MODULE H

Module H is about:

(a) Scaffolding licence and restrictions
(b) Parts of a scaffold
(c) Scaffolding: Duty, types and basic levels
(d) Preparing a scaffolding plan
(e) Safe Work Methods
(f) Equipment
(g) Components and quantities
(h) Ground suitability
(i) Prepare and Position
(j) Erecting a Scaffold
(k) Scaffold Inspection
(l) Dismantling
(m) Disposal of materials

Module H includes:

(a) Content Overview
(b) Multiple Choice Quiz
(c) Short Answer Quiz
(d) Practice activity
(e) *'What you should know'* Checklist

Word List

(a) Scaffolding
(b) Dismantling
(c) Modular
(d) Components

(e) Inspection
(f) Prefabricated
(g) Associated
(h) Contours
(i) Competency
(j) Static

CONTENT OVERVIEW

When is a Scaffold Licence Needed?

- A scaffold licence is needed where working platforms are at a height where a person or object could fall more than 4 metres.

What Types of Work CAN'T YOU DO with a Restricted Height Competency?

A person with a basic scaffolding licence is legally allowed to carry out the following tasks:

- Erection, alteration and dismantling of modular and prefabricated scaffolds.
- Erection of cantilevered materials hoists with a maximum rated capacity of 500 kilograms.
- Use of ropes and gin wheels.
- Installation of safety nets.
- Use of static lines.
- Erection of bracket scaffolds (tank and formwork).

Here are a few informative videos on scaffolding, what was and now.

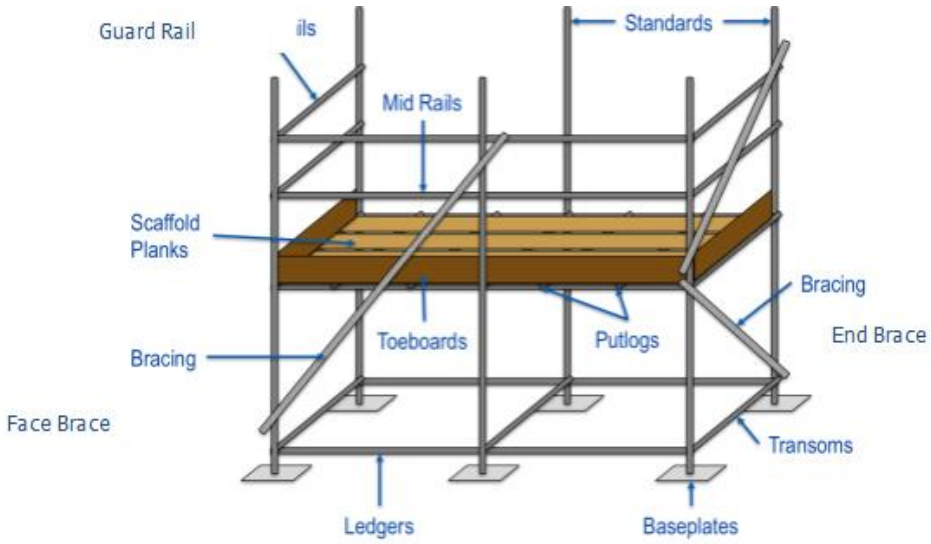
https://youtu.be/NkImgQPJqdk: **Scaffold in the 50-60's**

https://youtu.be/veF4uSUtrEY: **TasTAFE Scaffold Video**

- There are many different types of scaffolds that can be erected
- These scaffolds are made up of a number of components.
- It is important that you have an understanding of what each of these components are called (especially when interpreting a scaffolding plan).

Parts of a Scaffold

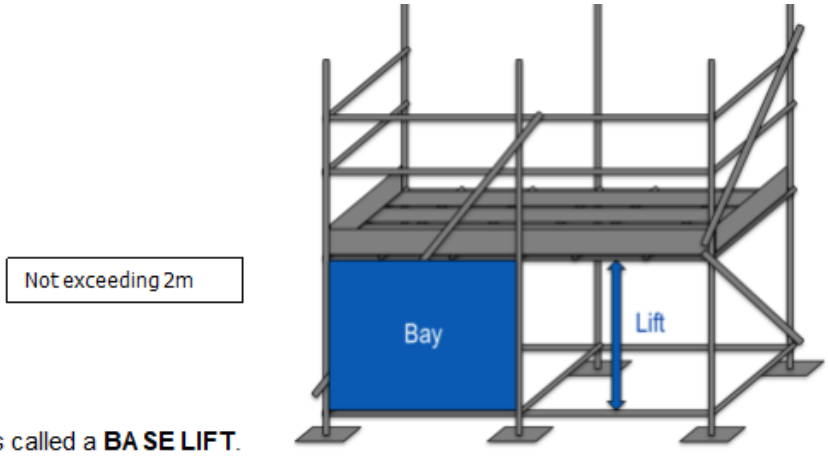
The diagram below outlines some of the basic components of a scaffold structure.



Bays and Lifts

- A BAY is the section of a scaffold created by four standards, ledgers and transoms placed at right angles

- A LIFT is the vertical distance between two ledgers.



The first lift is called a **BASE LIFT**.

Scaffold Duty

- Scaffolds have different size requirements and rated capacities according to their duty:

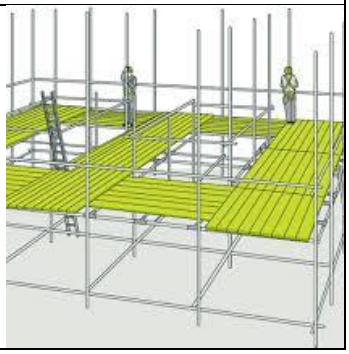
Duty	Minimum Working Platform Width	Maximum Load Allowed on Platform
Light Duty	450mm 2 planks	225kg per bay
Medium Duty	900mm 4 planks	450kg per bay
Heavy Duty	Minimum 1000mm 5 planks =1100mm	675kg per bay

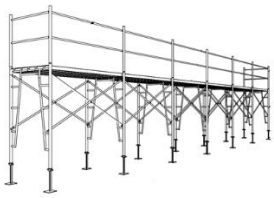
Scaffold Types

- When selecting a scaffold, the specified building's design, shape, and location should be considered. The scaffold's ability to adapt to the structure's contours should also be taken into account.
- In addition, the purpose for which the scaffold will be used should be a factor in making the decision about which type of scaffold should be selected.
- You will need to decide what type of scaffold construction is the most appropriate for the tasks you need to perform.
- For all prefabricated scaffolds the supplier must provide written instructions on the details about the scaffold system.
- You cannot mix components of prefabricated scaffolds unless supplier or engineer approved.

Basic Level Scaffolds

The table below outlines the main types of basic level scaffolds:

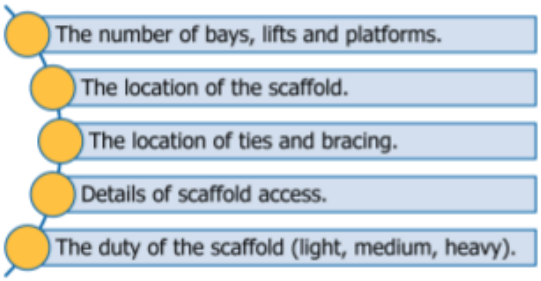
Name	Explanation	Example
Mobile Scaffold	A Mobile Scaffold is an independent, free-standing, movable scaffold mounted on castors. It is useful for maintenance where multiple points must be accessed. Castors for mobile scaffolds need to have wheel locks. Castors for a mobile scaffold cannot have a pneumatic tyre. Plan bracing is needed in a mobile scaffold to stop the scaffold from twisting when it is moved.	
Birdcage Scaffold	A Birdcage Scaffold consists of more than two rows of standards, connected by ledgers and transoms. It is intended for use on one level only, and is commonly used for working on a ceiling.	

Modular Scaffolding	A Modular is made from components that are all of set length and are stored as individual parts.	
Frame Scaffolding	Frame Scaffolding (steel, fibreglass or aluminium) is assembled from prefabricated frames, braces and accessories. Most mobile scaffolds are frame scaffolds.	
Bracket Scaffold	A Bracket Scaffold is a scaffold that has a platform carried on frames attached to or supported by a permanent or temporary construction. Bracket scaffolds are often used for maintenance work. Or attached to formwork.	
Tower Scaffold	A Tower Scaffold can be a mobile, modular, or tube and coupler variety. Tower scaffolds are generally fitted with a single work platform with ladder access and have only 2 rows of standards. Tower scaffolds are popular where there is a limited amount of space to erect a scaffold. Unless otherwise stated by the manufacturer, a light duty aluminium tower scaffold should not exceed a height of 9 metres.	

Preparing a Scaffolding Plan

- Your plan should include information on how you intend to carry out the task (sequence), how you intend to deal with any unidentified hazards and what components you will use to complete the scaffold.
- During the planning stage you will be required to undertake a SWMS and abide by site policies and procedures.

- These drawings can be used as a reference to determine the scaffold elements/parts that are required to erect it and the configuration of work platforms, ladder access and other components or associated equipment.
- Make sure everybody involved in the scaffolding work is familiar with the plan.
- The details of the scaffold plan may include:



- You can find task and site information in documentation such as:

❖ Safe Work Method Statements (SWMS).
❖ Site-specific Job Safety Analyses (JSA).
❖ Scaffold plans
❖ Manufacturer's specifications.

- Make sure you can accurately interpret and understand structural charts and scaffold plans. They will help you decide which scaffolding equipment and tools you will need and what methods and procedures you will use throughout the task. You can also talk with people like:

❖ Site engineers
❖ Site supervisors
❖ Workmates
❖ WHS representative

<u>Safe Work Method Statements</u>

- A Safe Work Method Statement (SWMS) details how specific hazards and risks, related to the task being completed, will be managed and is developed by the employer for their workers.

SWMS fulfil a number of objectives:

- A safe method of work for a specific job.
- They provide an induction document that workers must read and understand before starting the job.
- They assist in meeting legal responsibilities for the risk management process, hazard identification, risk assessment and risk control.

- They assist in effectively coordinating the work, the materials required, the time required and the people involved to achieve a safe and efficient outcome.
- They are a quality assurance tool.

To complete a SWMS:

1. Break the job down into logical steps.

2. Against each step, identify the workplace hazards in this activity i.e. the ways that a person (or plant) could be injured or harmed (or damaged) during each step.

3. Decide on measures required to mitigate hazards i.e. what could be done to make the job safer and prevent injuries or harm that may occur.

4. Identify roles and responsibilities for actions and outcomes to make sure risk/hazard controls are carried out under supervision.

5. Ensure the SWMS is fully understood by all personnel prior to commencing the task.

- The Safe Work Method Statement must be available for inspection at any given time.
- Safe Work Method Statements may also be referred to as Safe Work Procedures (SWP) or Job Safety Analysis (JSA).

<u>Identify, Select and Inspect Equipment</u>

- A scaffolding task may require the use of a wide range of scaffolding, associated and plant & equipment
- Part of completing the planning for the scaffolding job is to identify what equipment you will need, then select and inspect that equipment to make sure it is safe for use. Access the log book and look for faults, or an Out of service tag on the plant & Equipment.
- It is very important that you check all equipment before you use it to ensure that it is safe to use and suitable for the task. If it is not you would talk to.

- If faults have been identified you should report to:

  - Service person.
  - Site engineers.
  - Supervisors.

- It is important to communicate with workplace personnel and safety officers before starting on a worksite to ensure that the scaffold team is aware of any workplace policies, site-specific procedures and hazards.

Components and Quantities

- A 'load' is any type of force exerted on an object. It is important to understand the relevant forces and loads that are associated with the scaffolding work you will be doing.

Dead Loads – The weight of a scaffold or hoist and its components before it is loaded.

Live Loads – The weight of the equipment and personnel on the scaffold (in each bay).

Wind Load – The force made by wind on a structure or its components.

A Component List is in the picture below:

Component	Quantity	Colour/Legend
Standards (2m)		
Standards (3m)		
Ledger/Guardrails		
Transoms		
Braces (2m)		
Braces (3.6m)		
Ladder Access Putlogs		
Ladders		
Planks (1.2m)		
Planks (2.4m)		
Adjustable Baseplates		

Ground Suitability

- Before setting up the scaffold or any other equipment you need to check the ground and or structures conditions to make sure the scaffolding tasks are conducted on a firm surface capable of supporting the structure.
- Check to make sure there are no underground services running through the area where you plan to set up the plant.
- The pressure of the equipment could cause damage to the underground services, structure, pipes or cables.
- You must also check the load bearing limits of suspended concrete floors, building roofs and landings if loads, scaffolds or equipment is going to be resting on them.
- Speak to a competent person such as an engineer with experience in scaffolding structural design or analysis and knowledge of the relevant Australian Standards to make sure the ground conditions are suitable.

Prepare and Position Scaffolding Equipment

- All equipment hoists and scaffolding needs to be prepared in line with site procedures, the scaffolding plan and the manufacturer's specifications before you start the work.



- The erection, alteration and dismantling of scaffolds requires you to use a range of associated equipment.
- Associated equipment includes:

- Planks
- Ladders and stairways
- Scaffold tubes, tie tubes and fittings
- Footings
- Fibre ropes and Flexible Steel Wire Rope (FSWR)
- Screening
- Hand tools

Erecting a Scaffold

- On an un-sheeted modular scaffold, fix transverse braces at each end (or in each lift at each end) of the modular scaffold.
- While erecting scaffold it is important to make sure that:

  - Standards, transoms, ledgers, braces, platform brackets and tie bars are positioned and fixed correctly.
  - Scaffold is squared, level and plumb.
  - Gap between scaffold platform and structure will be no more than 225mm
  - Toe boards, guardrails and mid-rails are fixed.
  - Ladder is positioned correctly and fixed. 4:1 Ratio (4m up & 1m out)
  - Scaffold matches the drawing or plans.

- If an uncompleted scaffold must be left overnight, you must remove all access to the scaffold and isolate or barricade off the area. Use signage and physical barriers to prevent unauthorised access to the scaffold.

Working Safely at Heights

- Working at heights includes any situation where a worker, or other nearby person, is exposed to a risk of falling (from one level to another) that is likely to cause injury to the worker or person.
- Work area is kept clean and tidy. Removed regularly in a safe manner.
- Keep access ways clear of materials, tools and equipment.
- Pass, receive and position components safely and confidently.
- When using handlines you should keep your back straight, your knees slightly bent and your feet placed firmly on a ledger. Use the standard as an anchor for your body.

Scaffold Inspection

- Once a scaffold erection, inspection or modification is completed, a licenced scaffolder needs to place an inspection record on the scaffold. The inspection record needs to include the following details:

Record Detail	Explanation
Location	Unit / plant number followed by area of plant.
Ref. No.	Work Order number.
Date Erected	Date the erection of the scaffold was complete.
Requested By	This should be the Team leader/Plant Area Coordinator etc., requesting the scaffold. (This may be on the Work Order).
Built By	This is the company who built the scaffold.
Name of Competent Person	Print the name of the competent person/certified scaffolder.
Signature	Signature of competent person/certified scaffolder.
Light Duty 225kg	**As per AS/NZS 4576. (1995) Current**
Medium Duty 450kg	
Heavy Duty 675kg	

Modifying or Inspecting a Scaffold

- Where practicable, the competent person/certified scaffolder who erected the scaffold, and whose name appears on the inspection record, is to be the person to perform scaffold modifications and inspections.
- Prior to modifying scaffold, the scaffolder is to:

➢ Remove the inspection record.
➢ Replace with a notification inspection record detailing the date and time of the modification or inspection, the name of the person performing the modification or inspection and the reason for the alteration where relevant.

- Shown here is an example of an inspection record system of cards:

Inspection Record Card Holder	Inspection Record Front	Inspection Record Back
		

Dismantle Scaffold and Scaffold Equipment

- Work safely at heights utilising safety equipment such as fall-arrest systems (e.g. harness and lanyard).
- Start from the highest lift and dismantle the scaffold downwards one lift at a time. Only remove ties and braces from the lift you are dismantling.
- Do not remove all the ties and braces first. Clear the platforms of all equipment and loose material.

Dismantling

- Dismantle scaffold down to each tie before removing ties. Braces must not be dropped while connected by one end. Edge protection must remain in place as long as possible. All scaffold material must be passed down one lift at a time.
- Scaffold material should be passed and stacked on a loading bay, when erected, to be lifted by a crane. Loose scaffold material should not be left on scaffold.
- Signs and barricades must always be erected to scaffolding if the scaffold is to be left at any time before it is completely dismantled. Scaffold material must not be dropped to the ground.
- Scaffold must be clear of all other material and other trades before scaffolders commence dismantling. Scaffold material must be stacked into pallet or cage pallets to keep base of scaffold tidy.

Safety of Erecting and Dismantling Scaffold

- Scaffolds must always erect and dismantle scaffolding to manufacturer's specifications. Scaffolders should use a minimum of two planks at all times and erect access to working decks as scaffold is built.
- Edge protection must be installed as soon as there are sufficient components in place. Vee clusters must only be climbed where it is impracticable to use other means of access.
- Vee clusters must only be climbed by experienced scaffolders and only climbed within the area of the bay. Handrails and stop ends must be erected to all lifts.
- Workers should not erect or dismantle scaffolding while exposed to inclement weather, i.e. high winds, rain etc.

Disposal of Materials and Equipment

- Clean up any rubbish you make as you work to help prevent tripping accidents, or accidents caused by flying debris. Make sure all equipment and materials are stored safely, stack materials neatly.
- Make sure all equipment is stored according to the manufacturer's instructions, policies and procedures. Many companies have colour coded bins for waste management.


PAPER
PLASTIC
GLASS
GENERAL

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MULTIPLE CHOICE QUIZ

1. Before modifying a scaffold, the scaffolder is to remove the inspection record?

   (a) True

   (b) False

2. A LIFT is the horizontal distance between two bolts.

   (a) True

   (b) False

3. Some scaffolding materials include?

   (a) Planks, ladders and stairways

   (b) Ladders, toys and blocks

   (c) Stairways, trees and bricks

4. A scaffold licence is needed where working platforms are at a height where a person or object could fall more than how many meters?

   (a) 4

   (b) 8

   (c) 5

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SHORT ANSWER QUIZ

Please briefly answer the following questions:

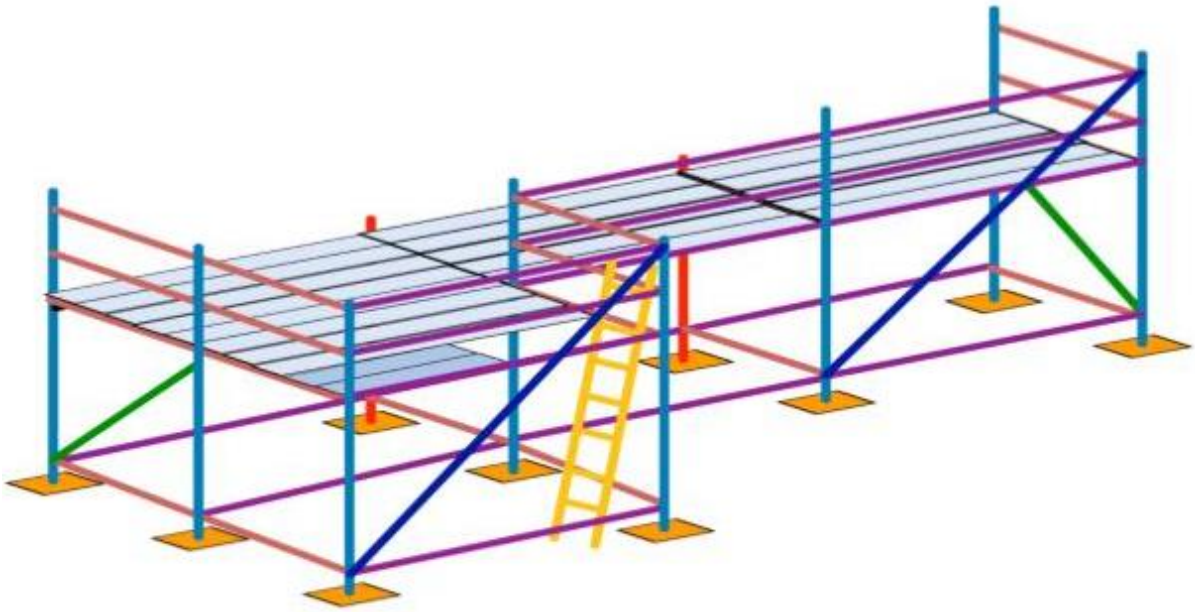
What are the five objectives of the SWMS?

List 5 components of a scaffold.

What are the important points about dismantling a scaffold?

PRACTICE ACTIVITY

(a) In pairs, from the components list on page 9, calculate the quantities required to build the scaffold below.



(b) In pairs, discuss, what is important when erecting a scaffold?

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***'What you should know'* Checklist**

By **Module H**:

1. You should know what legislation and regulation covers WHS
2. You should know what regulating authority covers work safety in Tasmania
3. You should know what is the role of codes of practice and guidelines
4. You should know why the WHS laws were introduced
5. You should know how to search of codes of practice
6. You should know what a hazard is
7. You should know how to make a risk assessment
8. You should know how to use the risk matrix diagram
9. You should know the hazard categories
10. You should know common workplace hazards
11. You should know what a hazard is
12. You should know hazard control procedures
13. You should know selection of controls
14. You should know the different types of PPE and clothing
15. You should know how to identify hazards
16. You should know why safety signs are placed in the workplace
17. You should know the three sign standards provided by Standards Australia
18. You should know the three main types of signs
19. You should know about safety and accident prevention tags
20. You should know about placement of safety signs
21. You should know about assessing and controlling hazardous materials
22. You should know the first aid response
23. You should know about WHS documents
24. You should know the different fire safety equipment
25. You should know the different types of fire
26. You should know about identifying asbestos
27. You should know about the health implications of asbestos
28. You should know legal responsibilities associated with asbestos
29. You should know about employer responsibilities and Work Safe's role with asbestos
30. You should know about with asbestos related diseases
31. You should know about licensing requirements and issues around asbestos removal
32. You should know about scaffolding licence and restrictions
33. You should know about parts of a scaffold
34. You should know about scaffolding: Duty, types and basic levels
35. You should know about preparing a scaffolding plan
36. You should know about scaffolding equipment
37. You should know about scaffolding components and quantities
38. You should know about erecting a scaffold

39. You should know about scaffold inspection
40. You should know about dismantling a scaffold
41. You should know about disposal of materials when scaffolding