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1.1 Introduction

This training course is based on the National High Risk Licence Unit of Competence **CPCCLRG3001 Licence to perform rigging basic level.**

1.1.1 High Risk Work Licence Requirements

Once you pass your assessment you will have **60 days** to apply for your licence.

You must renew your licence within 12 months of its expiry otherwise:

- ◆ Your licence can't be renewed.
- ◆ You need to repeat the course and re-apply for your licence.
- ◆ You need to enrol in the course again and be **supervised by somebody who has a current licence for the same class.**

You can still do high risk work without a licence as long as:

- ◆ You are enrolled in a high risk course for the class, and
- ◆ You are being supervised by somebody who has a licence for the same class.

Any licensed worker must take reasonable steps to make sure the way they work does not impact on the safety of themselves or any other worker. This is their legal duty of care. Failing to work safely can result in the health and safety regulator:

- ◆ **Suspending** your licence.
- ◆ **Cancelling** your licence.
- ◆ **Refusing to renew** your licence.
- ◆ **Ordering that you are reassessed** to ensure you are competent.
- ◆ Take legal action to **prosecute** you.

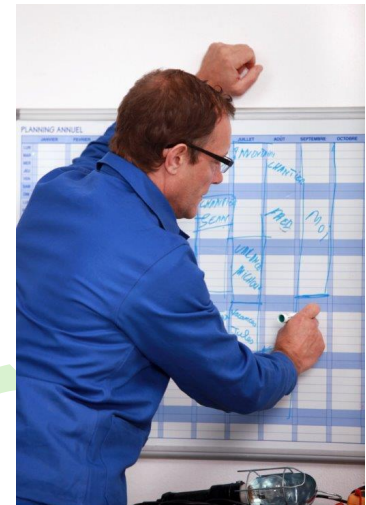
1.1.3 Duty of Care

You can undertake High Risk Work in the Licence Class(es) you hold, however, your employer must still provide you with extra training, support, supervision & guidance if they expect you to operate new equipment within the workplace.

If you are required to **perform an inexperienced or unfamiliar rigging work**, your **employer must provide** you **sufficient information, training, supervision and instruction** before you perform this rigging work.

Personnel/ Workers include:

- ◆ Employers/PCBUs and self-employed persons.
- ◆ Persons in control of the workplace.
- ◆ Supervisors.
- ◆ Designers.
- ◆ Manufacturers.
- ◆ Suppliers.
- ◆ Workers.
- ◆ Inspectors.



Talk to your OHS/WHS officer or representative if you have any questions about OHS/WHS legislation.

OHS information:

The main types of WHS/OHS legislation, requirements and guidelines (where you can **source OHS information**) include:

- ◆ **OHS Acts.**
- ◆ **OHS Regulations.**
- ◆ **Australian Standards.**
- ◆ **Codes of Practice/Compliance Codes.**
- ◆ Management plans.
- ◆ Workplace OHS policy and procedures.
- ◆ **Manufacturer’s instructions.**
- ◆ **Logbook.**
- ◆ **Load chart.**
- ◆ **Operations manual.**



1.2 Risk Management

HAZARDS CREATE RISK. CHECK FOR HAZARDS.

A **HAZARD** is the thing or situation that causes injury, harm or damage.

A **RISK** is the chance of a hazard hurting you or somebody else or causing some damage.



If you can remove or at least control a **HAZARD** you can reduce the **RISK** involved.

Part of your job is to look around to see if you can find any hazards before you start.

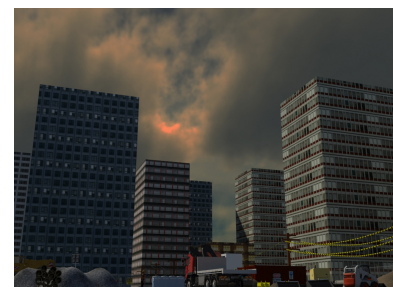
A good tip is to check:

- ◆ **Above head height** – remember the load may be moving above your head.
- ◆ **At eye level** – look around to see if there is anything in the way of where you want to move the load.
- ◆ **On the ground (and below)** – Have a look at the ground conditions and think about where the load is being moved to. Will it support the weight of the load?



Common workplace hazards include:

- ◆ Ground conditions:
 - ◇ Underground services.
 - ◇ Potential non-weight bearing surfaces.
 - ◇ Recent excavations.
- ◆ Poor lighting.
- ◆ Traffic:
 - ◇ Pedestrians.
 - ◇ Vehicles.
 - ◇ Other plant.
- ◆ Overhead hazards:
 - ◇ Power lines.
 - ◇ Overhead service lines.
 - ◇ Obstructions.
 - ◇ Trees.



- ◆ Weather:
 - ◇ Lightning.
 - ◇ Storms.
 - ◇ Wind.

- ◆ Surrounding structures:
 - ◇ Buildings.
 - ◇ Obstructions.
 - ◇ Bridges.

- ◆ Workplace-specific hazards:
 - ◇ Other workers.
 - ◇ Equipment and machines.
 - ◇ Facilities.
 - ◇ Other equipment.

- ◆ Dangerous materials.

1.2.2 Hazard Controls

Once hazards and risks have been identified and assessed you need to work out what the best way to manage them will be.

The Hierarchy of Hazard Control is the name given to a range of control strategies used to eliminate or control hazards and risks in the workplace. Hazard controls should be applied before you start work, or as soon as a hazard is identified during the work.

The Hierarchy has 6 levels.

Always start at the top of the list and work your way down.

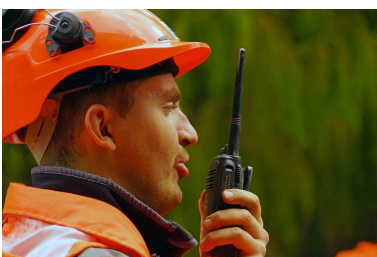


Hierarchy Level	Explanation
1. Elimination	Completely remove the hazard. This is the best kind of hazard control.
2. Substitution	Swap a dangerous work method or situation for one that is less dangerous.
3. Isolation	Isolate or restrict access to the hazard.
4. Engineering Controls	Use equipment to lower the risk level.
5. Administrative Controls	Site rules and policies attempt to control a hazard. Includes Safe Work Practices.
6. Personal Protective Equipment	The least effective control. Use PPE while you work. This should be selected at the planning stage of your work, and checked before starting the job.

1.3.1 Communication Methods and Equipment: Selection and Inspection

As a rigger you need to be able to communicate with those around you while you work, and you need to be able to understand task and equipment instructions.

Select and check communication equipment



It is important that the two-way system provides clear signals without any interference on the channel.

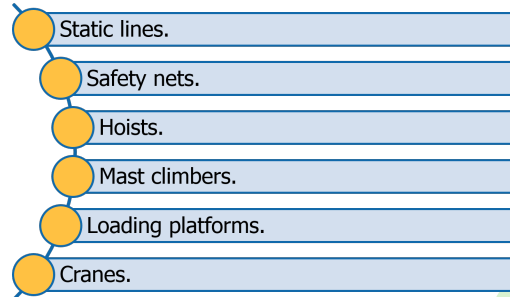
You must check your communication equipment such as radios and whistles **before starting the task** to ensure it is working, you can communicate with the crane or hoist operator clearly and **that there are no faults or damages**.

Do not use any communication equipment that is not consistently working properly. Check that there is no interference on the channel.

3.1.5 Determine Forces and Loads

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 rigging work you will be doing. Forces and loads apply to structures such as scaffolds, structural steel or precast panels.

They also apply to plant associated with the rigging work including:



Forces and loads can be divided up into the following types:

- ◆ **Dynamic Forces** – These are forces caused by the movement of loads being lifted and any crane used to lift the load.
- ◆ **Wind Loads** – These are the result of wind affecting the load as it is being lifted.

You need to **work out the forces and loads** associated with the rigging work **in order to set up the rigging equipment correctly**.



You also need to determine all forces and loads associated with the erecting and dismantling of structures and associated plant to make sure rigging equipment is set up correctly.

This includes working out the weights of plant and equipment, and the additional weight of loads as they are moved around the site.



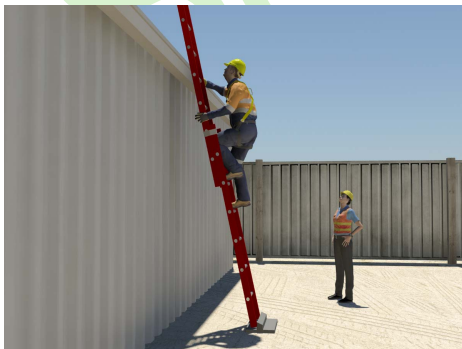
You will also need to consider wind loads if you are working on a particularly windy day.

Check the manufacturer's specifications for all plant and equipment to locate their wind rating.

It is extremely dangerous to operate some equipment in high winds, especially when shifting loads.

3.3.1.3 Working on a Portable Ladder

Portable ladders are available in two grades – Industrial and Domestic.



Never use a domestic grade ladder for industrial use because it is not required to be as robust and strong as an industrial grade ladder.

Do not use a ladder with any of the following faults:

- ◆ Metal stiles twisted, bent, kinked, crushed or with cracked welds or damaged feet.
- ◆ Rungs, steps, treads or top plates which are missing, worn, damaged or loose.
- ◆ Tie rods missing, broken or loose.
- ◆ Ropes, braces or brackets which are missing, broken or worn.

Whenever using a portable ladder, always keep the ladder at 75 degrees or a 4:1 vertical to horizontal ratio (e.g. 4m up = 1m out).

The ladder should be secured at the top and bottom.

Your feet should never be higher than 900mm from the top of a single or extension ladder, or the third tread from the top plate of a step ladder.

Depending on the type of work, you may be required to use a fall prevention system that is connected to a ladder.

3.3.8 Erecting Structural Steel

Structural steel is the skeleton of a building or structure. To erect structural steel you may need:

- ◆ Levels.
- ◆ FSWR.
- ◆ Fibre ropes.
- ◆ Shackles.
- ◆ Spreader bars.
- ◆ Chains.
- ◆ Wire and synthetic slings.
- ◆ Braces.
- ◆ Bolts.
- ◆ Wedges.
- ◆ Spanners.
- ◆ Podgers.

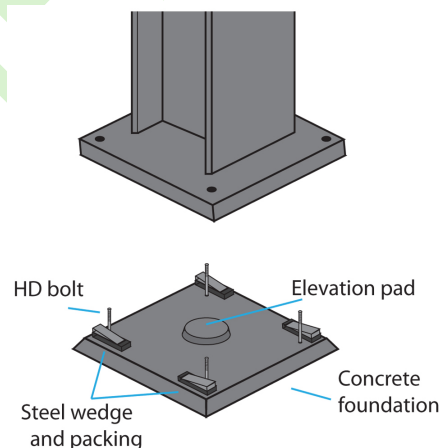


When erecting steel members, the first section **must be fully plumbed/level** and braced to make sure the rest of the framework will stay stable.

There should be a packer (elevation pad) underneath every column. Packers are used to ensure that the column is vertical and that the load of the column is evenly distributed on the concrete foundation (called a plinth or pedestal).

If the column bases are not level the steel will not be plumb. It can be very difficult to wedge up steel especially if the steel is heavy.

Steel packers approximately the same height as the elevation pad should be placed adjacent to each holding down bolt. Use steel wedges if necessary for plumbing purposes.



Only use one hand to locate a steel beam or column – you need the other hand to hold onto the beam or column.

When field bolting or linking beams together you should always fasten bolts at diagonally opposite corners to stop the beam from rolling and to ensure alignment.

If the beam is in a tight position while being supported by the crane, you need to make sure it is securely in place before the crane boom is moved away.



Failure to do so could result in the following:

- ◆ It's possible that the beam will come loose and fall.
- ◆ Uncontrolled movement is possible.
- ◆ Could cause the crane to be overloaded, endangering the workers' health and safety.

Workers could be seriously injured if the crane and lifting equipment are damaged.

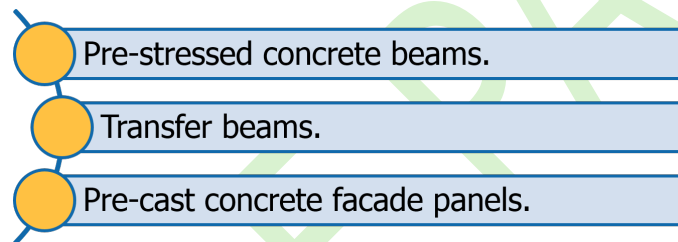
3.3.9 Installing Pre-Cast Panels

Pre-cast concrete is commonly used in a wide range of modern building and construction projects.

Precast concrete panels/slabs are manufactured at a separate location to the construction site or at an off-site production plant.

Tilt-up concrete panels and slabs are made on site at the construction site where they will be installed.

Pre-cast concrete can come in the following types:



Setting up a rigging system for erecting pre-cast concrete elements requires careful and thorough pre-planning.

For general pre-cast elements, such as beams or flat slabs, care should be taken to determine if it is necessary to equalise loads between lifting points on any element refer to the engineer notes

All pre-cast panels should be handled and lifted **in accordance with the manufacturer's instructions**. The **manufacturer will determine the lifting points** on pre-cast concrete products.

You can get the information about the lifting angle between the inserts for precast facade panels or beams from:

- ◆ **The manufacturer's specifications.**
- ◆ **Engineer's advice.**
- ◆ **From the lifting plan.**

Coordination is extremely important while handling pre-cast panels.

If at any time radio communications fail during the positioning of panels you must immediately stop work.

Before engaging a lifting clutch on the insert, you must check for:

- ◆ Appropriate identification permanently marked on the lifting clutch or the attachment of a durable tag.
- ◆ Damage, cracks or distortions.
- ◆ Foreign matter or debris in the mechanism.
- ◆ Functioning correctly.
- ◆ Compatibility.

The following information should be permanently imprinted on a lifting clutch or a durable tag attached to it:

- ◆ A unique identifier.
- ◆ Symbol or name of the manufacturer.
- ◆ Its WLL or compatible anchor identifier.

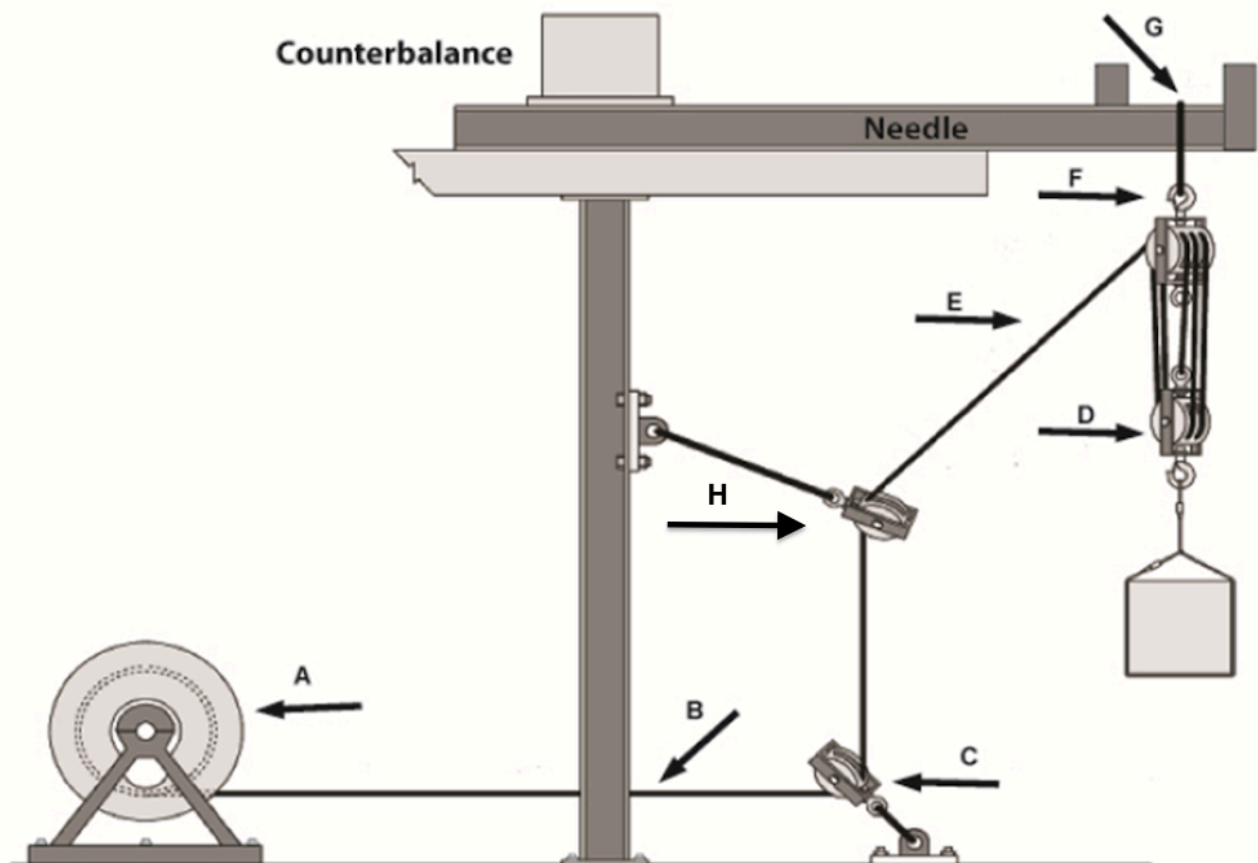
You **cannot** put a 6 tonne (WLL) lifting clutch on a 3 tonne (WLL) insert. Since they are of **different sizes**, there's a chance the **clutch will disconnect or be damaged by the insert**.

Lifting clutches must be proof tested every 12 months.

3.3.10.1 Distance to Lead Block

If the rigging task requires you to use a powered winch to lift a load you will need to work out the distance between the lead block and the winch drum to get the correct fleet angle for the wire rope.

If the lead block and the winch are too close together the fleet angle will be incorrect, causing damage to the wire rope and the sheaves.



- A.** Winch
- B.** Lead Rope
- C.** Lead/Diversion Block
- D.** Lower Block
- E.** Lead Rope
- F.** Top Block
- G.** Head Sling
- H.** Diversion sheave/block