

Question 1

You are coordinating a multiple crane lift with two cranes. The load share for each crane is **6 tonne**.
What is the minimum capacity crane that would be required?
Show all calculations.

Question 2

You are coordinating a three crane lift.
The load share for each crane is **12 tonne**.
What is the minimum capacity crane that would be required?
Show all calculations.

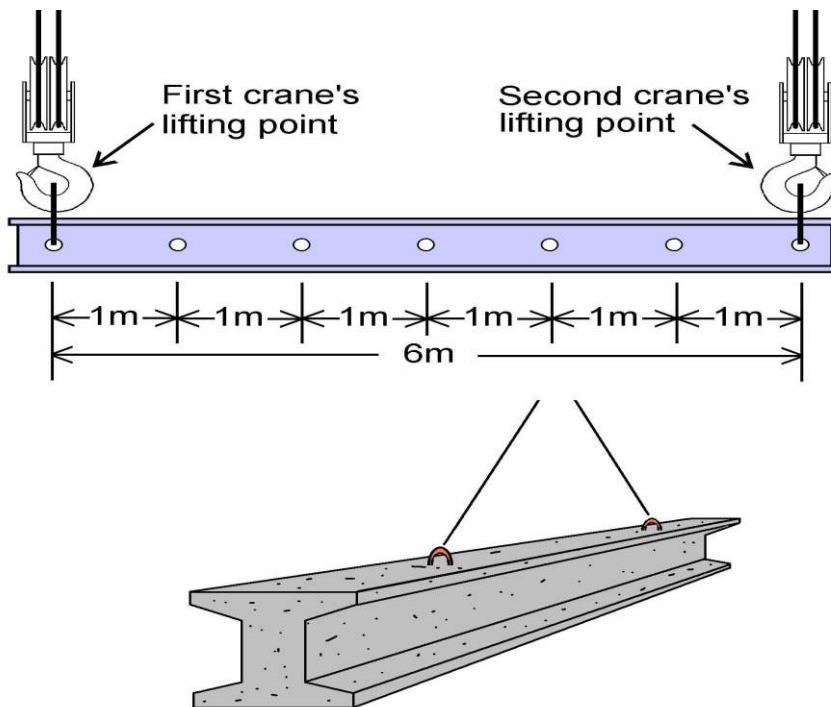
Question 3

You are involved in a four crane lift. The load share for each crane is **24 tonne**.
What is the minimum capacity crane that would be required?
Show all calculations.

Question 4

Show all calculations.

A pre-stressed concrete beam is to be lifted and re-positioned using two lattice boom mobile cranes utilising the equalising beam illustrated below.



Calculate the specific load share for each crane. There are no on-site limitations on the positioning of the cranes.

- The weight of the concrete beam is 20 tonne.
- The weight of the lifting gear is 1 tonne.
- The capacity of the first crane is 18 tonne.
- Preliminary lifting point alignment of pre-stressed concrete beam axis is North/South.

(a) How far along the equalising beam from the first crane's lifting point would you attach the load?
Show the calculation and the answer.

(b) What is the minimum capacity of the second crane to do the lift safely?

The weight of the concrete beam is 20 tonne, the weight of the lifting gear is 1 tonne and the capacity of the first crane is 18 tonne.

Question 5

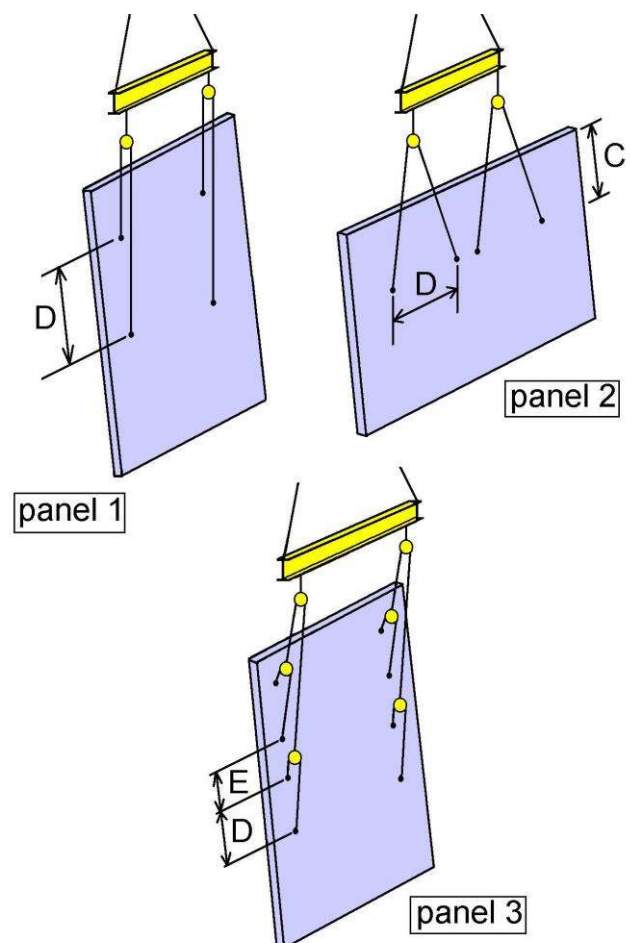
Show all calculations.

You are asked to conduct a series of tilt-up panel lifts using the rigging configurations shown below.

Calculate the lengths of the slings required.

Panel 1

Where dimension **D** is 3 metres



Panel 2

Where dimension **C** is 1.7 m and dimension **D** is 1.3 metres.

Panel 2

Where dimension **C** is 2.9 metres and dimension **D** is 2.1 metres.

Panel 3

Where dimension **D** is 2.3 metres and dimension **E** is 3.4 metres.

Question 6

Show all calculations.

You are asked to fell an encased concrete column.

In this case the fell is to be a controlled lowering of the column.

The column dimensions are:

- **380** mm square and **6** metres high

A winch and FSWR will be used for the felling process.

(a) Calculate the weight of the column.

(b) What weight must the winch be capable of supporting?

(c) Calculate the minimum distance between structure and the pulling mechanism. Show all workings.

(d) How close to the sides of the rope or chain may a person stand during felling?
Show all calculations.

Question 7

You are coordinating a multiple crane lift with two cranes. The load share for each crane is **8 tonne**.
What is the minimum capacity crane that would be required?
Show all calculations.

Question 8

You are coordinating a three crane lift.
The load share for each crane is **15 tonne**.
What is the minimum capacity crane that would be required?
Show all calculations.

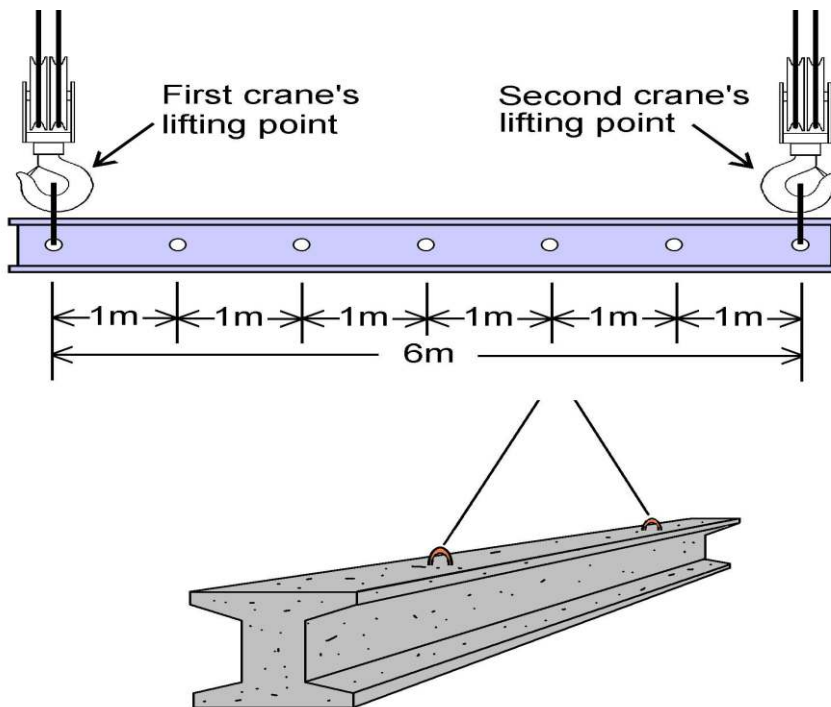
Question 9

You are involved in a four crane lift. The load share for each crane is **28 tonne**.
What is the minimum capacity crane that would be required?
Show all calculations.

Question 10

Show all calculations.

A pre-stressed concrete beam is to be lifted and re-positioned using two lattice boom mobile cranes utilising the equalising beam illustrated below.



Calculate the specific load share for each crane. There are no on-site limitations on the positioning of the cranes.

- The weight of the concrete beam is 2 tonne.
- The weight of the lifting gear is 1.8 tonne.
- The capacity of the first crane is 2 tonne.
- Preliminary lifting point alignment of pre-stressed concrete beam axis is North/South.

(c) How far along the equalising beam from the first crane's lifting point would you attach the load?
Show the calculation and the answer.

(d) What is the minimum capacity of the second crane to do the lift safely?

The weight of the concrete beam is 2 tonne, the weight of the lifting gear is 1.8 tonne and the capacity of the first crane is 2 tonne.

Question 11

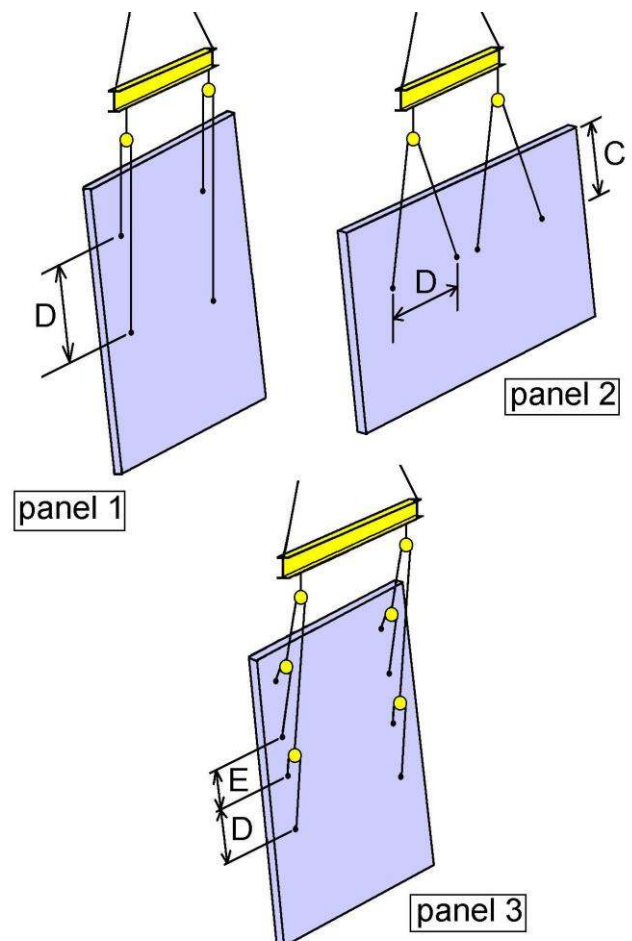
Show all calculations.

You are asked to conduct a series of tilt-up panel lifts using the rigging configurations shown below.

Calculate the lengths of the slings required.

Panel 1

Where dimension **D** is 1.1 metres



Panel 2

Where dimension **C** is **0.9** m and dimension **D** is **1.8** metres.

Panel 2

Where dimension **C** is **1.2** metres and dimension **D** is **1.2** metres.

Panel 3

Where dimension **D** is **2.3** metres and dimension **E** is **3.4** metres.

Question 12

Show all calculations.

You are asked to fell an encased concrete column.

In this case the fell is to be a controlled lowering of the column.

The column dimensions are:

- **420** mm square and **5** metres high

A winch and FSWR will be used for the felling process.

(a) Calculate the weight of the column.

(b) What weight must the winch be capable of supporting?

(c) Calculate the minimum distance between structure and the pulling mechanism. Show all workings.

(d) How close to the sides of the rope or chain may a person stand during felling?
Show all calculations.

Question 13

You are coordinating a multiple crane lift with two cranes. The load share for each crane is **10 tonne**.
What is the minimum capacity crane that would be required?
Show all calculations.

Question 14

You are coordinating a three crane lift.
The load share for each crane is **17 tonne**.
What is the minimum capacity crane that would be required?
Show all calculations.

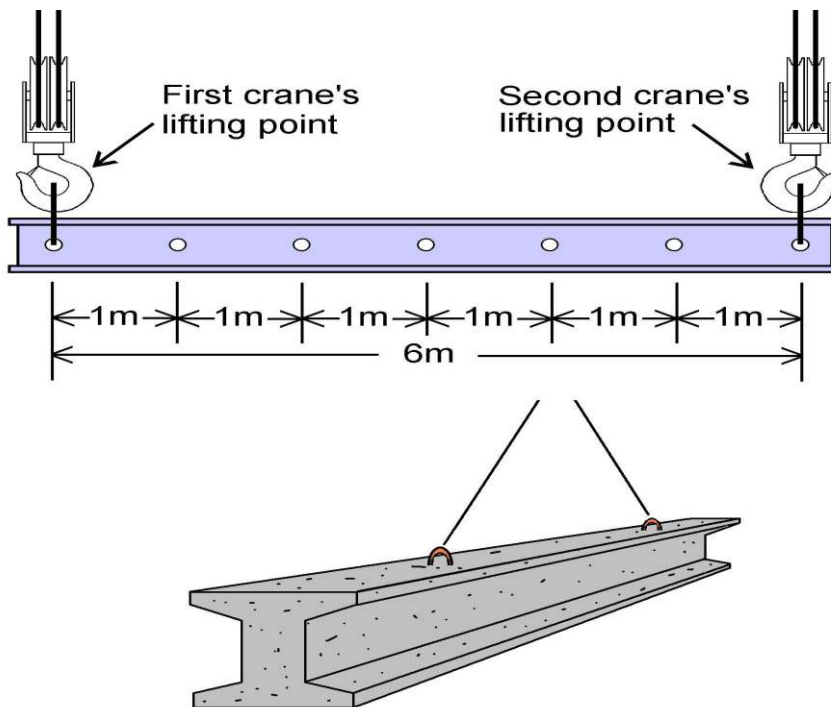
Question 15

You are involved in a four crane lift. The load share for each crane is **31 tonne**.
What is the minimum capacity crane that would be required?
Show all calculations.

Question 16

Show all calculations.

A pre-stressed concrete beam is to be lifted and re-positioned using two lattice boom mobile cranes utilising the equalising beam illustrated below.



Calculate the specific load share for each crane. There are no on-site limitations on the positioning of the cranes.

- The weight of the concrete beam is 38 tonne.
- The weight of the lifting gear is 5 tonne.
- The capacity of the first crane is 42 tonne.
- Preliminary lifting point alignment of pre-stressed concrete beam axis is North/South.

(e) How far along the equalising beam from the first crane's lifting point would you attach the load?
Show the calculation and the answer.

(f) What is the minimum capacity of the second crane to do the lift safely?

The weight of the concrete beam is 38 tonne, the weight of the lifting gear is 5 tonne and the capacity of the first crane is 42 tonne.

Question 17

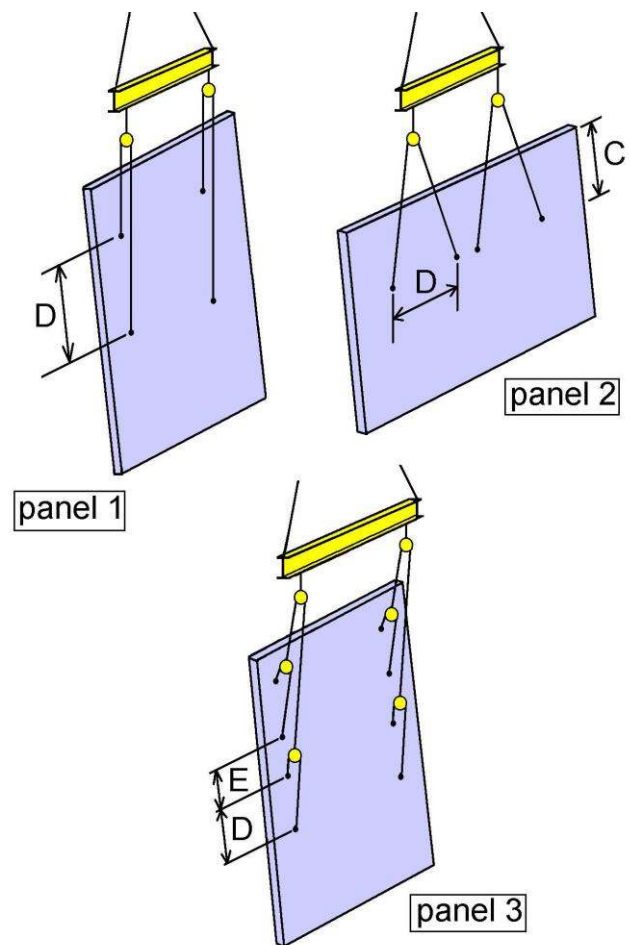
Show all calculations.

You are asked to conduct a series of tilt-up panel lifts using the rigging configurations shown below.

Calculate the lengths of the slings required.

Panel 1

Where dimension **D** is 0.8 metres



Panel 2

Where dimension **C** is **0.5** m and dimension **D** is **0.8** metres.

Panel 2

Where dimension **C** is **1.0** metres and dimension **D** is **1.6** metres.

Panel 3

Where dimension **D** is **2.4** metres and dimension **E** is **2.4** metres.

Question 18

Show all calculations.

You are asked to fell an encased concrete column.

In this case the fell is to be a controlled lowering of the column.

The column dimensions are:

- **600** mm square and **3.5** metres high

A winch and FSWR will be used for the felling process.

(a) Calculate the weight of the column.

(b) What weight must the winch be capable of supporting?

(c) Calculate the minimum distance between structure and the pulling mechanism. Show all workings.

(d) How close to the sides of the rope or chain may a person stand during felling?
Show all calculations.

Question 19

You are coordinating a multiple crane lift with two cranes. The load share for each crane is **2 tonne**.
What is the minimum capacity crane that would be required?
Show all calculations.

Question 20

You are coordinating a three crane lift.
The load share for each crane is **4 tonne**.
What is the minimum capacity crane that would be required?
Show all calculations.

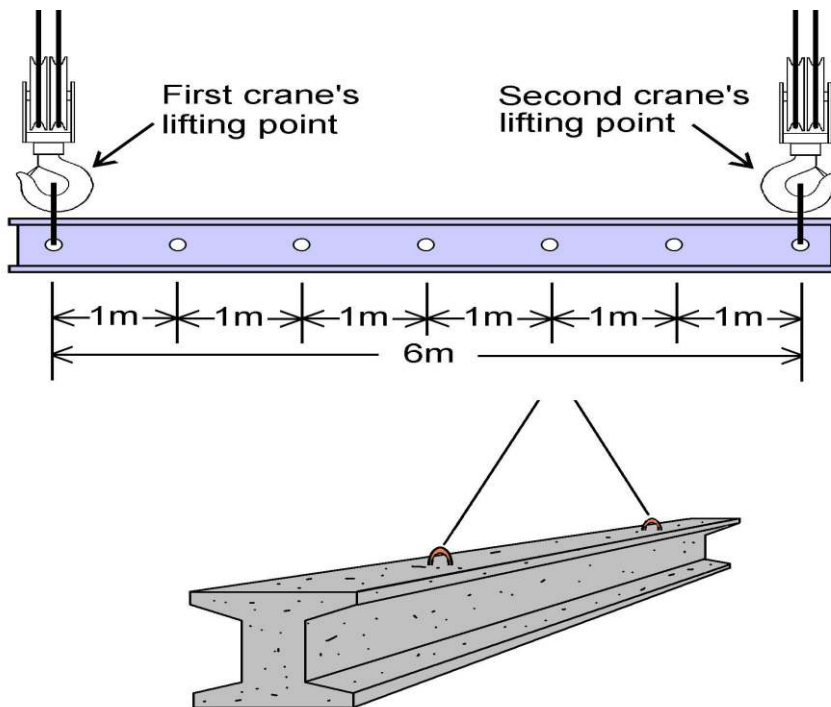
Question 21

You are involved in a four crane lift. The load share for each crane is **6 tonne**.
What is the minimum capacity crane that would be required?
Show all calculations.

Question 22

Show all calculations.

A pre-stressed concrete beam is to be lifted and re-positioned using two lattice boom mobile cranes utilising the equalising beam illustrated below.



Calculate the specific load share for each crane. There are no on-site limitations on the positioning of the cranes.

- The weight of the concrete beam is 60 tonne.
- The weight of the lifting gear is 4 tonne.
- The capacity of the first crane is 58 tonne.
- Preliminary lifting point alignment of pre-stressed concrete beam axis is North/South.

(g) How far along the equalising beam from the first crane's lifting point would you attach the load?
Show the calculation and the answer.

(h) What is the minimum capacity of the second crane to do the lift safely?

The weight of the concrete beam is 60 tonne, the weight of the lifting gear is 4 tonne and the capacity of the first crane is 58 tonne.

Question 23

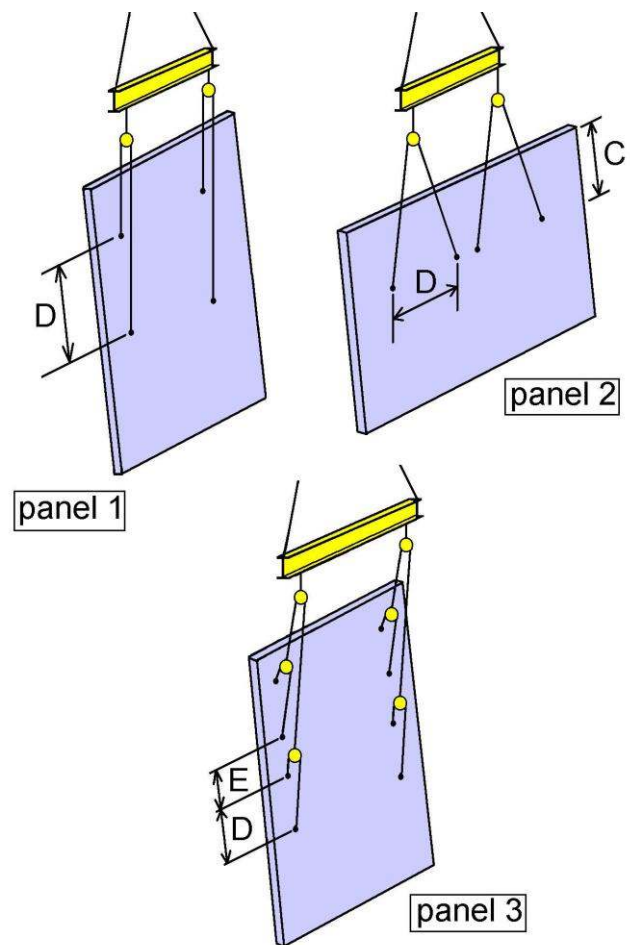
Show all calculations.

You are asked to conduct a series of tilt-up panel lifts using the rigging configurations shown below.

Calculate the lengths of the slings required.

Panel 1

Where dimension **D** is 1.9 metres



Panel 2

Where dimension **C** is **1.0** m and dimension **D** is **0.7** metres.

Panel 2

Where dimension **C** is **2.3** metres and dimension **D** is **2.1** metres.

Panel 3

Where dimension **D** is **3.4** metres and dimension **E** is **2.8** metres.

Question 24

Show all calculations.

You are asked to fell an encased concrete column.

In this case the fell is to be a controlled lowering of the column.

The column dimensions are:

- **900** mm square and **10** metres high

A winch and FSWR will be used for the felling process.

(a) Calculate the weight of the column.

(b) What weight must the winch be capable of supporting?

(c) Calculate the minimum distance between structure and the pulling mechanism. Show all workings.

(d) How close to the sides of the rope or chain may a person stand during felling?
Show all calculations.

Question 25

You are coordinating a multiple crane lift with two cranes. The load share for each crane is **20 tonne**.
What is the minimum capacity crane that would be required?
Show all calculations.

Question 26

You are coordinating a three crane lift.
The load share for each crane is **50 tonne**.
What is the minimum capacity crane that would be required?
Show all calculations.

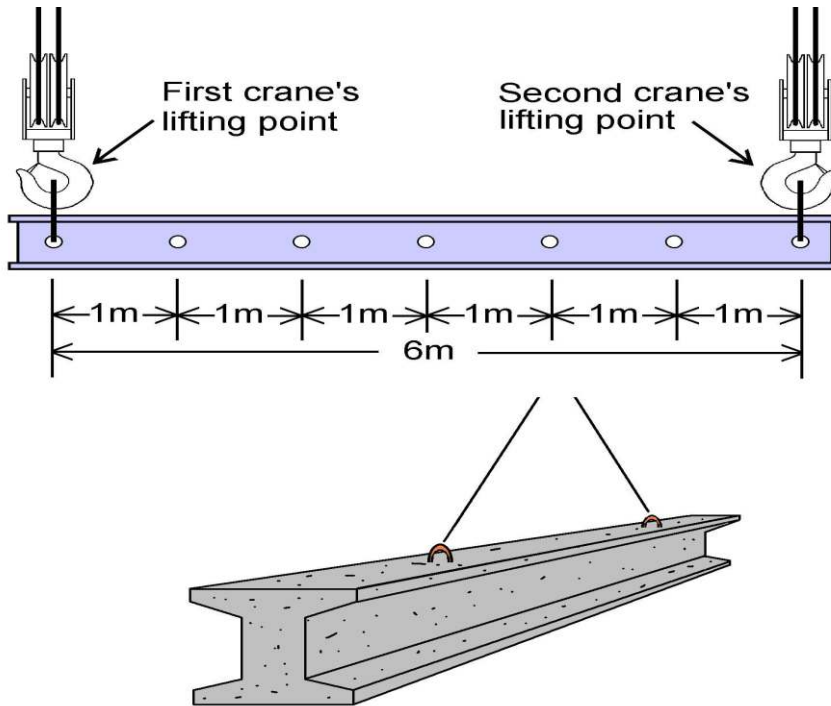
Question 27

You are involved in a four crane lift. The load share for each crane is **80 tonne**.
What is the minimum capacity crane that would be required?
Show all calculations.

Question 28

Show all calculations.

A pre-stressed concrete beam is to be lifted and re-positioned using two lattice boom mobile cranes utilising the equalising beam illustrated below.



Calculate the specific load share for each crane. There are no on-site limitations on the positioning of the cranes.

- The weight of the concrete beam is 180 tonne.
- The weight of the lifting gear is 17 tonne.
- The capacity of the first crane is 82 tonne.
- Preliminary lifting point alignment of pre-stressed concrete beam axis is North/South.

(i) How far along the equalising beam from the first crane's lifting point would you attach the load?
Show the calculation and the answer.

(j) What is the minimum capacity of the second crane to do the lift safely?

The weight of the concrete beam is 20 tonne, the weight of the lifting gear is 1 tonne and the capacity of the first crane is 18 tonne.

Question 29

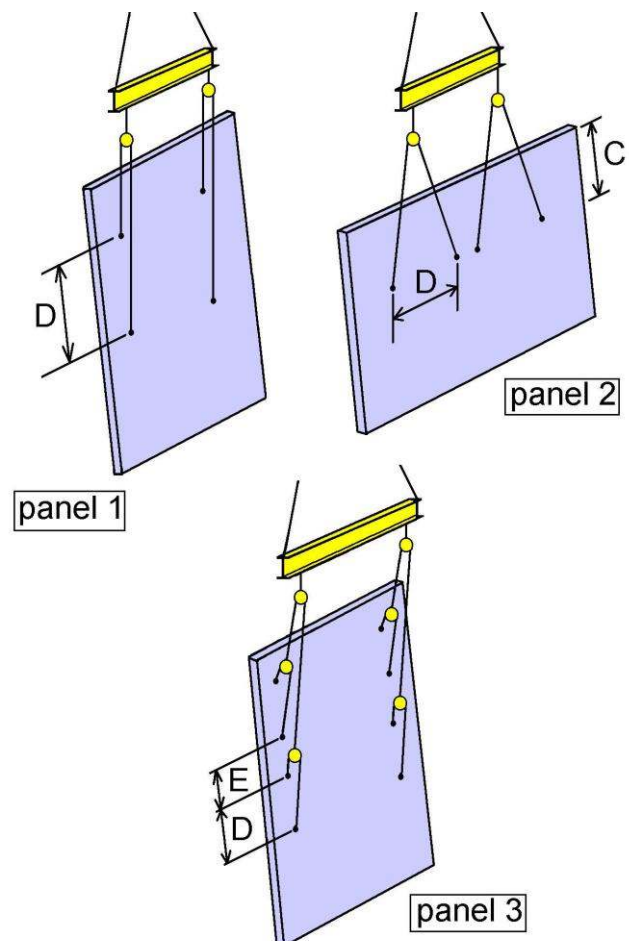
Show all calculations.

You are asked to conduct a series of tilt-up panel lifts using the rigging configurations shown below.

Calculate the lengths of the slings required.

Panel 1

Where dimension **D** is 4.5 metres



Panel 2

Where dimension **C** is **0.8** m and dimension **D** is **2.1** metres.

Panel 2

Where dimension **C** is **.7** metres and dimension **D** is **1.9** metres.

Panel 3

Where dimension **D** is **2.8** metres and dimension **E** is **2.7** metres.

Question 30

Show all calculations.

You are asked to fell an encased concrete column.

In this case the fell is to be a controlled lowering of the column.

The column dimensions are:

- **750** mm square and **6.7** metres high

A winch and FSWR will be used for the felling process.

(a) Calculate the weight of the column.

(b) What weight must the winch be capable of supporting?

(c) Calculate the minimum distance between structure and the pulling mechanism. Show all workings.

(d) How close to the sides of the rope or chain may a person stand during felling?
Show all calculations.