

Table of Contents

1.1 Introduction	2
1.1.1 What Types of Work Can You Do with a Rigging Intermediate Level Licence?.....	2
1.1.2 High Risk Work Licence Requirements	2
1.2 Plan Job	3
1.2.2 Duty of Care.....	3
1.3.2 Risk/Hazard Identification.....	4
1.4 Identify Equipment Requirements	5
2.1.1.2 Associated Equipment.....	6
3.2.1.3 Specific Requirements for Tilt-Up Panel Erection	7
3.2.1.4 Lifting and Fixing Panels.....	8
3.2.5 Coordinating Multiple Crane Lifts	8

SAMPLE PAGES

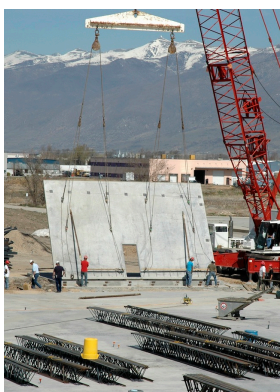
1.1 Introduction

This training course is based on the National High Risk Licence Unit of Competence **CPCCLRG3002 Licence to perform rigging intermediate level**.

You will learn about:

- ◆ Planning out your work.
- ◆ Selecting and inspecting equipment.
- ◆ Setting up for the rigging task.
- ◆ Erecting concrete tilt panels using equalising gear, dual crane lifts, Installing and removing a lattice fly jib to a crane on site.

1.1.1 What Types of Work Can You Do with a Rigging Intermediate Level Licence?



A person with an intermediate rigging high risk work licence is allowed to complete the following range of tasks:

- ◆ **Multi crane lifts**
- ◆ **Demolition of structures**
- ◆ **Erection of tower cranes and pin jib sections**
- ◆ **Erection of tilt concrete panels**
- ◆ **Erections of Conveyers, Dredges and Excavators**
- ◆ **All things a Basic Rigger can perform.**
- ◆ **The use of Equalising gear**

1.1.2 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:



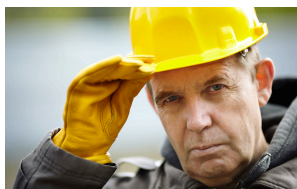
- ◆ **Suspending or cancelling your licence.**
- ◆ **Refusing to renew your licence.**
- ◆ **Ordering that you are reassessed to ensure you are competent.**
- ◆ **Take legal action to prosecute you.**

1.2 Plan Job

It is important that you are aware of the requirements relating to your work or undertaking any un-familiar work. Before you begin your tasks ensure that you access the relevant documentation and information.

Before you perform any un-familiar rigging work, your employer must provide you with Information, Training, Instruction and/or supervision.

1.2.2 Duty of Care



All personnel have a legal responsibility under duty of care to do everything reasonably practicable to protect yourself and others from harm by complying with safe work practices. This includes activities that require licences, tickets or certificates of competency or any other relevant state and territory WHS requirements.

Your duty of care when at work includes the following:

- ◆ Make sure that workers take reasonable care of their own health and safety.
- ◆ Do not put others in any danger through their (workers') acts or omissions.
- ◆ You must comply with workplace Occupational Health and Safety requirements.
- ◆ Do not intentionally or recklessly interfere with, or misuse resources, infrastructure and/or services provided by the employer at the workplace for Occupational Health and Safety.

Employers should also ensure the health and safety of workers. **Responsibilities of an employer to ensure the health and safety of employees in the workplace include:**

- ◆ Provide and maintain a safe workplace.
- ◆ Provide and maintain safe plant, structures and equipment (including basic firefighting equipment, First Aid equipment).
- ◆ Provide and maintain safe systems/procedures for work (e.g. emergency procedures, housekeeping to ensure a clean, tidy and safe work area, measures to prevent bullying and harassment, safe waste disposal areas).
- ◆ Provide facilities that are adequate for the employees and others on site (site amenities, such as drinking water and toilets.)
- ◆ Provide instruction, training, supervision and information for work to be undertaken safely, including any time you are required to use unfamiliar or new equipment.
- ◆ Take action or make arrangements to ensure all equipment, structures, plant and substances used on site are handled and stored in a safe way.

1.3.2 Risk/Hazard Identification

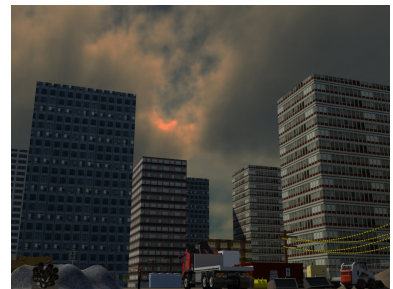
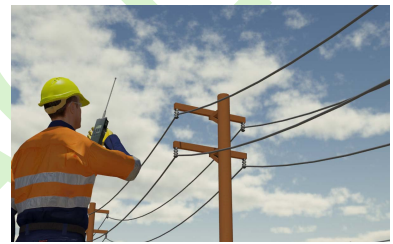
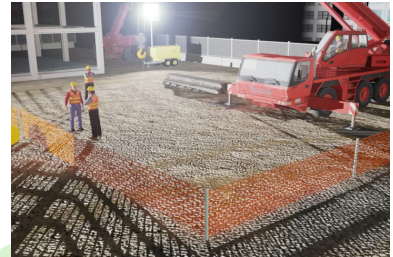
When identifying hazards always remember to check:



- ◆ **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.
 - ◇ Non-weight bearing surfaces.
 - ◇ Recent excavations.
 - ◇ Soil conditions (e.g. recently filled trenches)
- ◆ Overhead hazards:
 - ◇ Power lines.
 - ◇ Overhead service lines.
 - ◇ Bridges.
- ◆ Poor lighting.
- ◆ Surrounding structures:
 - ◇ Buildings.
 - ◇ Obstructions.
 - ◇ Facilities.
 - ◇ Trees.
- ◆ Traffic:
 - ◇ Pedestrians.
 - ◇ Personnel.
 - ◇ Vehicles.
 - ◇ Other plant.
- ◆ Weather:
 - ◇ Wind.
 - ◇ Lightning.
 - ◇ Rain.
- ◆ Other worksite-specific hazards:
 - ◇ Dangerous materials.



Assume that you are going to perform a dual crane lift at a worksite. **A few examples of hazards that may exist in the work area and their controls are listed below.**

Hazard	Controls
Powerlines	Exclusion zones, Spotters, Isolation.
Pedestrians	Barricading, Signage.
Plant and Equipment	Traffic management plans.
Excavations	Maintain safe distances.
Inclement weather	Monitor weather. Check wind speed limits on cranes
Poor lighting	Adequate artificial lighting
Unstable ground	Engineers report
Working at Heights	Harness, Lanyard, Shock absorber, Static lines, Inertia reels

1.4 Identify Equipment Requirements



Once you have worked out exactly what the job requirements are you can begin to decide on the equipment you will use to do the work.

Riggers may use, or work with, any of the following equipment to carry out their job:

Plant & Associated Equipment:

- ◆ Scaffolds.
- ◆ Elevating work platforms (EWPs).
- ◆ Stages.
- ◆ Personnel boxes/workboxes.
- ◆ Cantilevered crane loading platforms.
- ◆ Hoists and mast climbing equipment.
- ◆ Safety screens and shutters.

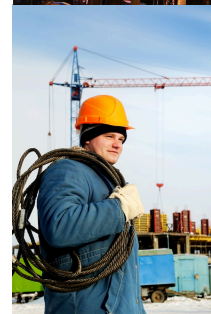
Cranes including:

- ◆ Non-slewing cranes.
- ◆ Mobile slewing cranes.
- ◆ Vehicle loading cranes.
- ◆ Tower cranes.
- ◆ Self-erecting tower cranes.
- ◆ Portal boom cranes.
- ◆ Derrick cranes.
- ◆ Bridge and gantry cranes.



Tools & Lifting Equipment:

- | | |
|------------------------------------|--|
| ◆ Fibre ropes. | ◆ Shackles. |
| ◆ Rigging Screws | ◆ Rollers. |
| ◆ Mechanical and Hydraulic Jacks. | ◆ Collard Eyebolts. |
| ◆ Flexible steel wire rope (FSWR). | ◆ Chain blocks. |
| ◆ Wire and synthetic slings. | ◆ Bolts. |
| ◆ Lever-action winches. | ◆ Beam clamps. |
| ◆ Chains. | ◆ Tifors. |
| ◆ Sheaves. | ◆ Load equalising gear. |
| ◆ Skates. | ◆ Plate clamps. |
| ◆ Spreader bars. | ◆ Rope grips. |
| ◆ Girder trolleys. | ◆ Levers. |
| ◆ Lifting beams. | ◆ Podgers. |
| ◆ Wedges. | ◆ Chain motors. |
| ◆ Levels. | ◆ Pre-Cast Lifting clutches (swift lifts). |



2.1.1.2 Associated Equipment

There is a wide range of equipment that is designed for specific tasks and that are often used in rigging operations. These can include:

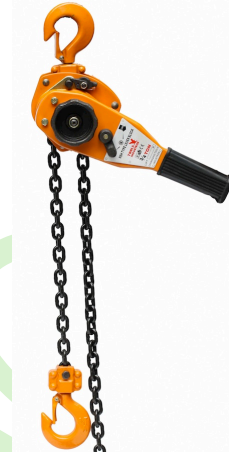
Chain Blocks

Chain blocks are a geared portable appliance used for hoisting a load suspended on a chain.



Lever Blocks/Lever-Action Winches

Lever blocks are a geared portable appliance incorporating a load chain, which is operated by a lever handle.



Hooks, Shackles, Eyebolts & Slings

Hooks, shackles and eyebolts are used to connect the crane or hoist with the lifting gear and the load.

Always make sure that all hooks, shackles and eyebolts are rated for the work and are not damaged or worn beyond acceptable levels.

Slings may be FSWR, chain or synthetic. All slings should have rating labels or tags.

Make sure that all slings are in safe working order before you use them.



Lifting Clutches (Swift Lifts)

Lifting clutches are used to lift concrete slabs and beams.

The lifting clutch is connected to an anchor embedded in the concrete of tilt-up panels.

Slings can then be attached to the lifting clutch with hooks.



A summary of defects from the synthetic slings, FSWR and chains that you must look for are provided in the table below:

Synthetic Slings	Flexible Steel Wire Rope	Chain
Defects		
Chemical damage	Bird caging	Heat Damage, Twisted
Safety tag missing	Broken wire	Cut
Damage stitching	Damage Ferrules	Knotted,
Damage to sleeve	Damage to Thimble	Wear outside of manufacturers limits
Any cuts	Heat Damage	missing Tags
Damage to eyes	High Stranding	Stretched, cracked

3.2.1.3 Specific Requirements for Tilt-Up Panel Erection

The following minimum standards apply for all equipment relating to the erection of tilt-up panels:

Item	Minimum Requirement for Safe Use
Lifting Clutches	Lifting clutches are used during tilt-up panel tasks for safe connection of lifting gear to the panel. Proof tested every 12 months.
Lifting & Bracing Insert	Minimum safety factor of 2.25.
Panel Braces	Minimum safety factor of 2. Retaining devices should be fitted to the locking pins of adjustable panel braces. The information concerning the rated capacity of an adjustable brace at zero and maximum extension should be available at the worksite. Information about the minimum number of braces per wall or panel can be obtained from the erection plan .
Bracing Anchors	The maximum load on an expansion anchor for brace fixing is 65% of the first slip load. ALL (100%) chemical anchors used to fix braces should be individually proof-tested to the rated capacity.
Shims or packers	The height of shims under the panel edge should not be more than 40mm unless specifically designed. The minimum width of shims under the panel edge should be 100 mm or the panel thickness (whichever is lesser).

You will need to thoroughly examine the shop drawings for the panel before rigging it. This will show you the correct rigging configuration for the particular panel you are lifting.

Incorrect slinging of the tilt-up panel could result in overstressing of the panel or the possibility of breakage.



3.2.1.4 Lifting and Fixing Panels

Make sure all personnel in the work area are not put in any danger. **Only those directly involved with the erection process is allowed within the working area while erecting tilt panels.**

Never overreach the safe working radius of the crane, be careful of load swing particularly in windy conditions and monitor for sudden failure in the panel or rigging gear.

When lifting a panel from its casting bed the suction effect will increase the load on the crane (i.e. **increases the dynamic load possibly overloading the crane**). To allow for this, increase the dead load of the panel by 40% (multiply by 1.4).

If you allow the panel to tilt towards the crane while lifting, if anything fails, the panel could fall onto or tip the crane.

If possible, braces should be fixed to tilt-up panels before they are lifted. There should be at least two braces of equal capacity at right angles to each panel face (unless specifically designed otherwise).

While installing panels, it is permissible to take the load off the crane hook once all the braces are installed and tensioned.

3.2.5 Coordinating Multiple Crane Lifts

Multiple lifts may include performing a lift with two or more cranes, two or more winches or a combination of a crane and winch lift.

When more than one crane is used in a multiple lift each must have an additional capacity above its share of the load:

- ◆ **Two cranes = 20% greater than the share of the load.**

For example:

You are conducting a dual crane lift using the same type of crane at a fixed radius. (Dual crane load share 2 Cranes plus 20%/1.2 per crane.)

The share of the load carried by the crane 'A' is 7 tonnes.

The share of the load carried by the crane 'B' is 9 tonnes.

What is the minimum rated capacity required for each crane at that radius throughout?

Answer:

Crane A = 7T

$7 + 20\% = 8.4T$

Crane B = 9T

$9 + 20\% = 10.8T$

- ◆ **Three cranes = 33% greater than the share of the load.**
- ◆ **Four or more cranes = 50% greater than the share of the load.**



You may use equalising gear such as lifting beams in a dual lift because neither crane is capable of lifting the load individually or when the cranes are too close together.