

# Tower Cranes

Two electric tower cranes will be used to help build the Canberra Hospital's new Critical Services Building. There are many types of cranes and for this project two kinds of tower crane will be used; a **luffing crane** and a **hammerhead crane**. The cranes will move heavy or bulky materials such as steel, concrete, machines and other items within the site boundary. Both cranes will be onsite until 2023 to help construct the new building. You'll be able to see them from Garran Primary School and other nearby locations.

## How do tower cranes work?

Their long jibs help them move items. The closer the load is to the tower, the more weight the crane can lift safely. The **luffing crane's jib** arm can pivot up and down to move items using the hook. The **hammerhead crane's jib** rotates 360 degrees to position the hook over the pick up or drop off points. The trolley then travels along the jib to move items to the correct spot.

The **counterweight** has the important job of balancing the weight of the item being lifted and keep the crane from tipping over.

The tower crane itself must be assembled on site before it can be used. This involves mobile cranes to assemble the **jib**, machinery and **counterweight**.

### KEY

- 1 Jib
- 2 Trolley
- 3 Hook
- 4 Crane operator cabin
- 5 Counterweight
- 6 Tower

The **crane operator cabin** is where the crane operator sits and controls the crane. Crane operators are trained and have a licence just like driving a car. The crane operator must climb up the crane using a harness and safety gear to reach the cabin which takes just 5 minutes!

The **tower** of the crane gives it its height so it can construct tall buildings like the eight storey high Critical Services Building.



HAMMERHEAD CRANE

LUFFING CRANE



Tower cranes are stationary which means they cannot move from their location. The base is bolted into a concrete base so that it's secure and can hold the weight of the crane itself and the many heavy items it will be moving during construction.

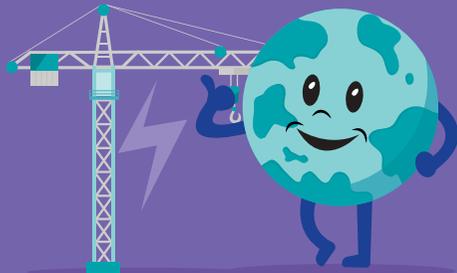
# Fun Facts



OUR HAMMERHEAD CRANE IS 50M HIGH TO THE CRANE OPERATOR CABIN – THAT'S AROUND 10 GIRAFFES!



THE LUFFING CRANE ON OUR SITE CAN HOLD UP TO 18,000KG IN ONE LOAD – EQUALLING ALMOST 4.5 FEMALE ASIAN ELEPHANTS



ELECTRIC CRANES PRODUCE LESS NOISE AND POLLUTION COMPARED TO A DIESEL CRANE

## What is weathervaning?

Sometimes cranes will appear to rotate or 'dance' on high wind days. This is called 'weathervaning' and is a safe way to reduce pressure on the crane structure when winds reach high speeds.

When weathervaning, the cranes will be moved into a safe position and will not lift materials. The hook of each crane will be raised, with the trolley of the hammerhead parked in the 'inner' position and the jib of the luffing crane raised vertically.



In this position, the cranes' jibs can safely rotate in the direction of the wind.

When the cranes are not in use, the jib of the luffing crane will be raised vertically.

## Word Search

Can you find all the words hidden in the puzzle which relate to tower cranes? Cross off each word once you've found it.

**HINT:** Words can run backwards, forwards, up and down.

Y	R	D	V	W	Y	I	W	B	H	P	S	E	O	B
D	V	U	Z	E	W	G	L	I	E	T	U	D	G	P
K	F	U	A	A	X	J	U	J	A	H	P	Z	N	Z
Y	N	Y	Z	T	Y	S	F	M	V	G	L	H	I	S
E	O	R	H	H	V	W	F	G	Y	I	E	O	D	E
L	I	E	A	E	H	Q	I	V	O	E	E	S	L	T
L	T	N	M	R	F	E	N	Z	P	W	T	P	I	E
O	C	I	M	V	C	L	G	D	E	R	S	I	U	R
R	U	H	E	A	R	E	F	L	R	E	B	T	B	C
T	R	C	R	N	A	C	M	T	A	T	L	A	E	N
R	T	A	H	I	N	T	O	O	T	N	F	L	U	O
C	S	M	E	N	E	R	Y	W	O	U	J	I	V	C
H	N	V	A	G	A	I	J	E	R	O	X	F	H	I
Y	O	G	D	C	R	C	Y	R	P	C	K	T	Z	X
Q	C	S	F	D	I	W	N	I	B	A	C	Q	T	N

### WORDS

- WEATHERVANING
- CRANE
- TOWER
- JIB
- TROLLEY
- LUFFING
- HAMMERHEAD
- HOOK
- OPERATOR
- CABIN
- COUNTERWEIGHT
- STEEL
- CONCRETE
- MACHINERY
- ELECTRIC
- BUILDING
- HOSPITAL
- CONSTRUCTION
- LIFT
- HEAVY

### ANSWERS