



**CPCCLS3001 Licence to erect, alter and
dismantle scaffolding intermediate level
Student Guide**



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Welcome

Welcome to **CPCCLSF3001 Licence to erect, alter and dismantle scaffolding intermediate level.**

Information provided may help to ensure your safety.



This unit

This unit specifies the skills and knowledge required to safely perform intermediate scaffolding work.

Scaffolding work involves erecting, altering or dismantling a temporary structure to support a platform from which a person or object could fall more than four metres.

This unit applies to scaffolding work involving:

- cantilevered crane loading platforms
- cantilevered scaffolds
- spur scaffolds
- barrow ramps and sloping platforms
- scaffolding associated with perimeter safety screens and shutters
- mast climbing work platforms
- tube and coupler scaffolds (including tube and coupler covered ways and gantries).

Scaffolding work is undertaken in construction and other industries where temporary structures are erected, altered and dismantled.

Completion of the general construction induction training program, specified in the Safe Work Australia model Code of Practice: Construction Work, is required by anyone carrying out construction work. Achievement of CPCCWHS1001 Prepare to work safely in the construction industry meets this requirement.

Competence in this unit does not in itself result in a licence. A licence is obtained after competence is assessed under applicable Commonwealth, state or territory work health and safety (WHS) regulations.

Electives covered in this unit are:

1. Plan task
2. Select and inspect plant and equipment
3. Set up task
4. Undertake intermediate scaffolding activities
5. Complete task



WHS Law

Legislation is law passed by Parliament.

It governs many areas, including health and safety at work.

It can be national, or relevant to individual states and territories.

You need to know the WHS legislation that covers your job and workplace.

You are required by law to comply with them.

You need to understand how WHS Acts, regulations, codes and standards affect your work, job and workplace.



Acts & Regulations

Acts - Are law. They describe how to provide health and safety in the workplace



The Work Health and Safety Act

2011 QLD / NT / WA / NSW

2004 –Victoria

The Act is the cornerstone of legislative and administrative measures to improve occupational health and safety

Regulations - are made under the Act. They set out the practical steps to follow to comply with the Act

Codes of practice & Australian Standards

Codes of practice - Give practical guidance on how to legally comply with regulations and Acts

Australian Standards - Developed to provide minimum levels of performance or quality. Cover hazards, work processes and products.

The safest way to carry out the work activity is to read, understand and follow your

- Safe work method statements
- Codes of practice

Documentation

Obtain any required documentation when planning for scaffolding tasks

- Manufacturer specifications
- SWMS or other risk assessment process
- Scaffold plan
- Erection sequence



Clarify information

Consult with an **engineer or suitably qualified person** to clarify information on structural charts or plans.



Changes to the installation design

A suitably qualified person can authorise changes to the installation design on a scaffold plan.



Consult relevant persons

Consult with relevant persons when planning for scaffold tasks

- Other scaffolders
- Doggers and riggers
- Designers and engineer's
- Supervisors



Plan and prepare

Other than hazards you should plan for

- Task plans
- Location of task
- Access and egress
- Plant required for a task
- Equipment required for a task
- Availability of equipment



Obtain workplace safety information

Use documents to obtain workplace safety information

- Legislation and regulations
- Australian Standards
- WHS/OHS policy
- Codes of practice
- Manufacturer instructions
- Safe working or job procedures



Work health and safety regulator

If a person is not conducting high-risk work safely the regulator can

- Suspend the licence
- Cancel the licence
- Refuse to renew the licence
- Order to undergo re-assessment



New or unknown rigging activities

An employer must provide **training, supervision, instruction and or information** before you can perform new or unknown scaffolding activities.



Health and safety

Employers have an obligation to ensure the health and safety of all workers by

- Providing and maintaining safe plant and equipment
- Providing and maintaining a work environment without risks to health and safety
- Providing information, training, instruction or supervision for work to be undertaken safely
- Providing and maintaining safe work systems and or procedures



Duty of Care requirements

Duty of care examples

- Take reasonable care for own health and safety
- Take reasonable care for the health and safety of others who may be affected by your actions
- Cooperate with OHS/WHS requirements
- Do not interfere or misuse anything provided in a workplace for WHS/OHS



Intermediate scaffolder

Work that an intermediate scaffolder can conduct includes

- All basic scaffolding tasks
- Cantilevered crane loading platforms
- Cantilevered and spurred scaffolds
- Barrow ramps and sloping platforms
- Scaffolding associated with perimeter safety screens and shutters
- Tube and coupler scaffolds (including tube and coupler covered ways and gantries)
- Mast climbers

Purpose of a SWMS

Completing a Safe Work Method Statement (SWMS)

- Used to identify hazards
- Used to assess risk and document controls
- Used to manage hazards involved in tasks you intend to undertake
- Used to comply with safe work requirements



Equipment information

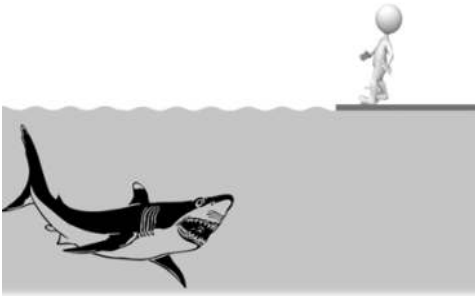
Information that will supply details on the inspection, use and care of equipment

- Australian standards
- Service and maintenance checklist and records
- Manufacturer specifications



Hazard vs Risk

A **Hazard** is something that has the potential to harm you



A **Risk** is the possibility of harm (death, injury or illness) from exposure to a hazard



Consider and plan for hazards

Structure or environment

- Instability of work areas
- Falls from heights
- Wind, poor weather or lighting
- Falling objects

Movement

- Plant and equipment
- Vehicle traffic
- Personnel or pedestrian
- Hazardous manual tasks



Consider and plan for hazards

Underground and overhead

- Electric lines
- Underground services

Equipment

- Faulty equipment
- Electrical items



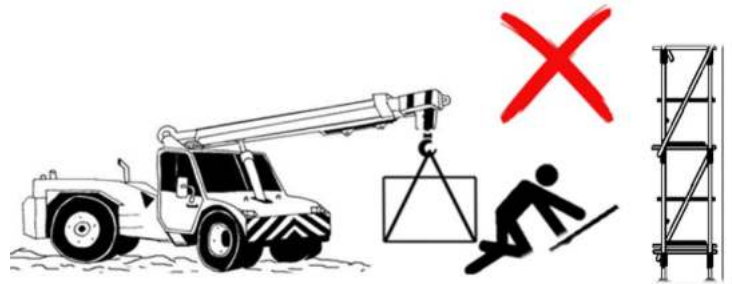
Risk and control

Risk when a crane operating near a scaffold

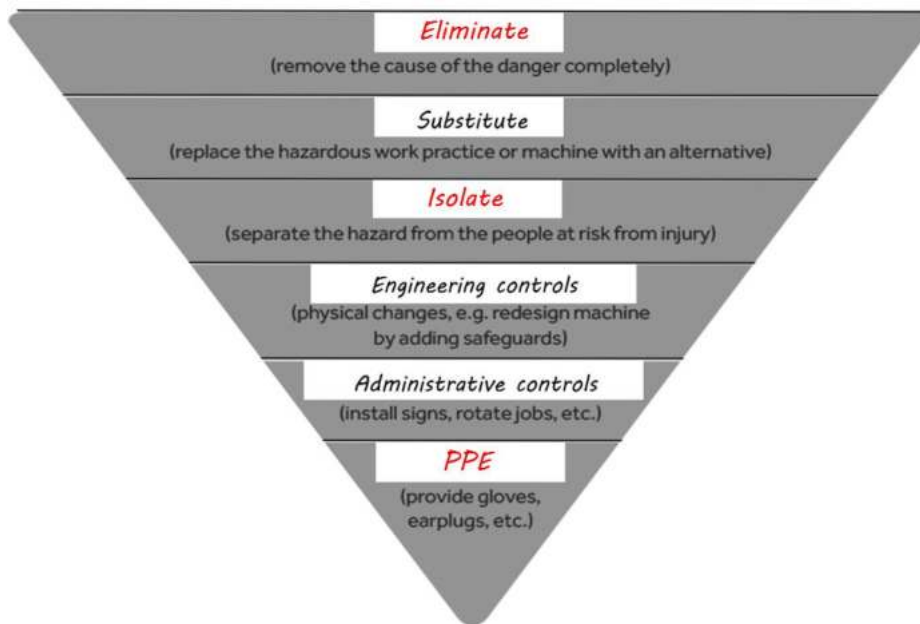
- Struck and or crushed by the crane
- Struck and or crushed by the load
- Scaffold impacted by crane or load

Control

- Exclusion zones
- Communications
- Barriers (traffic or pedestrian)
- Warning signs
- Traffic control



Hierarchy of hazard controls



Identify the location of power lines

Visual signs can help you to identify the location of power lines on your worksite

- Power line marker balls
- Safety warning/danger signs
- Tiger tails



Power lines

If you need to work closer than the prescribed safe operating distances for power lines

- Contact the relevant authority for an access permit
- Ask to have the power disconnected or appropriately insulated by contacting the relevant supply authority
- Use a qualified safety observer (spotter) and observe legislation within your state or territory



Minimum safe operating distances

QLD	
Up to 132,000v	3m
132,000v to 220,000v	4.5m
220,000v to 275,000v	5m
Above 275,000v	6m



Prevent access

Controls must be used to prevent access to an incomplete scaffold that will be left unattended

- Access removed, isolated or barricaded off
- Signage/tags indicating that the scaffold is incomplete and must not be used



Fall prevention and fall arrest equipment

Activities that require the use of fall prevention and fall arrest equipment

Example

- Erecting or dismantling drop or hung scaffold
- Erecting or dismantling cantilevered needles
- The attachment or removal of spurs projecting from a supporting structure



Emergency plan and or procedures

An emergency plan and or procedures must be in place regarding fall prevention and fall arrest equipment use

- Rescue procedures for fall-arrest systems
- Emergency plans that identify the location and method of access for the rescuer



Falling objects

Minimise the risk caused by tools and equipment falling from height

- Fall arrest platforms
- Overhead protective structures
- Perimeter containment screens
- Exclusion zones
- Scaffold belt and tool lanyards



Move tools or materials

Reduce manual handling and safely move tools or materials into a work area

- Hoist materials and equipment up separately
- Install catch platforms/safety nets before moving tools, equipment into a work area
- Use mechanical aids e.g., electric winch or gin wheel

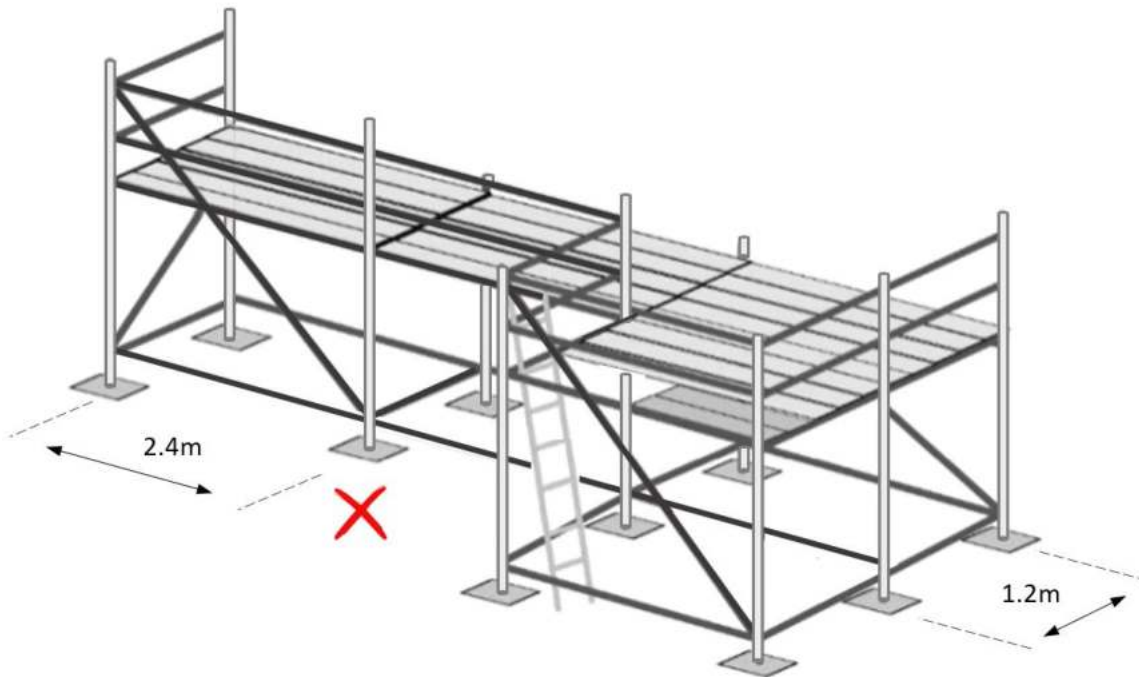


Gin wheel

Fibre rope with a minimum of 16mm diameter should be used in a gin wheel to lift materials.



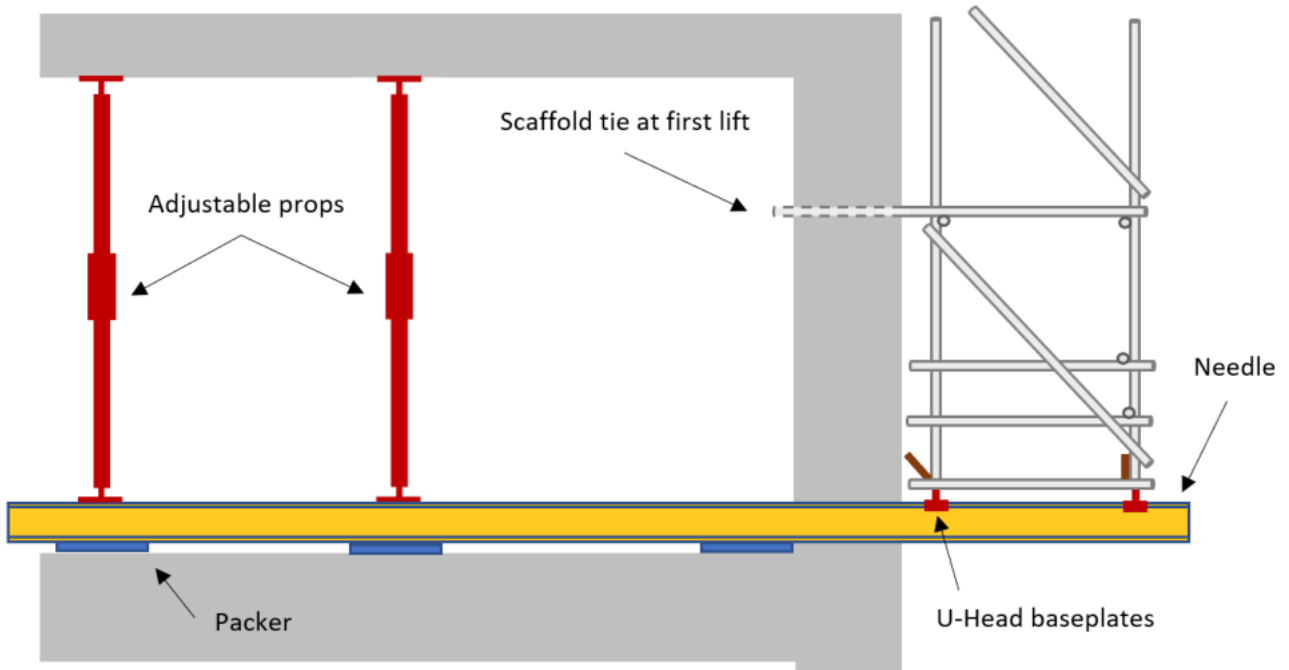
Identify the required scaffold components to calculate the dead load on the base plate marked X



Component	Length m	Weight (kg)	Quantity required
Standard	2.0	11	
Standard	3.0	17	1
Transom	1.2	7	2
Ledger/Guardrail	2.4	9	8
Brace (1.2m bay)	2.0	9	
Brace (2.4m bay)	3.6	16	1
Captive plank 225mm	1.2	9	
Captive plank 225mm	2.4	19	10
Ladder Access Putlog	1.2	7	
Adjustable base plate	0.75	6	1
Ladder	0.4	19	

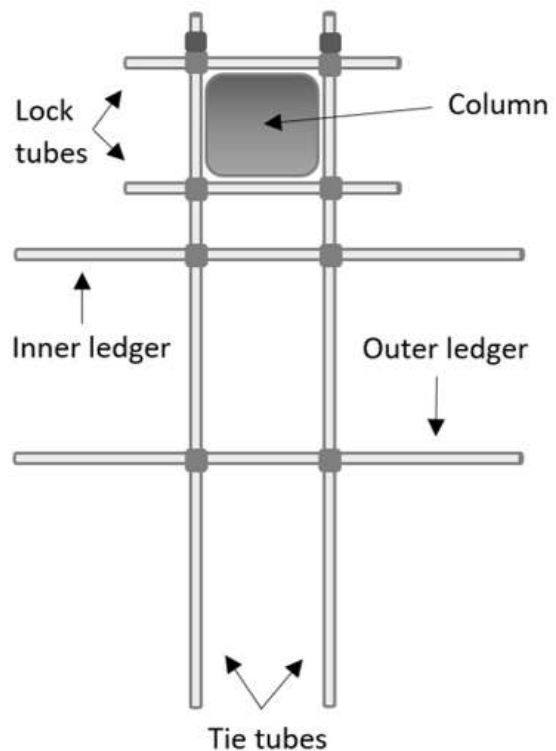
Adjustable props

When adjustable props are used to support the needle on a cantilevered scaffold, the adjustable props must be rated to exceed the weight that they will support.



Identify components

Scaffold components	
Tie tubes	2
Right angle couplers	8
Check coupler	2



Intermediate scaffolder hand tools

- Spanners
- Podgers
- Box spanners
- Wrenches
- Wire nips
- Cutters
- Hammers
- Hammer drills
- Shovels
- Torpedo levels
- Tape measures



Load terms

Live load

The load of persons and materials supported by a scaffold platform in each bay

Dead load

The self-weight of a hoist or scaffold before it is loaded

Static load

Consistent applied load (rubbish chute or containment screening)

Dynamic load

Dynamic forces caused by movement of scaffold

Wind load

Wind loadings resulting from wind speed taking into account the degree of exposure to the site

Environmental load

Environmental load is the weight of any environmental factors, such as water (ice, snow rain), dust and debris that may be on the scaffold



Scaffold duty

Light duty

Up to 225 kg per platform per bay including a concentrated load of 120 kg. Platforms should be at least two traditional scaffold planks wide—approximately 450 mm

Medium duty

Up to 450 kg per platform per bay including a concentrated load of 150 kg. Platforms should be at least four traditional scaffold planks wide—approximately 900 mm

Heavy duty

Up to 675 kg per platform per bay including a concentrated load of 200 kg. Platforms should be at least 1000 mm wide

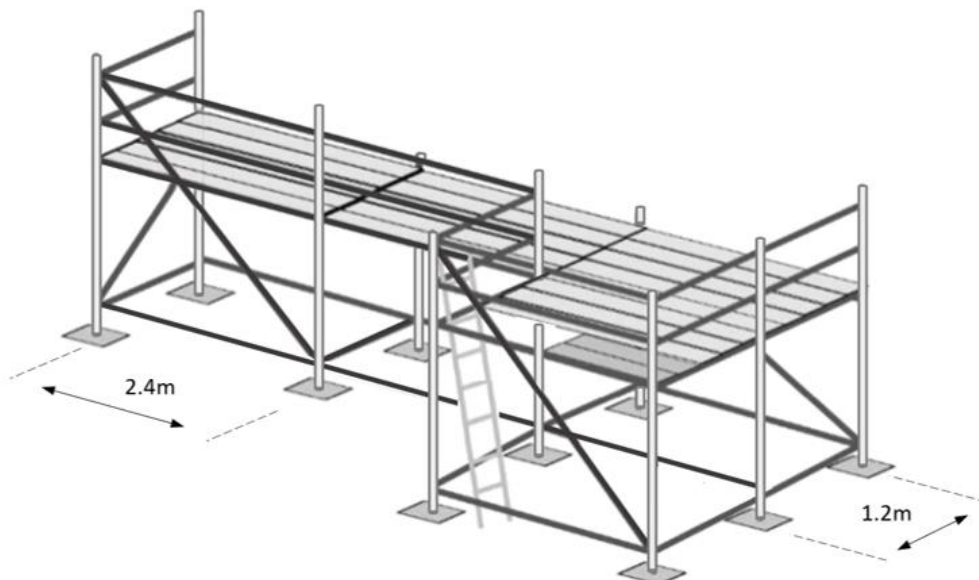
Special duty

Has a designated allowable load as designed

Calculate the dead load

The following formula is used to calculate the dead load on a scaffold.

Weight of adjustable base plate + standard + $\frac{1}{2}$ ledgers + $\frac{1}{2}$ transoms + $\frac{1}{2}$ braces + $\frac{1}{4}$ planks



Calculate the live load

The following formula is used to calculate the live load on a scaffold.

Scaffold duty \div 3 X number of platforms supported by the standard

Establish communication method

You should decide the best communication methods with other relevant personnel at the pre-start meeting or planning stage.



Fall arrest system

A fall arrest system such as an energy absorber or inertia reel should be selected as a suitable control method only **when other risk controls are not feasible.**



Lanyard / Safety harness

Factors that cause a lanyard or safety harness to become unsafe for use

- Frayed
- Split
- Chemical damage
- UV damage
- Heat damage
- Out of date



Safety net defects

Defects that indicate that a safety net is unsafe to install may include

- UV damage
- Stretched
- Frayed fibres or Splits
- No tag



Install safety net

Conditions when a safety net would be installed

- During construction to prevent unchecked falls
- Demolition works
- Under roof sheeting
- Circus activities



PPE required

Always ensure you are familiar with the signs and symbols for personal protective equipment

Hard hat



High-visibility clothing



Hearing protection



Gloves



Dust mask



Safety boots

Inspect safety equipment

Always inspect safety equipment including personal protective equipment **before starting any work.**



Inspect components

Always inspect all scaffold components to make sure all components are safe to use and suitable for task.



Unsafe or damaged equipment

If unsafe or damaged equipment is identified

- Tag out
- Separate from usable equipment
- Report defect
- Arrange for repair or disposal as necessary



Defective ladder

Defects that indicate an access ladder is unsafe for use

Example

- Rungs, steps, treads or top plates are missing, worn, damaged or loose
- Tie rods are missing, broken or loose
- Timber stiles are warped, splintered, cracked or bruised
- Metal stiles are twisted, bent, kinked, crushed, cracked welds or damaged feet



Defective timber scaffold plank

Defects that indicate a timber scaffold plank is unsafe

Example

- No marking or unreadable
- Width less than 220mm
- Nominal thickness reduced by more than 10%
- Warped, twisted, broken, split or worn
- End hoop iron broken or damaged
- End fixing missing



Defective scaffold tube

Defects that indicate a scaffold tube is unsafe for use

Example

- Bent
- Split ends
- Cross cut
- Flame cut
- Heavy corrosion on tube



Defective couplers

Visual indications that deem couplers unsafe for use

- Damaged hinges
- Damaged threads or nuts
- Excessive oil, grease or paint



Communication equipment

Checks should be made on a two-way radio before use

- Free of visual defects
- Battery sufficiently charged
- Channel setting
- Volume setting



Communicate

You can ensure the task plan, risk controls and impact on other workplace activities are communicated to relevant personnel by

- Involving them in the task planning
- Involving them in the risk assessment process
- Establishing and maintaining communication throughout the entire work task



Check your risk controls

Always check your risk controls for identified hazards before you commence any work, or as soon as a hazard is identified.



Adequate lighting

Adequate lighting needs to be in place before conducting scaffolding activities in a low light environment.



Turnbuckle

Use an **open-framed** turnbuckle when attaching a static line to an eye bolt, this allows for visual inspection of threads.



Tension static line

A ratchet and pawl can be used to tension a static line when permitted by manufacturer or engineer.



Anchor a static line

Collared eyebolts must be used to anchor a static line.



Ground conditions

Most suitable ground conditions to bear pressure

- Hard rock
- Shale rock
- Sandstone
- Compacted gravel with up to 20% sand



Assessment of ground conditions

A competent person should be involved in the assessment of the ground conditions to

- Ensure the ground is stable
- Ensure the ground is able to bear the combination of dead, live and environmental loads over the entire period the scaffold will be in place
- Ensure a water course or nearby excavation will not impact stability of the scaffold

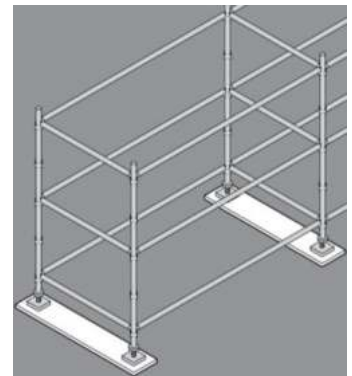
Prepare scaffold footings

Use soleboards under the base plates when preparing scaffold footings for use on a less stable surface such as soil.



Point loading soleboards

To reduce point loading to the soleboards you can use longer soleboards to support both inner and outer legs.



Base plate extension

600mm is the maximum allowable extension on an adjustable base plate when levelling scaffold.

Aluminium adjustable base plate

1500kg is the maximum allowable load for an aluminium adjustable base plate.



Loading scaffolding components

Considerations when loading scaffolding components for installation

- The capacity of the loading surface to bear the weight of all components
- The capacity of the loading surface to carry the weight of all materials and workers



Ladder grade

A sufficient grade of ladder is required to access a scaffold platform

- A single industrial grade ladder
- Industrial grade extension ladder



Min clear access required

675mm is the minimum width of clear access required on a platform for persons and materials.



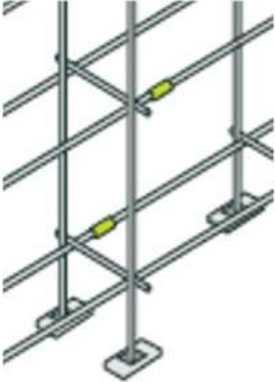
Tube ledger joints

Incorrect positioning of tube ledger joints may lead to failure under load.



Join ledger

A ledger must not more be joined more than 300mm from a standard, unless specified by the manufacturer.



Equipment use

Locations that joint pins or sleeve type end-to-end couplers should not be used

- In horizontally or vertically adjacent ledgers in the same bay
- In the same ledger in adjacent bays
- More than once between adjacent standards
- In the end bay of a scaffold
- More than 300mm from a standard

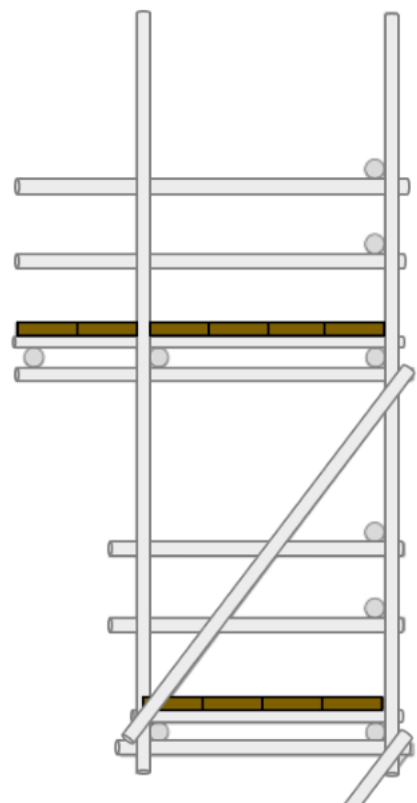
Cantilevered platform requirements

When supporting extra planks by cantilevered putlogs, the minimum bay width of the supporting scaffold must **not be less than 950mm**.

Two 225mm planks can be supported by the cantilevered portion of putlogs.

To support a cantilevered platform that is two-plank wide when using extended putlogs and putlog clips.

Ensure the transom beneath the cantilevered platform extends to support another ledger on the working face and use putlog clips to connect putlogs to all three ledgers.



Cover gaps

Use **structural plywood underlay** to cover gaps up to 150mm where planks do not fully cover bay widths.

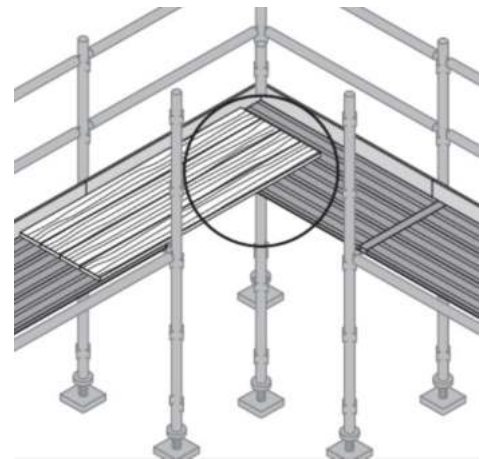


Lapped planks

Conditions where planks would be lapped on scaffold

Example

- On the returns of a scaffold
- Where there is a change in direction
- On hanging bracket scaffolds
- Cover gaps around corners
- Unusual profiles



Edge protection

Edge protection would be required when materials or tools are stacked or loaded on a working platform e.g.,

- Toe board
- Infill panel
- Mesh
- Brick guards
- Containment sheeting



Permitted slope

A maximum of 3 degrees in all directions is the permitted slope of a working platform.



CCLP extending from building

A cantilevered crane loading platform can extend from a building external that is facing a public access or roadway, but **not past the line of public overboard protection**.



Suitable ramps CCLP

Suitable ramps must be fitted when the cantilevered crane loading platform decking cannot be made flush with the floor slab.



Fix or secure a CCLP

Fix or secure a CCLP to prevent sideways movement

- Bolts anchored through the supporting structure
- Props (individual or manufactured propping system), secured at the top and base against lateral displacement



Moving a CCLP

Risk controls are required to be setup before moving a cantilevered crane loading platform

- Edge protection
- Barricades
- Fall protection (fall arrest equipment or static lines with harness/lanyard equipment worn)
- Exclusion zones



Cantilever crane loading platform

Checks before a cantilevered crane loading platform can be used

- Working Load Limit displayed
- Tare weight identified
- All bolts or connectors must be secured and tightened in position
- All props must be plumb and have the secure rear ties in position
- There must be no gap between the platform floor and floor slab
- All props must be set to ensure minimal jack extension
- Rear handrails must be in position
- Engineer approval if required

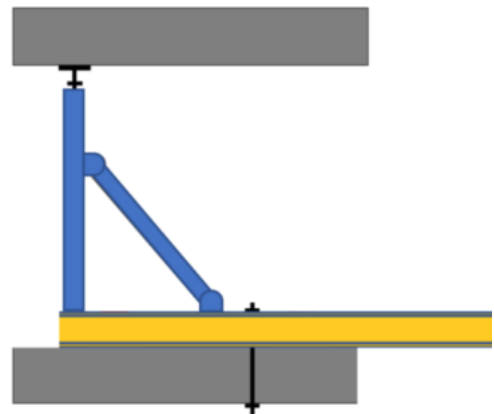


Anchor scaffold needle

Anchor type required to secure the inboard end of a cantilevered scaffold needle

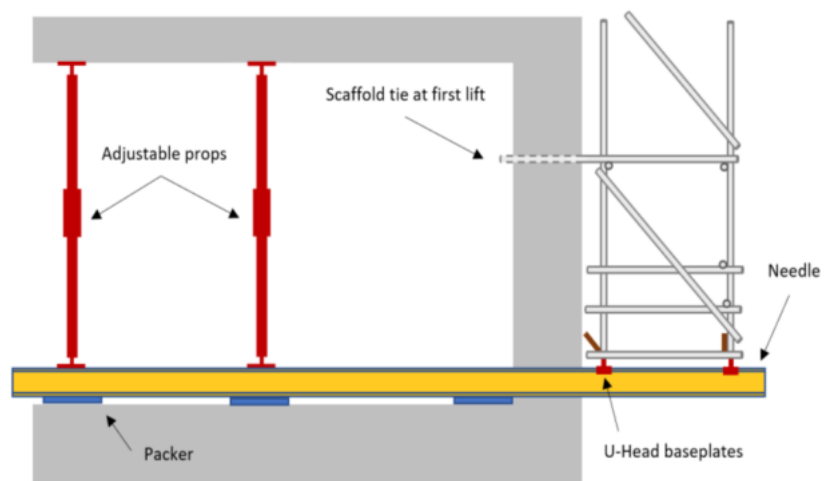
Example

- Through bolting
- Cast-in insert
- Propping



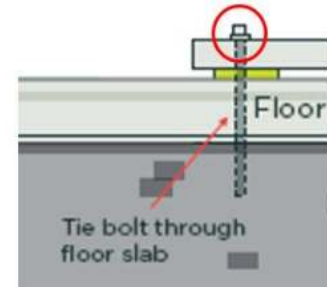
Tie a cantilevered scaffold

A cantilevered scaffold should be tied to a building/structure **at the first lift.**



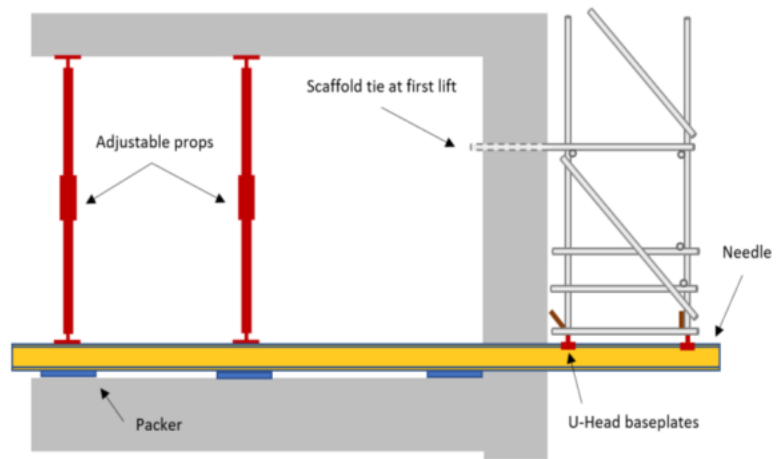
Lock nut

A lock nut should be used to prevent anchorage bolts becoming loose on a cantilevered scaffold needle.



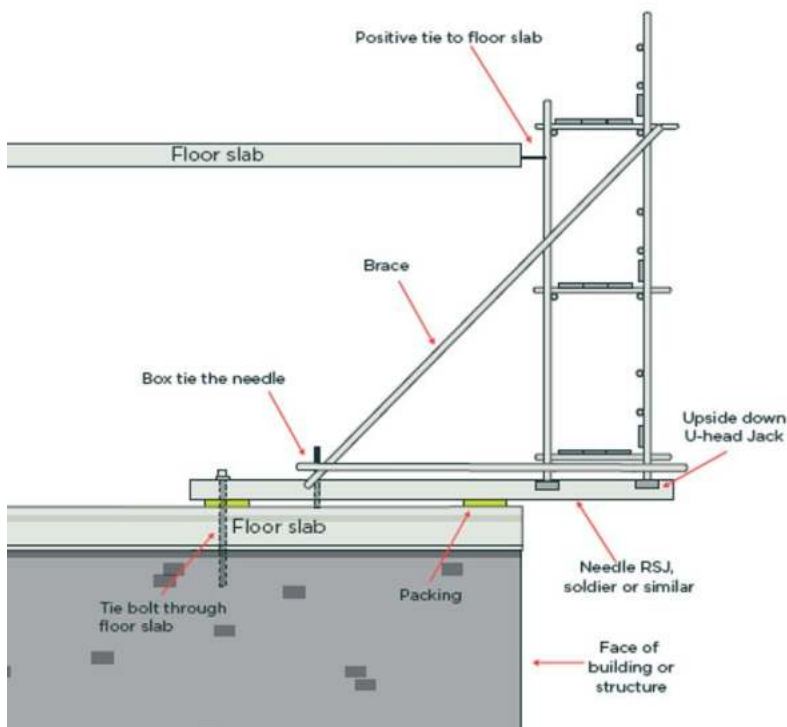
Cantilevered scaffold needle

At least 3 times the outboard portion/length of a cantilevered scaffold needle must be inboard.



First lift

The first lift of ledgers and transoms should be positioned as close to the needles as possible on a cantilevered scaffold.



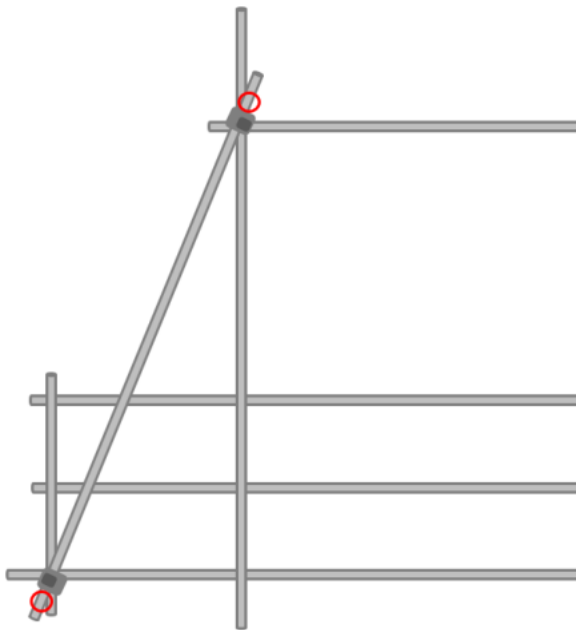
Fall arrest system

A fall arrest system should be used where a cantilevered scaffold is dismantled.

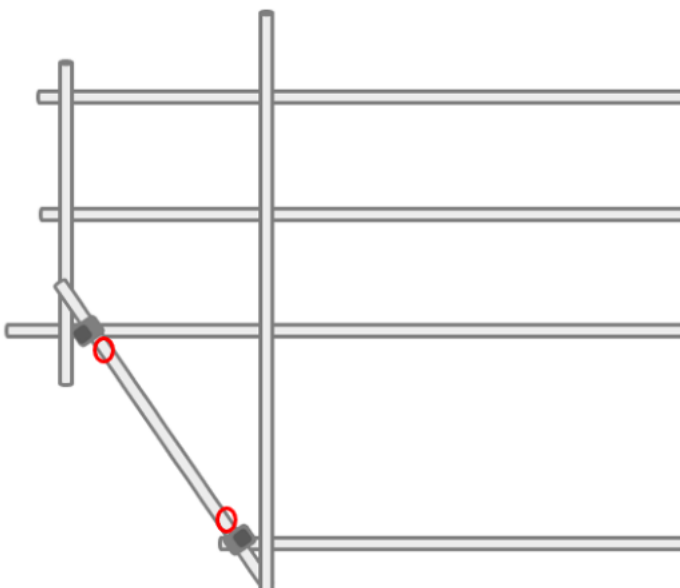


Cantilever spur

Safety couplers must be located to secure the tension spur.

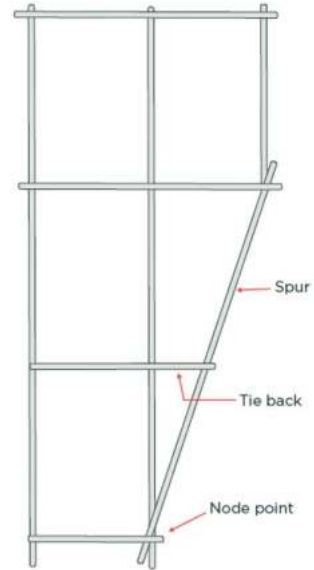


Safety couplers must be located to secure the compression spur.



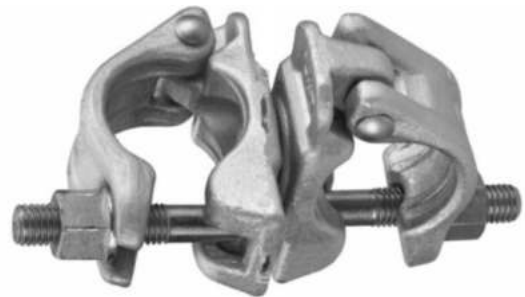
Fix a spur

You are permitted to fix a spur when it does **not exceed 45 degrees from the vertical.**



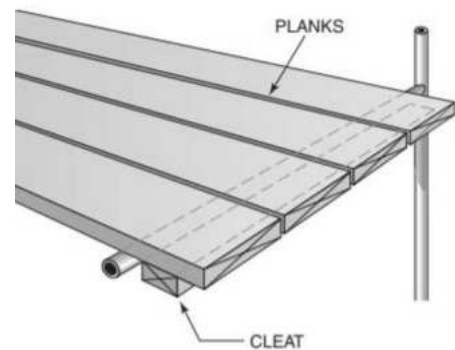
Fixing a spur

When fixing a spur to the ledgers or transoms, use a right angle (double/ninety degree) coupler and provided with check (safety) coupler.



Prevent plank creep

Lashings or cleating should be used to prevent plank creep on a sloping work platform.



Swivel couplers

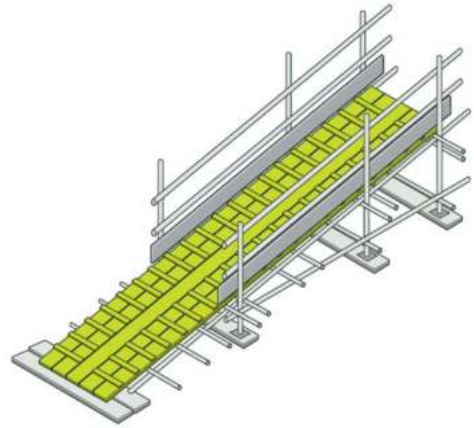
Guard rails and mid rails should be secured with swivel couplers on a sloping work platform.



Barrow ramp cleat

Allow for a gap in a barrow ramp cleat.

100mm or the width of the tyre on the barrow to be used.



Barrow ramp cleats

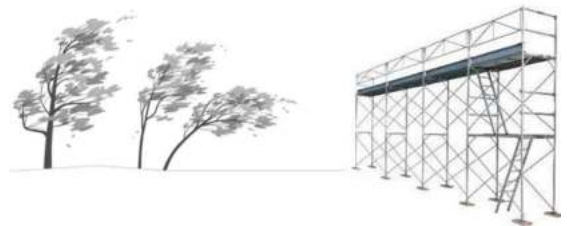
Cleats should be fixed at a distance of 450mm on the platform of a barrow ramp.



Perimeter containment screens

Before installing perimeter containment screens to a scaffold always consider

- Additional live load imposed on the scaffold due to extra wind load caused from screening material type
- Additional dead load imposed on scaffold due to extra weight of screening material



Perimeter safety screen or shutter

Install or dismantle a perimeter safety screen or shutter to a building

- Only use components that are compatible with the safety screen system being used
- Always install according to manufacturer's procedures and specifications
- Use a fall-arrest system whenever working near an exposed edge
- Ties fitted to safety screens should be approved by a competent person e.g., engineer with experience in structural design

Mast climbing work platform

An engineer's certificate could be required before a mast climbing platform is tied to a structure.



Certificate of compliance

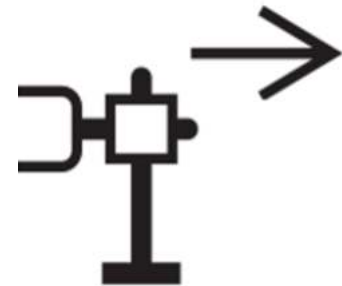
Documentation is required when installing a mast climbing work platform on a concrete slab.

A certificate of compliance from an engineer confirming the slab is capable of holding the intended loads.



Extending and locking outriggers

When extending and locking outriggers, always follow the **manufacturer's specifications**.



Secure planks

Secure planks on a tube and coupler scaffold

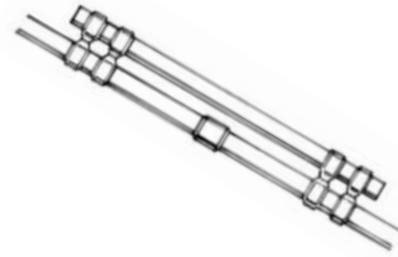
Example

- Lashing
- Cleating
- Plank straps



Join bracing

Join bracing on a tube and coupler scaffold by lapping or splicing.



Cantilever covered way or gantry

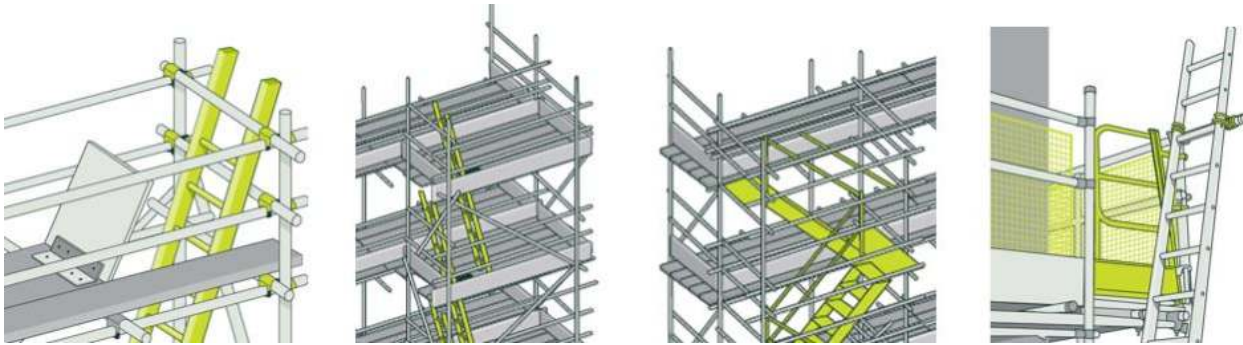
Always ensure you meet any requirements when erecting a cantilever covered way or gantry

- Withstand a downward force of at least 10kPa
- Permit
- Handrails at least 900mm high
- Minimum height of 2.2m high, or 4.8m high for vehicle bay
- Waterproof and dustproof

Prevent persons falling

Prevent persons falling from a work platform into a ladder or stair access

- Ladder hatch
- Ladder or stair bays
- Gate or tortured path to prevent unintentional access to stairway



Additional or unwanted materials

Additional or unwanted materials should be removed from the work area as soon as possible for

- Hazard prevention
- Safety



Scaffold inspection

A cantilevered or spur scaffold is required to be inspected

- Before use
- Before using the scaffold after an incident or repair
- At least every 30 days



Handover certificate

A handover certificate is required before a scaffold can be utilised in the workplace.



Unserviceable

If damaged scaffolding equipment is identified during the dismantling process

- Isolate
- Tag out
- Report defective items



Store scaffold and equipment

Correctly store scaffold and associated equipment

- According to manufacturer instructions
- According to workplace procedures



Remove hazard control measures

When hazard control measures such as barriers, signs or safety nets are no longer needed.

Remove them from the work area, inspect for defects and store them correctly.

THE END.

