

RIGGING INTERMEDIATE FINAL REVIEW STUDY GUIDE



Training support material for:

CPCCLRG3002A –
Licence to perform rigging
intermediate level

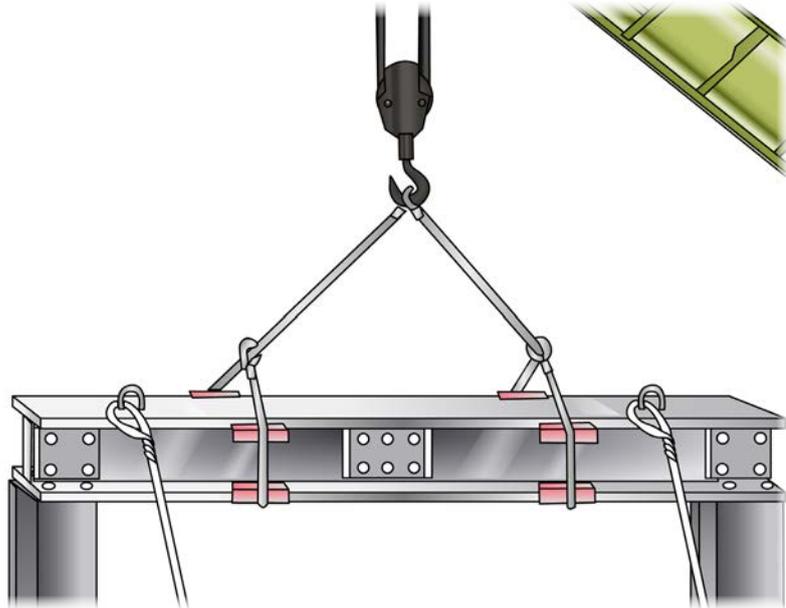
Produced by:



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Introduction to rigging



What is intermediate rigging?

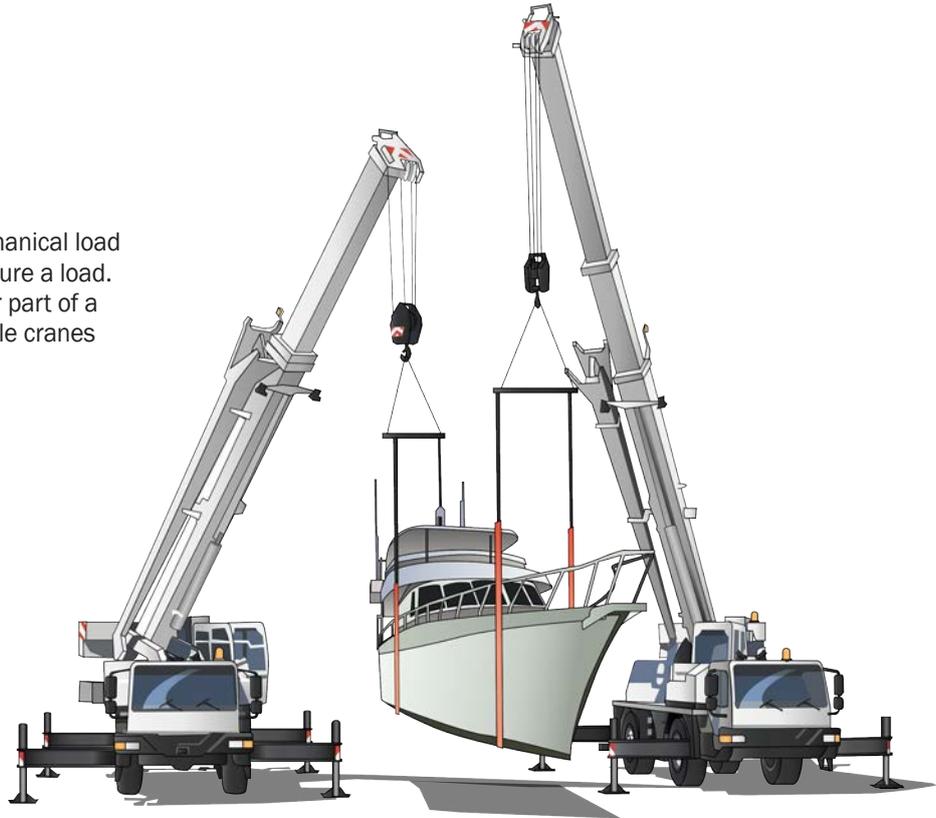
Intermediate rigging covers all the work done by riggers at the basic level, and also includes:

- Rigging of cranes
- Rigging of conveyors
- Rigging of dredges and excavators
- Rigging tilt slabs
- Demolition work
- Dual crane lifts.

Intermediate rigging includes using mechanical load shifting equipment to move, place or secure a load. It also involves using plant, equipment or part of a structure/building to set up and dismantle cranes and hoists.

Prerequisite

- CPCCLRG3001A
Licence to perform rigging basic level
- A valid licence for basic rigging (RB)



plan job

Element 1



Overhead powerlines on poles (National Standard)

These are usually ‘**Low Voltage**’. This means powerlines of less than 133KV.

The information below is taken from the National Standard.

Always check the distances for your state or territory, as they may be different.

AS2550.1 Powerline distances

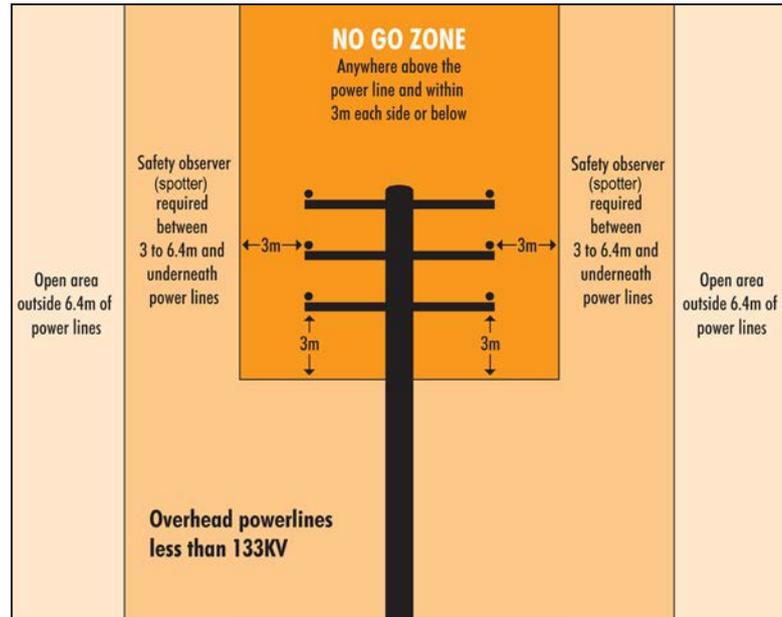
Powerline distances “Look up and live!”

Always check overhead for powerlines and make sure you and any equipment or materials you are using do not come into contact with them.

The safe operating distances for working near powerlines are outlined on the following pages.

A **spotter** is required if you are working between 3 to 6.4 metres from distribution lines on poles.

The term ‘**spotter**’ is defined as a safety observer who is a person competent for the sole task of observing and warning against unsafe approach to overhead powerlines and other electrical apparatus.



In some states or territories a spotter **must be** qualified.

Overhead powerlines on towers (National Standard)

These are usually **'High Voltage'**. This means powerlines of more than 133KV.

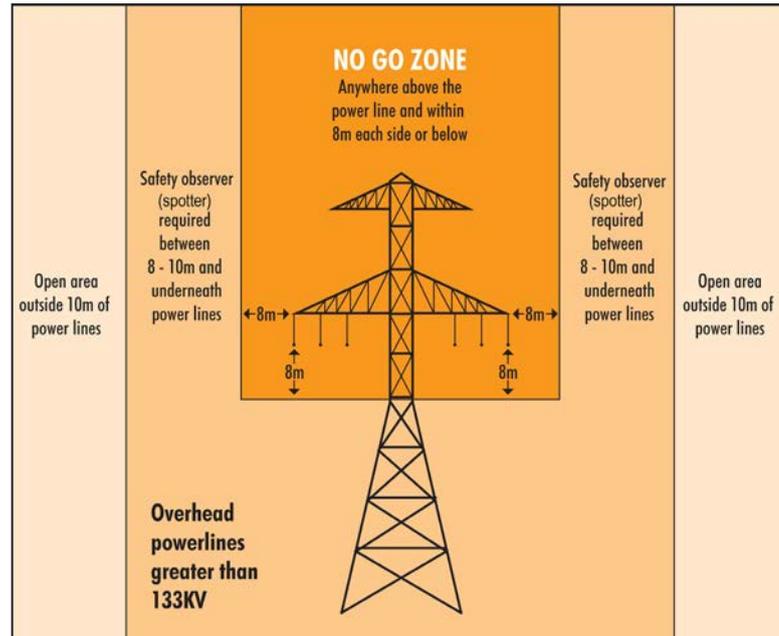
The information below is taken from the National Standard.

Always check the distances for your state or territory, as they may be different.

AS2550.1 Powerline distances

A **spotter** is required if you are working between 8 to 10 metres from transmission lines on **towers**.

The term **'spotter'** is defined as a safety observer who is a person competent for the sole task of observing and warning against unsafe approach to overhead powerlines and other electrical apparatus.



QUESTION 9

What kind of jobs can an intermediate rigger legally do?

Any rigging work to do with:

- erecting cranes, excavators, conveyors and dredges
- erecting hoists
- self-climbing hoists
- erecting tilt slabs, pre-cast and tilt up concrete panels
- demolition work
- overseeing dual/multiple crane lifts
- All work that a basic rigger can do.



QUESTION 10

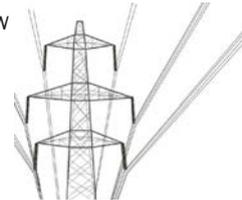
You will plan for site hazards later.

What other things do you plan for before starting a task?

Where is the job?



Things you must know about the site. For example, are powerlines nearby?



How will you get in and out of the site?



What permits do you need for the task?



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QUESTION 10

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You will plan for site hazards later.

What other things do you plan for before starting a task?

What equipment do you need for the task?



Is the equipment available and suitable for the job?



What is the size and mass of the load?



What is the mass of the required lifting gear?



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QUESTION 11

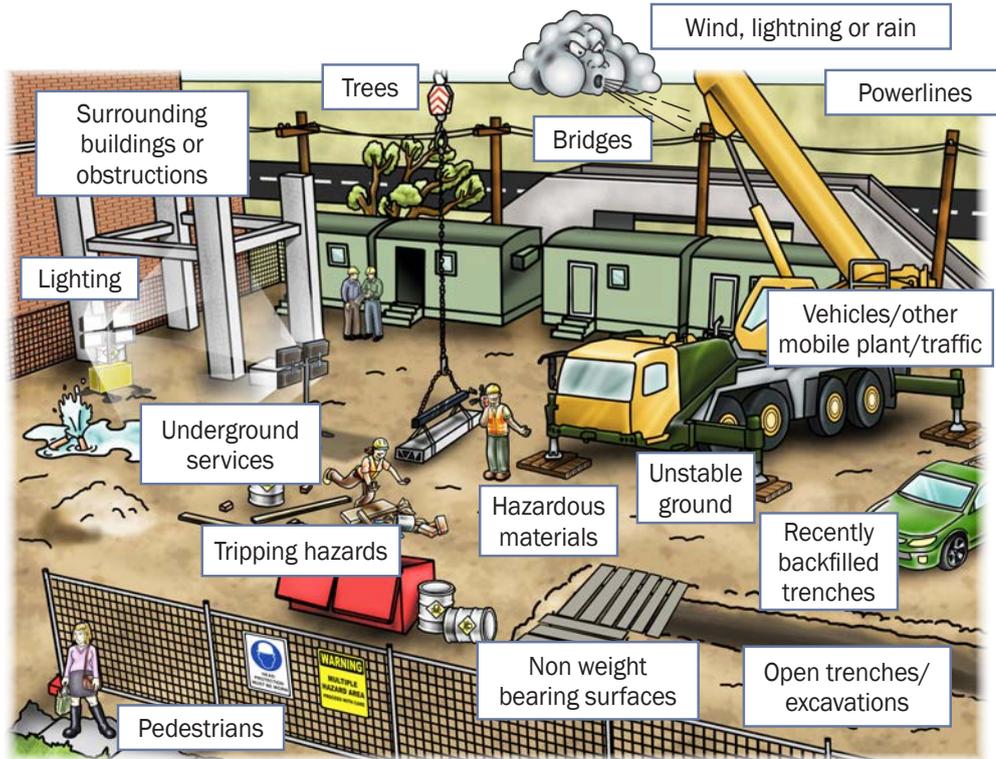
What are tiger tails for?

Tiger tails show where power lines are.



QUESTION 12

What hazards (dangers) might you find at the worksite when doing rigging work?

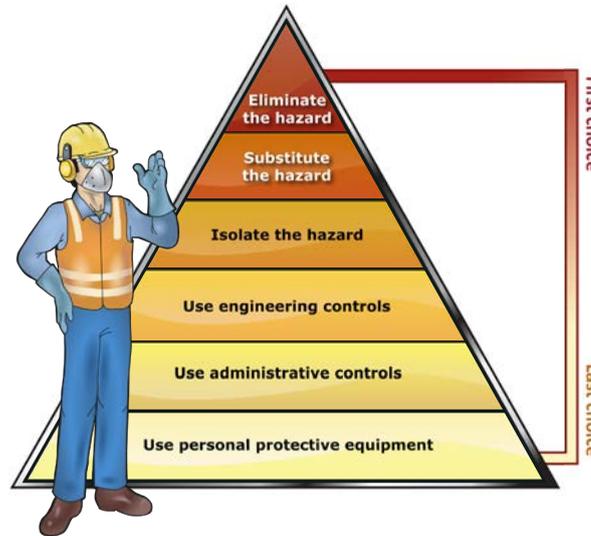


QUESTION 13

The Hierarchy of Hazard Control is a list of controls that you can use to eliminate or lower the danger from a hazard in the workplace.

What are the six (6) levels in the hierarchy from the first choice to the last choice?

- 1. **Elimination:** If possible, remove (take away) the hazard.
- 2. **Substitution:** Use a safer method if you can't remove the hazard.
- 3. **Isolation:** Stop access to the hazardous (dangerous) area.



- 4. **Engineering Control Measures:** Change the tools, equipment or environment to make it safer.
- 5. **Administrative Practices:** Reduce the time the worker is exposed to the hazards by using training, job rotation, the timing of jobs, etc.
- 6. **Personal Protective Equipment (PPE):** Use PPE as your **last line** of defence.

Memory aid: Every Saturday I Eat A Pie

How to remember the Hierarchy of Hazard Control

You can use the following acronym (an abbreviation formed from the initial components in a phrase) to help you remember the steps in the hierarchy of hazard control.

Every Saturday I Eat a Pie

E Every
Eliminate

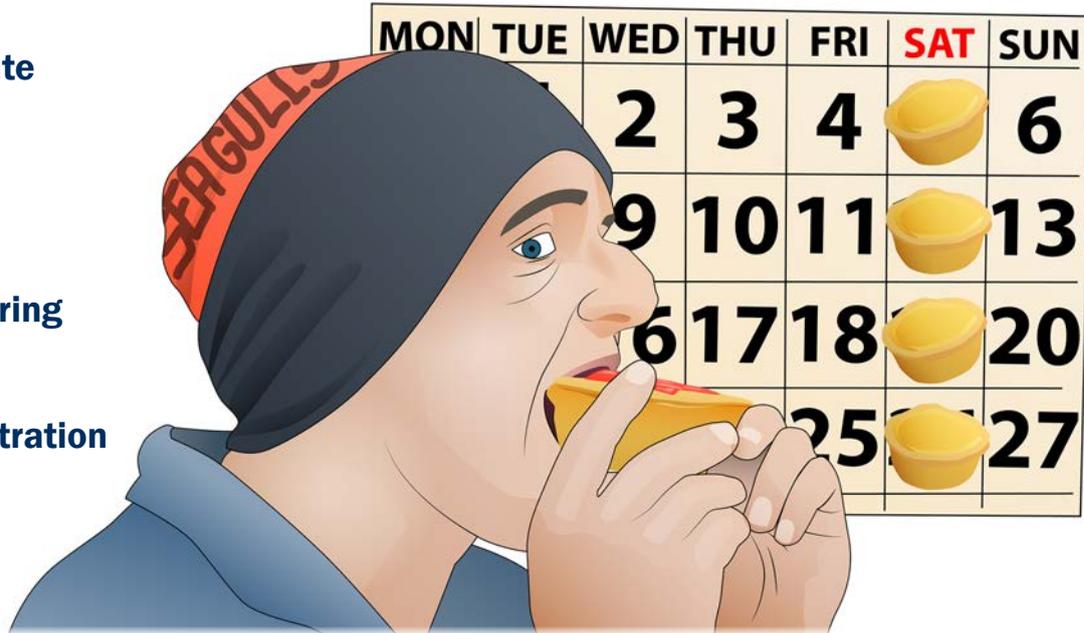
S Saturday
Substitute

I I
Isolate

E Eat
Engineering

A a
Administration

P Pie
PPE



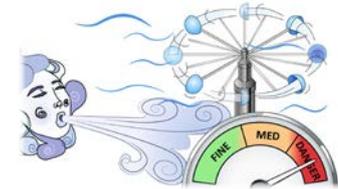
QUESTION 14

What standards and processes can you use to control the hazard of high wind (wind load)?

Make sure crane drivers know the crane's ability in high wind.

Find out about wind using:

- AS 2550 Cranes, hoists and winches – Safe Use
- the crane's load chart
- the crane's operating manual
- other manufacturer's information.



Have a worksite policy. If it is very windy, stop crane lifts and working at heights.

Beaufort Scale Number	Description	Unit in kms/h	Description for land
0	Calm	0	Smoke rises vertically
1 - 3	Light winds	19 km/h or less	Wind felt on face Leaves rustle Ordinary vanes moved by wind
4	Moderate winds	20 - 29 km/h	Raises dust and loose paper Small branches are moved
5	Fresh winds	30 - 39 km/h	Small trees (in leaf) begin to sway Crested wavelets form on inland waters
6	Strong winds	40 - 50 km/h	Large branches in motion Whistling heard in telephone wires Umbrellas used with difficulty
7	Near gale	51 - 62 km/h	Whole trees in motion Inconvenience felt when walking against wind

QUESTION 15

What is meant by a crane lifting plan (sometimes known as a safe work method statement)?

A Safe work method statement (SWMS) is a document that:

- lists the types of high risk construction work being done
- states the health and safety hazards and risks arising from that work
- describes how the risks will be controlled
- describes how the risk control measures will be put in place.

AS 2550 suggests planning for crane work should begin as soon as possible. The plan should include how cranes will get into the site, making sure the ground or supporting structure can support the crane, what loads will be lifted and where they will be lifted to.



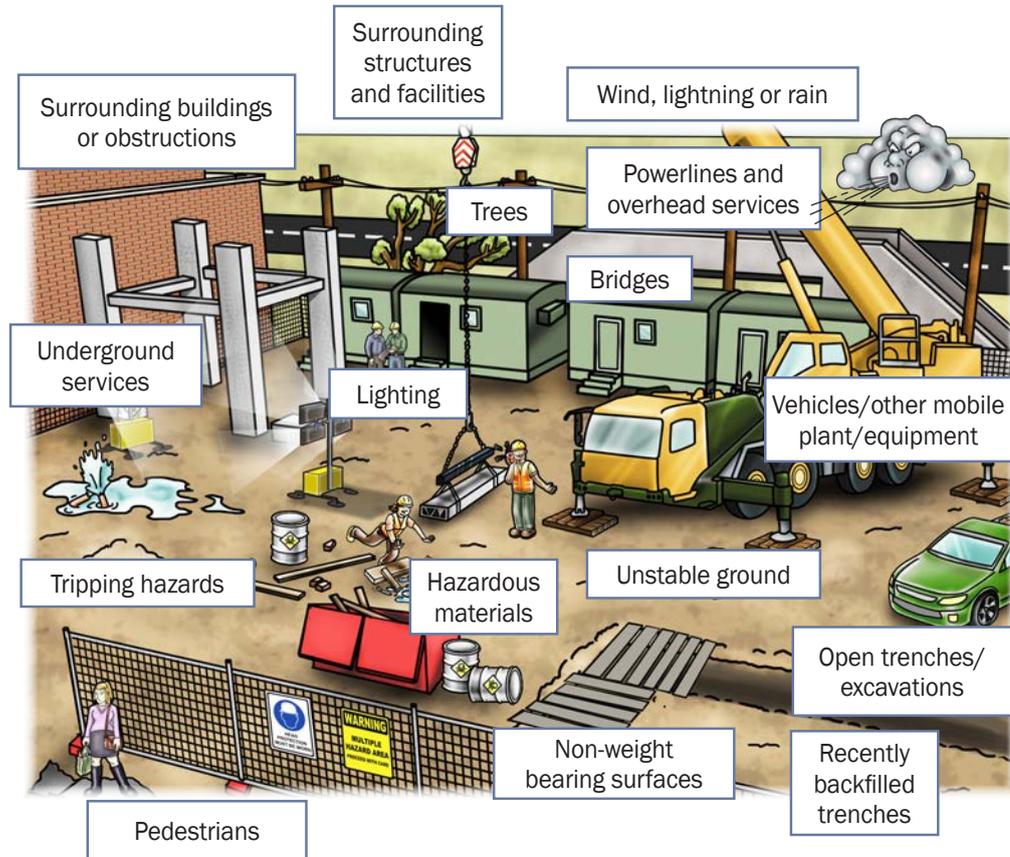
QUESTION 16

Description of worksite:

- It is a large industrial site and other companies and people are also using the site
- A mobile crane is already operating
- The site is new and has underground services.

What are some common hazards you might find at the worksite?

How do you control some of these hazards?



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QUESTION 16

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Description of worksite:

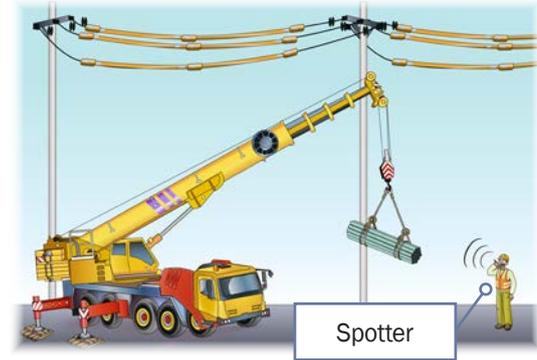
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How do you control some of these hazards?

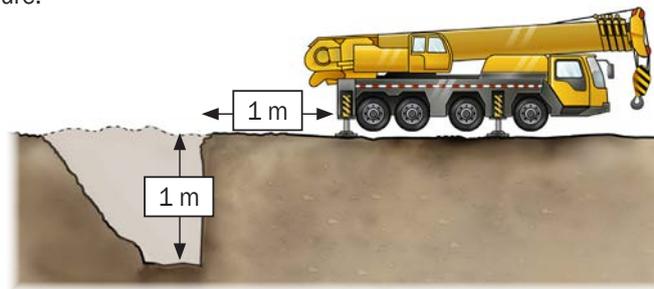
Hazard: Power lines and overhead service lines (for example, cable TV).

Hazard control: Crane lift plan must allow for safe distances. In some states, you can use a spotter to work closer.



Hazard: Ground conditions, for example, if there have been recent excavations (trenches dug and filled in) for underground services.

Hazard control: Set up the cranes at a safe distance from trenches or soft ground. A general rule is however deep the trench was or is, be at least that far away. For example, if the trench is one metre deep, cranes should be one metre or more away from the trench (the 1 to 1 rule). Always ask the engineer if unsure.



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QUESTION 16

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Description of worksite:

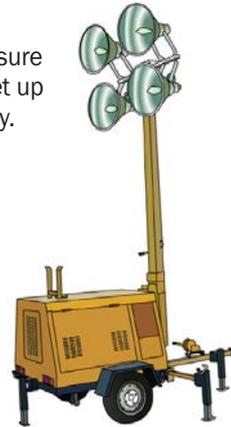
- It is a large industrial site and other companies and people are also using the site
- A mobile crane is already operating
- The site is new and has underground services.

What are some common hazards you might find at the worksite?

How do you control some of these hazards?

Hazard: Poor lighting.

Hazard control: Make sure lighting is adequate. Set up light towers if necessary.



Hazard: Pedestrians and other workers.

Hazard control: Set up barriers and exclusion zones.



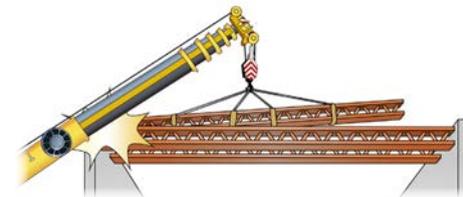
Hazard: Wind, bad weather and trees.

Hazard control: Check the lift plan or SWMS as well as the cranes limitations for working in bad weather conditions (eg: wind rating).



Hazard: Buildings, bridges, surrounding structures and obstructions.

Hazard control: Crane lift plan must make sure that all parts of the crane or cranes and load are kept clear. Maintain a safe distance and operating radius.



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QUESTION 16

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Description of worksite:

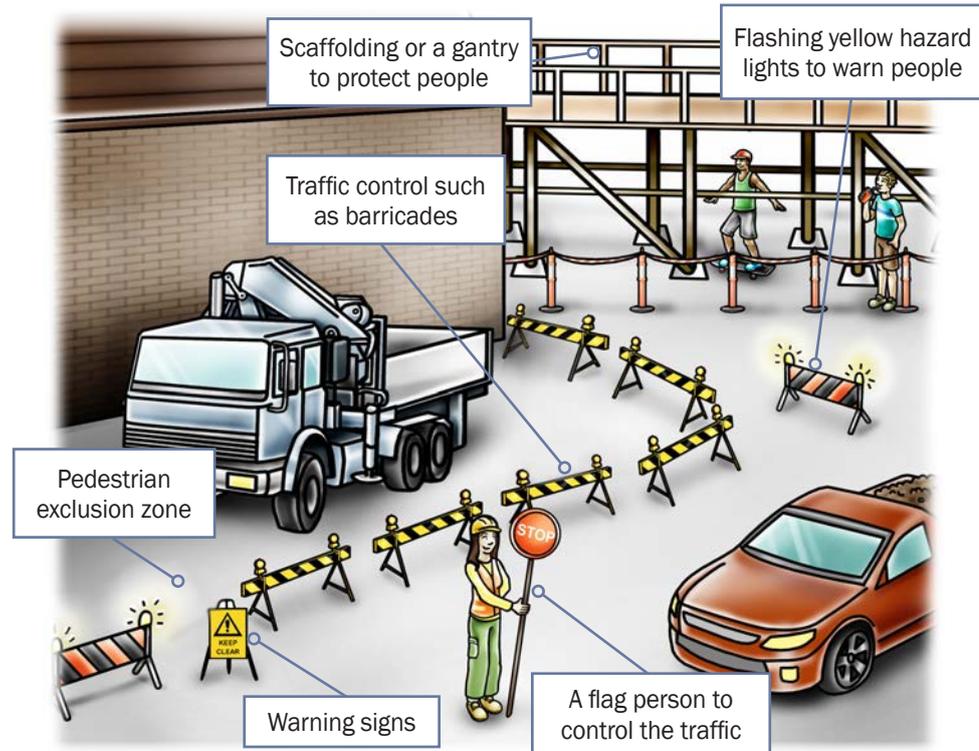
- It is a large industrial site and other companies and people are also using the site
- A mobile crane is already operating
- The site is new and has underground services.

What are some common hazards you might find at the worksite?

How do you control some of these hazards?

Hazard: Plant and equipment.

Hazard control: Set up barriers and exclusion zones. Also consider using a worker to manage and control the traffic.



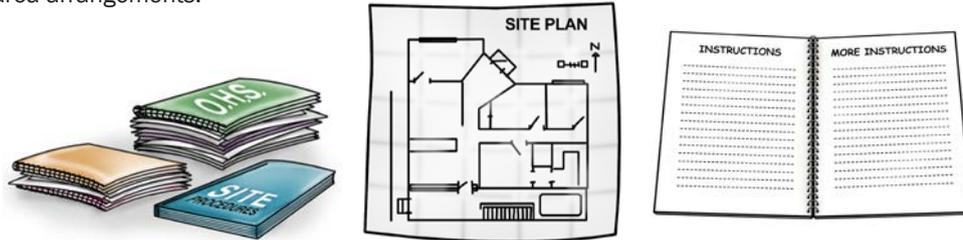
QUESTION 17

Before you begin working on a new site, what sort of information do you need from the safety officer, engineer (if available), and supervisor?

Safety officer: Site hazards, hazard controls for the site, safety policies for the site.

Engineer: Site plans and drawings, load bearings details such as soil bearing pressure forces in a structure.

Supervisor: Job instructions, local information about the site, other contractors and work area arrangements.



QUESTION 18

How do you get information about nearby powerlines, for example powerline voltage?

Contact the local electricity supply authority.



QUESTION 19

Explain what is meant by the following forces and loads:

- Dead loads
- Live loads
- Static load
- Dynamic force
- Wind loads.

Give an example of each.

Live loads

The load being lifted by a crane or hoist. It includes anything hanging from the boom (for example, hook blocks, slings etc.)

For example, a qualified rigger being lifted in a work box built to Australian Standards or a tilt-up concrete panel being lifted by a crane.



Dead loads

The actual weight of a crane before it is loaded.

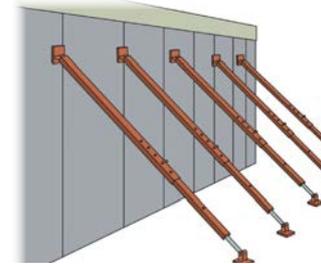
For example, a large mobile crane.



Static load

A load that is at rest and applies consistent (steady) downward pressure only.

For example, the weight imposed on a structure by concrete panels.



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QUESTION 19**...CONTINUED FROM PREVIOUS PAGE**

Explain what is meant by the following forces and loads:

- Dead loads
- Live loads
- Static load
- Dynamic force
- Wind loads.

Give an example of each.

Dynamic force

A force created by movement or change.

For example, a crane and load moving.

**Wind loads**

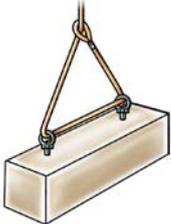
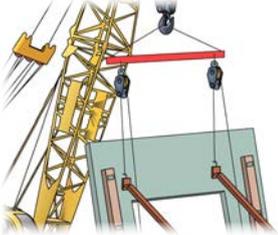
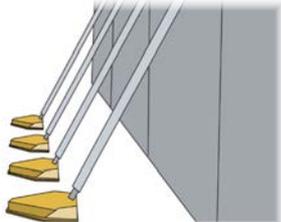
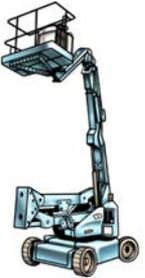
The total force applied by the wind on a load, crane or structure.

For example, the manufacturer of a crane should provide details about the highest wind force a crane can work in.



QUESTION 23

What kind of rigging equipment and associated equipment would you need to erect a tilt slab building?

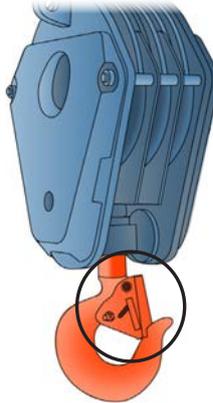
<p>Cranes</p> 	<p>Lifting equipment</p> 	<p>Hazard (risk) controls</p> 
<p>Lifting attachments for slabs</p> 	<p>Braces</p> 	<p>Lifting clutches (to lift tilt slabs)</p> 
<p>Access equipment for working at heights. For example, EWP's.</p> 	<p>PPE</p> 	<p>Communication equipment</p> 

QUESTION 24

You will be using a crane to lift people in a workbox.

What equipment must the crane have?

Safety hook



Upper-limit switch on the hoist boom



Lockout control to stop the workbox free-falling



Powered lowering of hook

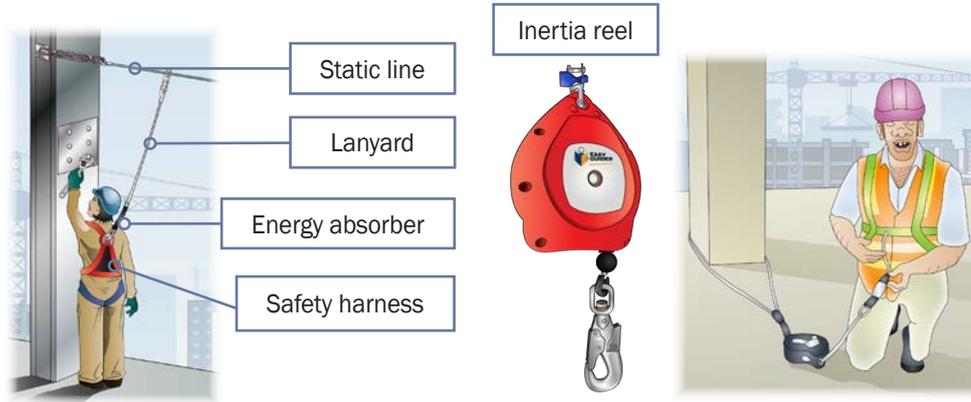


QUESTION 25

When you are doing rigging work you need safety gear. There is basic gear like boots and vests.

What other safety gear can a rigger use?

Some examples of safety equipment are:



QUESTION 26

What is an industrial safety net?

What are its advantages?

A safety net is a purpose-built net intended to catch a worker falling from a building or structure. When combined with overlay nets made from fine mesh, a safety net can also protect people from falling objects.

Advantages of safety nets

Workers can move around freely on the building or structure (safety harnesses limit movement). Safety nets are lightweight.



QUESTION 27

When do you choose how you will communicate on the job?

While planning for the job.

