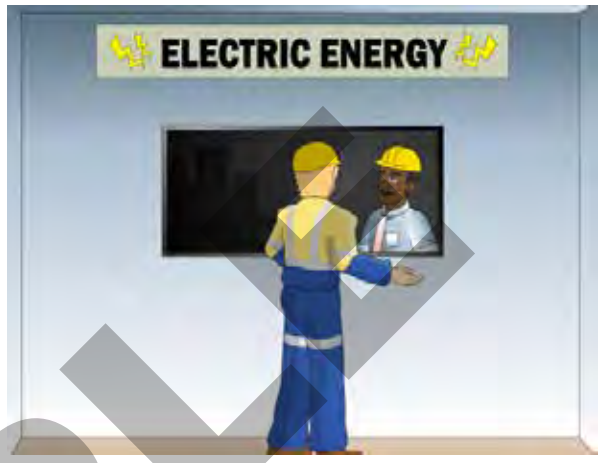
Powerlines

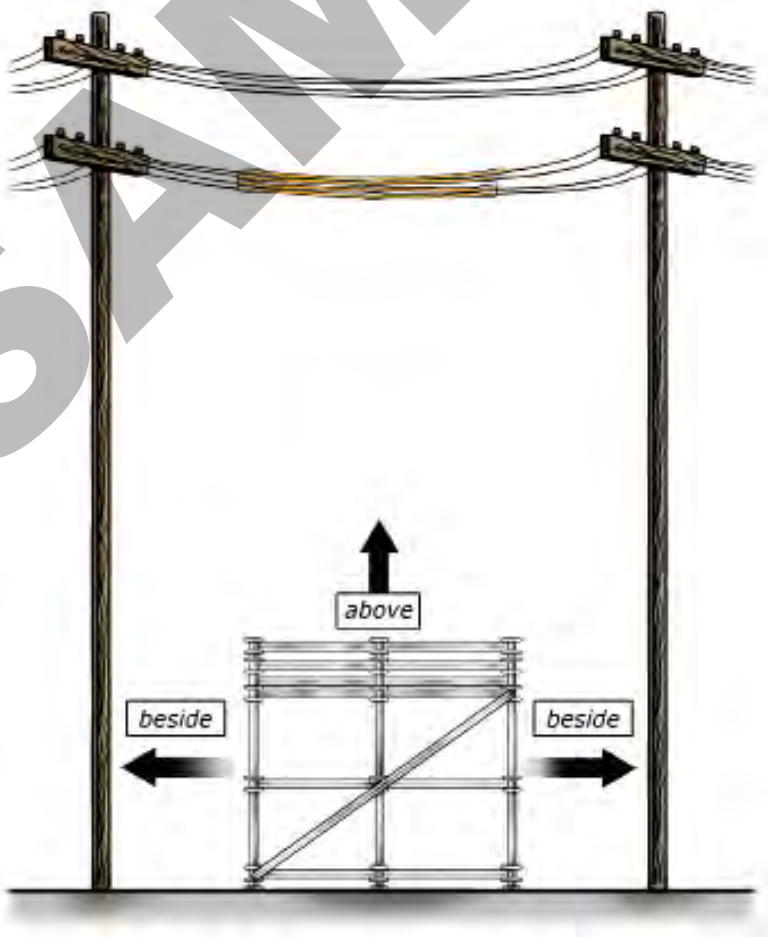
You may have to work closer to powerlines than the allowable safe working distance for your state/territory. In such a case, you may need to:

- Use electrical lockout equipment
- Contact the electricity company so they can shut off the power for you.

Isolate nearby powerlines by having the power disconnected by a competent authority (e.g. electrical company).



Have the powerlines insulated by an authorised/competent person. Insulation on live powerlines should extend 5.0 metres past each end of a scaffold.



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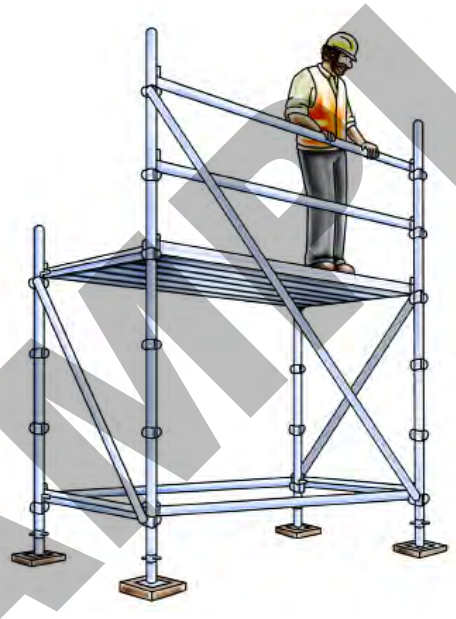
Element 4

Erect Scaffold and Scaffold Equipment



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This element covers performance criteria:

4.1 Scaffold and scaffold equipment are erected according to procedures and the appropriate standard.

4.2 Work is conducted safely at heights including safe and effective use of safety equipment.

4.3 Scaffold and scaffold equipment are erected consistent with site information.

4.4 Appropriate communication methods are used to coordinate the tasks.

4.5 Completed tasks are inspected for compliance with the appropriate standard

4.6 Handover certificate is completed as required and handed to appropriate personnel.

4.7 Excess materials from the work area are removed (where applicable).

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Step 3:

Place a standard on the base plate. This will be the inside standard.

Step 4:

One person holds the standard while another lays a transom at right angles from its base. This gives the width of the scaffold.

Step 5:

The second person places another sole plate, base plate and standard using the transom to judge the distance. The second standard (outside standard) should be higher than the first so handrails can be fixed to it.

Step 6:

While one person holds both standards the other connects the transom to the lowest connection point on both standards. Make sure the box connectors are facing outwards.

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How to erect a modular scaffold (continued)

Step 7:

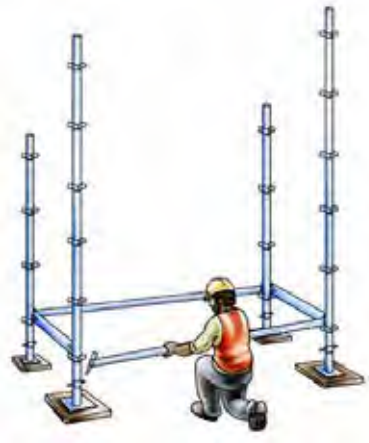
The second person connects a ledger to the lowest connection point at a right angle to the transom. This gives the length of the scaffold bay.

Step 8:

The second person places a third sole plate, base plate and standard using the ledger to judge the distance. The ledger is connected to the third standard at the lowest connection point. The scaffold can now support itself.

Step 9:

Using another transom to judge the distance, place a fourth sole plate, base plate and standard. The fourth standard should be as high as the second. Connect the transom to the fourth standard and then connect the first and fourth standards together with another ledger to complete the rectangle.



Step 10:

Use a spirit level to make sure the transoms and ledgers are level. Adjust the base plates until they are level. Make sure all box connectors are facing outwards.

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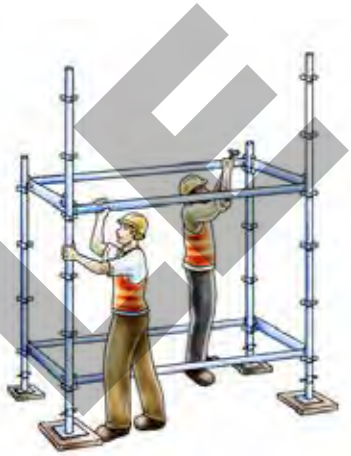
Step 11:

The wedges of the ledgers and transoms are tapped into place. You now have the first bay. Make sure the bay is square and parallel to the building.

Step 12:

Connect two more ledgers and transoms to the fourth connection points and tap in the wedges to secure them. You have now completed the first lift.

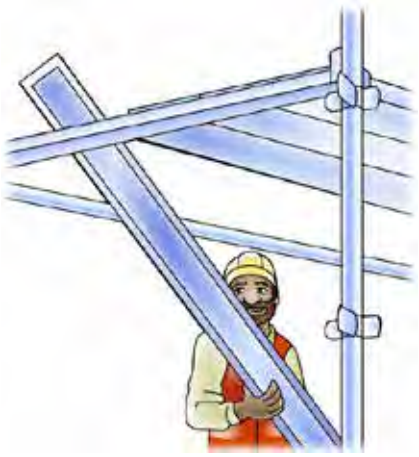


Step 13:

Attach a diagonal cross brace to the end of the platform.

Step 14:

Place appropriate planks on and between the transoms of the first lift to create the platform.



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How to erect a modular scaffold (continued)

Step 15:

Attach handrails between the second and fourth (outside) standards. Handrails will need to be placed on any side where a person could fall.

Step 16:

Attach handrails on the end that is completed if there is an opening where a person could fall.

Step 17:

Attach a diagonal brace between the standards on the handrail side (outside) of the scaffold.

Step 18:

Fix toe boards (kickboards) underneath all handrails.

Repeat the erection process until the scaffold is the required length. Make sure there are braces at both ends and at every third bay.

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Access

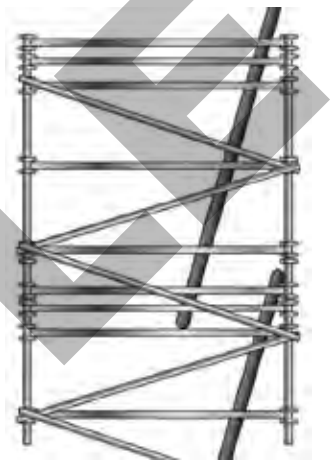
Every working platform of a scaffold must have safe access.

This may include:

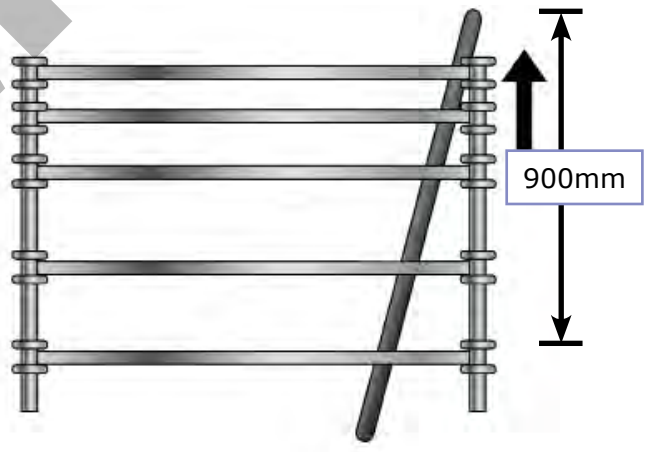
- Ladders
- Stairways
- Personnel hoists
- Existing floors.

Ladders

The maximum height allowed between ladder landings is 4 m (2 lifts).



An access ladder should extend 900 mm above the landing.



Fix a ladder internally to a mobile frame scaffold’s working platform and use a trapdoor to protect the ladder opening.

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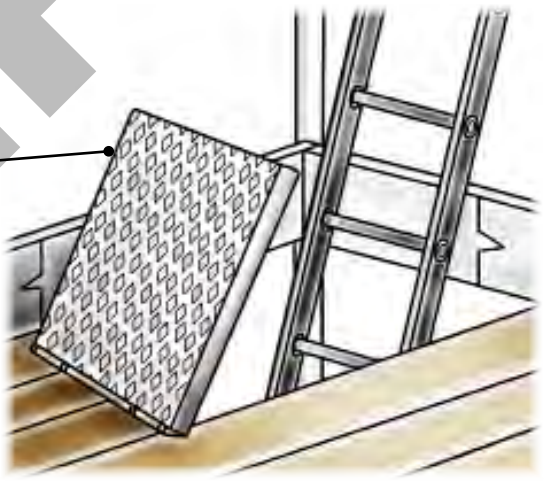
Ladder access

- Single ladders only
- Slope 1:4 to 1:6
- Ladders must be secured at the head and base
- Ladders to extend 900 mm past platform
- Ladder access bays must extend to the full height of scaffold and be the same size as the bay of scaffold longitudinally
- Platforms must be provided at head and base of all ladders except at ground level
- Vertical distance between platforms must not exceed 6 metre
- Ladders on mobile scaffolds must be clear of the supporting structure
- Openings for ladders should be as small as practicable.

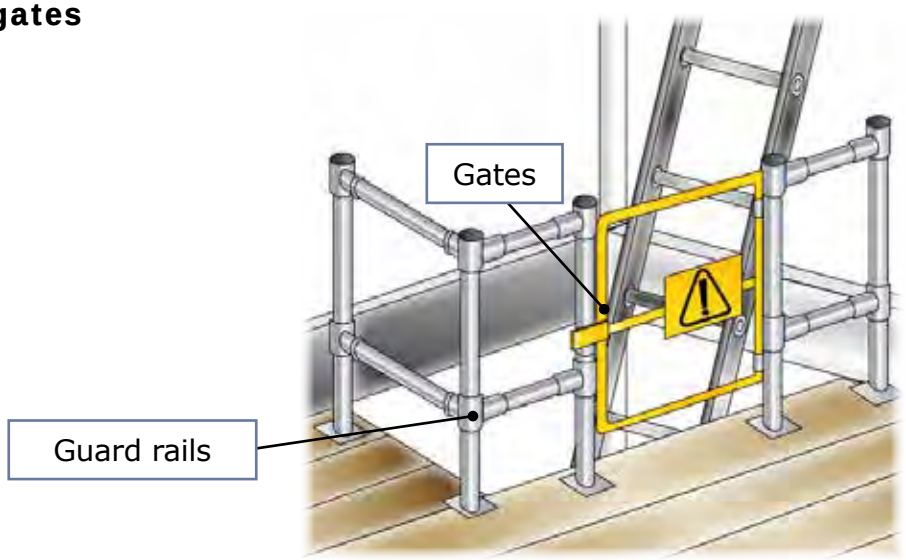
Ladder access safety

Openings for ladder access points are a hazard. You or other workers might fall into them. Here are two ways you can control this hazard.

Trapdoors



Edge protection and gates



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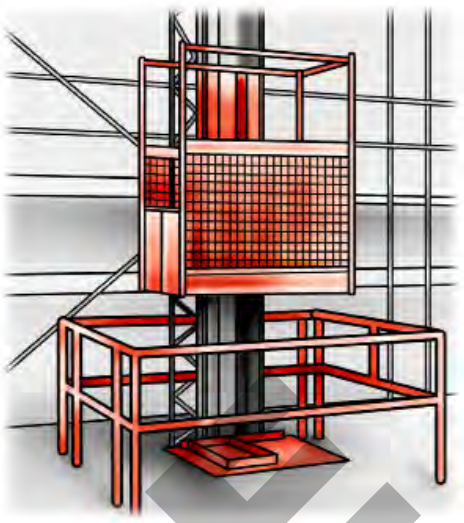
Personnel hoist

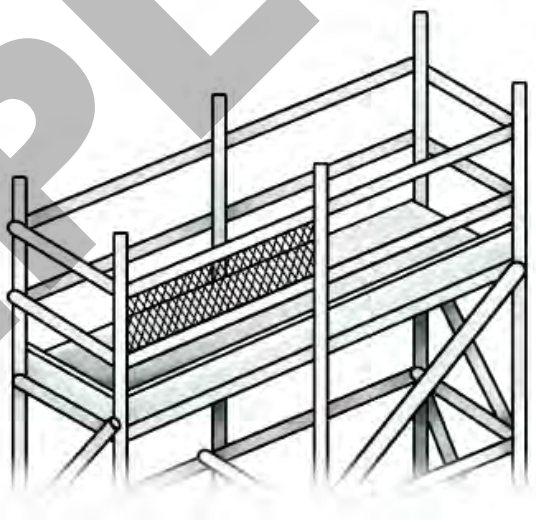
Where a personnel hoist is used, have an alternative form of access such as a ladder in case the machinery breaks down.



Edge protection

Edge protection can include:

- Guardrails
- Midrails
- Toeboards
- Mesh guards
- Make sure that any scaffolds above 2 m have guardrails
- Fix edge protection to working platforms if a person or object can fall more than two metres
- A toe board can extend no less than 150 mm above the working platform
- You would fix a guardrail 900-1100 mm above a working platform.



Stability

You can help stabilise a free standing scaffold with the following by:

- Tying the scaffold to a supporting structure
- Guying to a supporting structure or counterweight
- Securely attaching counterweights near the base
- Incorporating outriggers or stabilisers
- Adding back-up bays to increase the base dimension.

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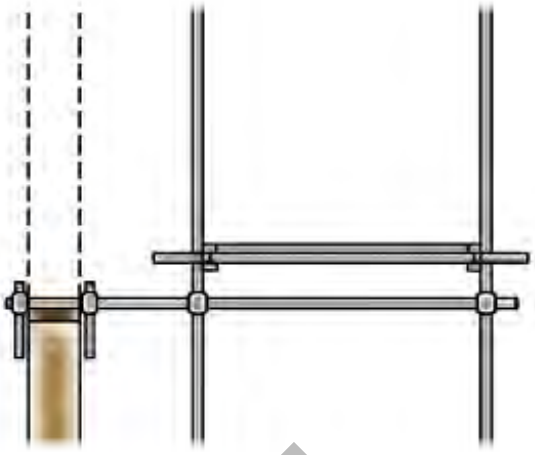
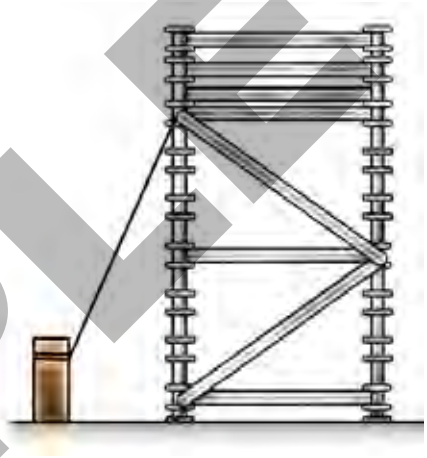
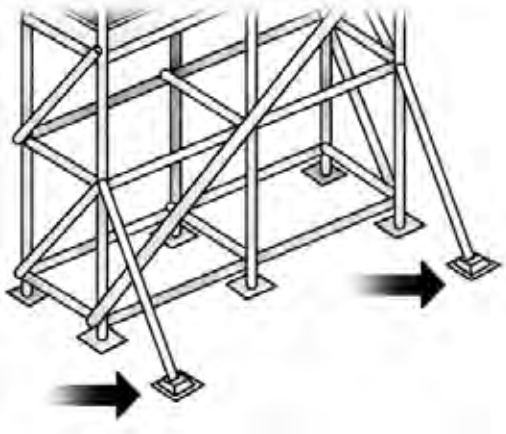
Tie through opening



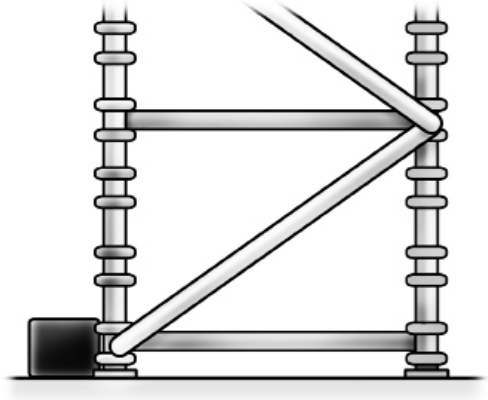
Guying



Stabilisers



Counterweight



SAMPLE

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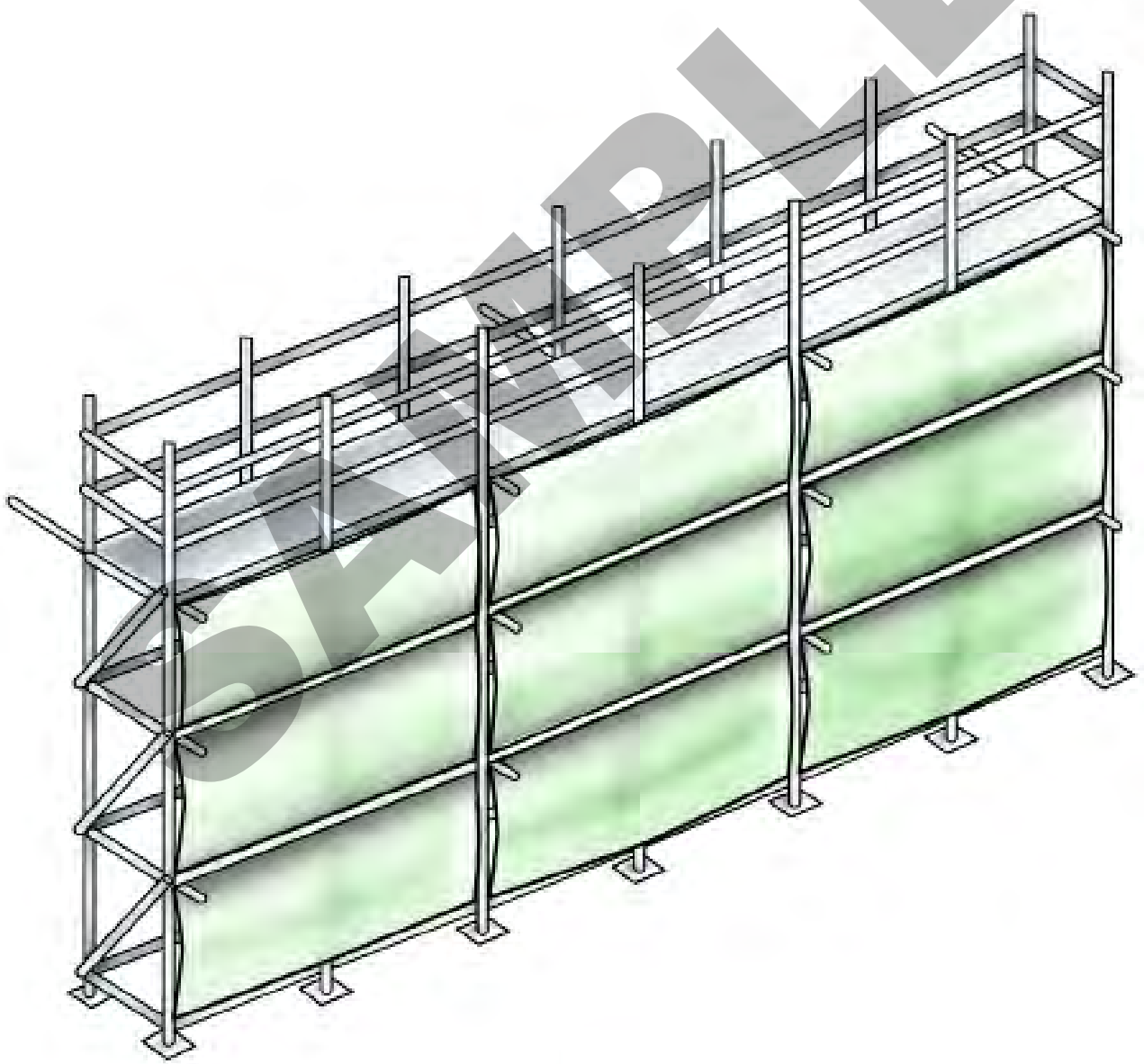
Containment sheeting

Sheeting is used to help protect workers and pedestrians from wind, rain, dust and direct sunlight.

The design of a sheeted scaffold should be checked by an engineer.

When installing sheeting you should consider:

- The weight of the sheeting
- The wind load created by the sheeting
- Strength and suitability of fixings
- Sheeting should be on the outside of a scaffold (unless otherwise allowed by the design)
- Avoid gaps between the sheeting and the platform edge.



SAMPLE

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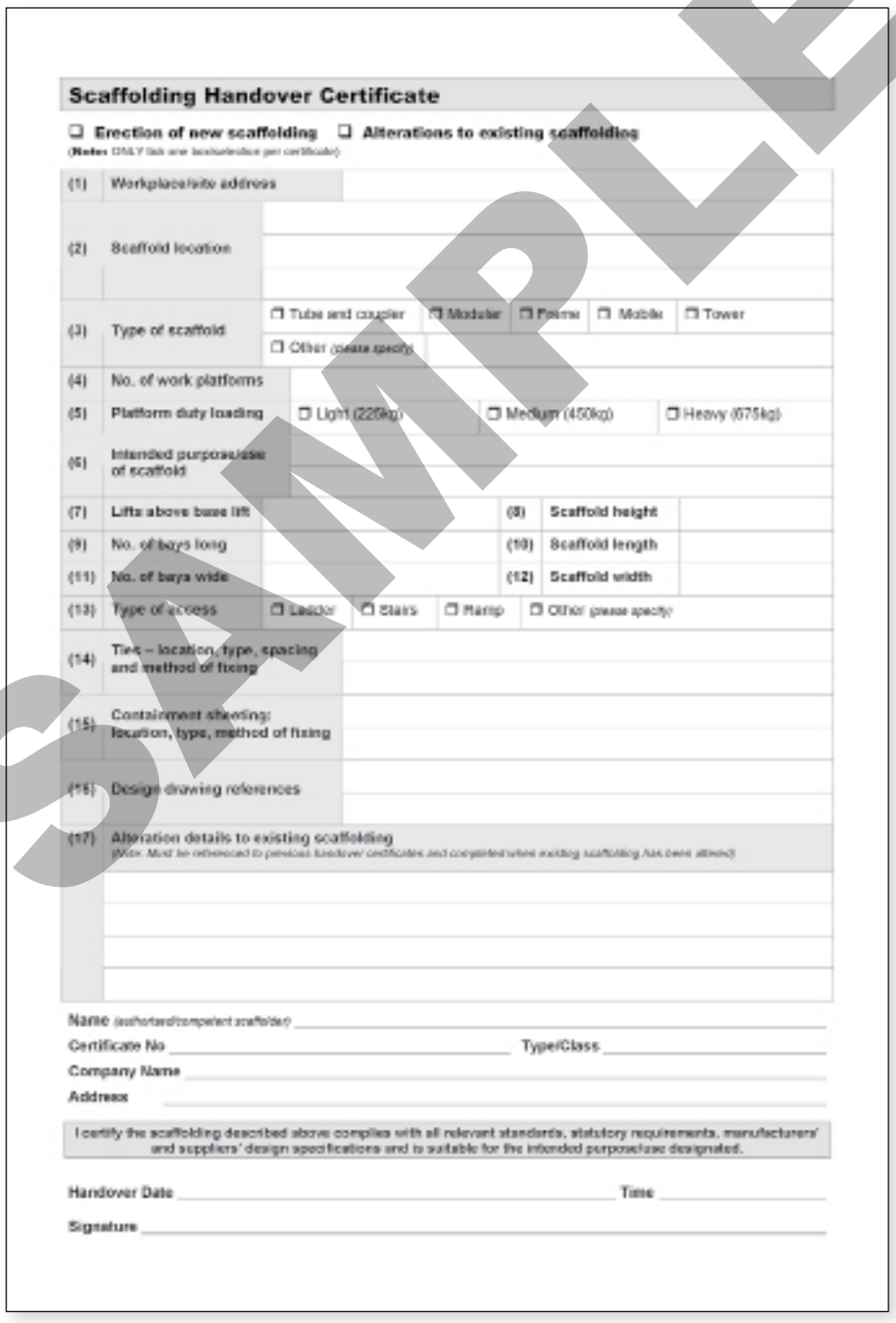
Handover certificate is completed as required and handed to appropriate personnel.

Performance Criterion **4.6**

Scaffolding handover certificate

When you finish your scaffolding and have had it inspected, you fill out a scaffolding handover certificate. You then attach it to the scaffold.

A scaffolding handover certificate should have the following information:



Scaffolding Handover Certificate

❑ **Erection of new scaffolding** ❑ **Alterations to existing scaffolding**

(Note: ONLY tick one box/checkbox per certificate)

(1)	Workplace/site address				
(2)	Scaffold location				
(3)	Type of scaffold	❒ Tube and coupler	❒ Modular	❒ Frame	❒ Mobile	❒ Tower
		❒ Other (please specify)				
(4)	No. of work platforms				
(5)	Platform duty loading	❒ Light (225kg)	❒ Medium (450kg)	❒ Heavy (675kg)		
(6)	Intended purpose/use of scaffold				
(7)	Lifts above base lift		(8)	Scaffold height	
(9)	No. of bays long		(10)	Scaffold length	
(11)	No. of bays wide		(12)	Scaffold width	
(13)	Type of access	❒ Ladder	❒ Stairs	❒ Ramp	❒ Other (please specify)
(14)	Ties – location, type, spacing and method of fixing				
(15)	Containment sheeting: location, type, method of fixing				
(16)	Design drawing references				
(17)	Alteration details to existing scaffolding (Note: Must be referenced to previous handover certificates and completed when existing scaffolding has been altered)				

Name (authorised/competent scaffolder) _____

Certificate No _____ Type/Class _____

Company Name _____

Address _____

I certify the scaffolding described above complies with all relevant standards, statutory requirements, manufacturers' and suppliers' design specifications and is suitable for the intended purpose/use designated.

Handover Date _____ Time _____

Signature _____

SAMPLE

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Element 5

Dismantle Scaffold and Scaffold Equipment

SAMPLE

This element covers performance criteria:

5.1 Scaffold and scaffold equipment are dismantled according to procedures and the appropriate standard.

5.2 Work is conducted safely at heights including safe and effective use of safety equipment.

5.3 Scaffold, associated equipment and scaffold equipment are inspected for damage and defects.

5.4 All damaged and defective scaffold, associated equipment and scaffold equipment are tagged and isolated according to procedures.

5.5 Hazard prevention/control measures are removed (where appropriate).

5.6 All damaged and defective scaffold, associated equipment and scaffold equipment are reported and recorded according to procedures and appropriate action taken.

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Scaffold and scaffold equipment are dismantled according to procedures and the appropriate standard.

Performance Criterion **5.1**

Dismantle scaffold and equipment

Before you start to dismantle (take down) a scaffold, talk with the other workers who will help you.

Keep the scaffold stable while you are dismantling it. You may need to use guy ropes to hold it in place.

Equipment such as hoists or gin wheels should be dismantled according to specifications.

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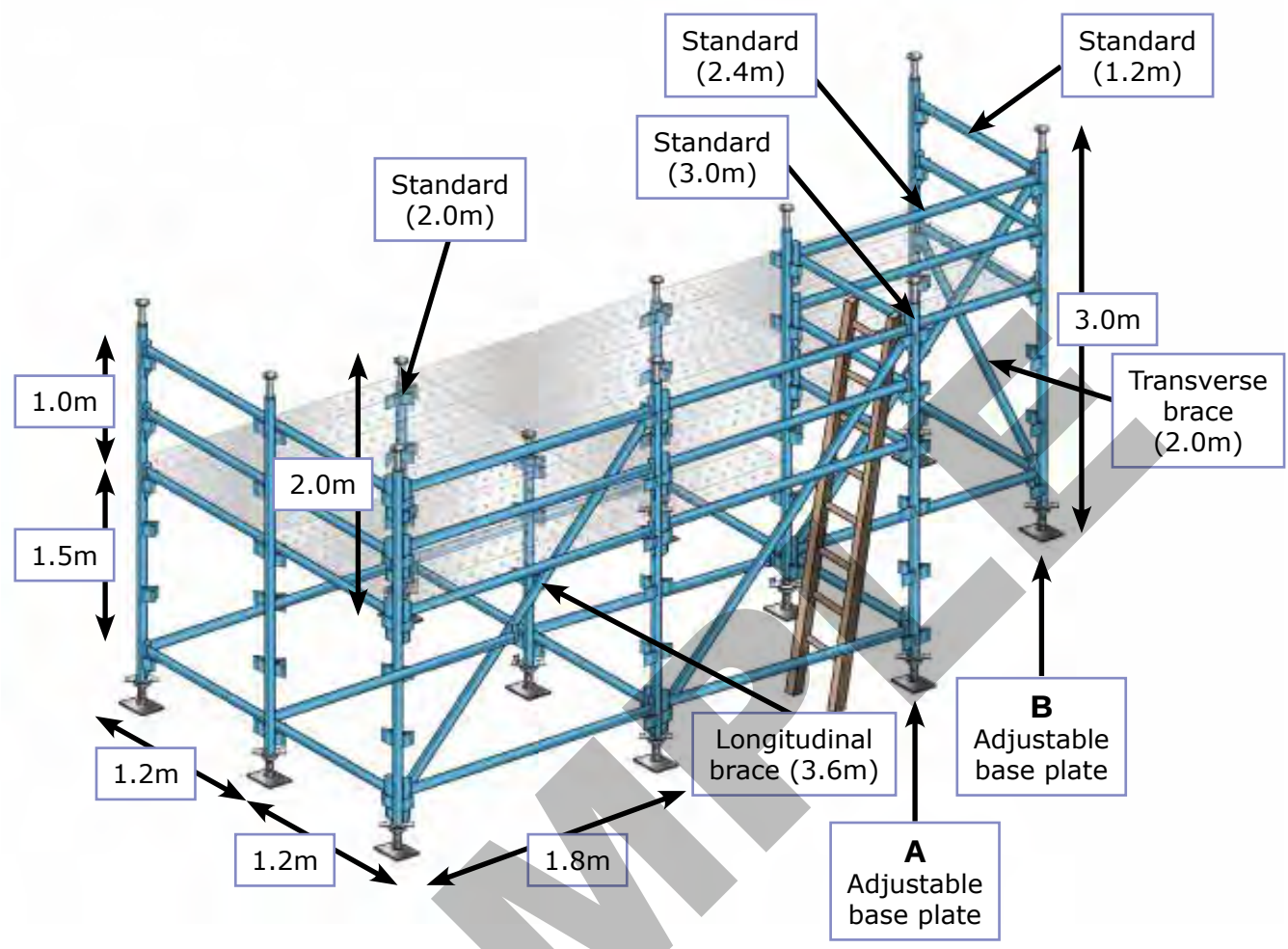
Activity 1

Working with modular scaffold



The table below shows how many of each scaffold component you need to erect this modular scaffold.

Bill's Scaffolding Pty Ltd Modular scaffolding equipment list

Component	Length	Quantity	Weight	Sub Total Weight
Standard	3.0 m	8	18 kg	144 kg
Standard	2.0 m	3	12 kg	36 kg
Transom	1.2 m	22	9 kg	198 kg
Ledger/guardrail	1.8 m	21	10 kg	210 kg
Longitudinal brace (1.2m bay)	2.7 m	3	9 kg	27 kg
Transverse brace (1.8 m bay)	2.0 m	3	12 kg	36 kg
Captive plank (225 mm)	1.8 m	23	13 kg	299 kg
Captive plank (225 mm)	0.7 m	2	5 kg	10 kg
Ladder access putlog	1.2 m	1	8 kg	8 kg
Adjustable base plate	750 mm	11	8 kg	88 kg
Ladder	4.0 m	1	20 kg	20 kg

SAMPLE

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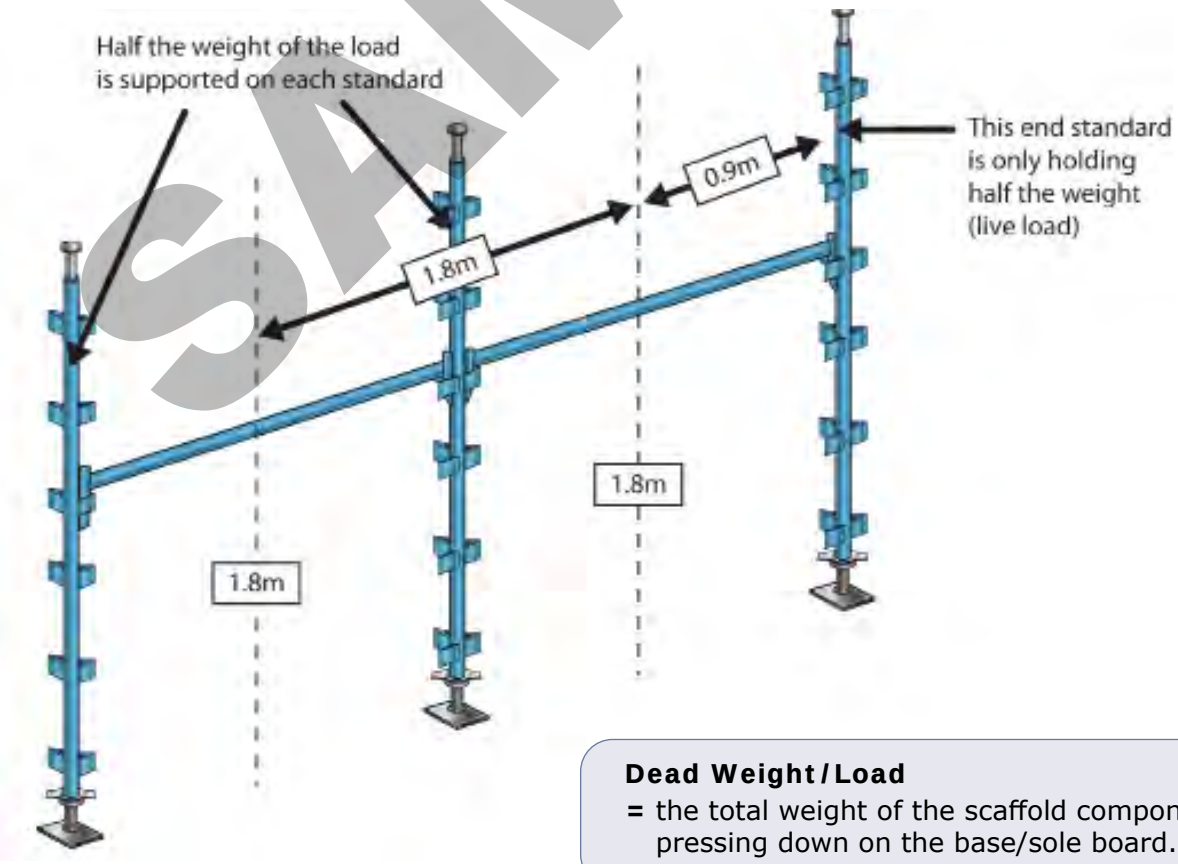
Activity 1 (continued)

i) What is the total weight of the equipment needed to build this scaffold? Write your answers in the table below.

Bill's Scaffolding Pty Ltd Modular scaffolding equipment list					
Component	**Length**	**Quantity**		**Weight**	**Sub Total Weight**
Standard	3.0 m	8	×	18 kg =	
Standard	2.0 m	3	×	12 kg =	
Transom	1.2 m	22	×	9 kg =	
Ledger/guardrail	1.8 m	21	×	10 kg =	
Longitudinal brace (1.2 m bay)	2.7 m	3	×	9 kg =	
Traverse brace (1.8 m bay)	2.0 m	3	×	12 kg =	
Captive plank (225 mm)	1.8 m	23	×	13 kg =	
Captive plank (225 mm)	0.7 m	2	×	5 kg =	
Ladder access putlog	1.2 m	1	×	8 kg =	
Adjustable base plate	750 mm	11	×	8 kg =	
Ladder	4.0 m	1	×	20 kg =	
		Total Weight		=	

SAMPLE

Explanation of dead weight/load



Dead Weight/Load
= the total weight of the scaffold components pressing down on the base/sole board.

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