Welcome

Week 2 – Introduction to conceptual design for structural engineers

11:30am - 1:30pm London time

think up

Your host

Oliver Broadbent



Contents

- 1. Orientation and contracting
- 2. Review of last week
- 3. Where do ideas come from
- 4. Information
- 5. Mixing
- 6. Workwork

Contracting

• <u>'Raise your hand'</u>, '<u>Agree/Disagree'</u> and '<u>Laugh'</u> using 'set status'

- <u>'Raise your hand'</u>, '<u>Agree/Disagree'</u> and '<u>Laugh'</u> using 'set status'
- Ask questions in 'Chat'

- <u>'Raise your hand'</u>, '<u>Agree/Disagree'</u> and '<u>Laugh'</u> using 'set status'
- Ask questions in 'Chat'
- See who is talking in 'Attendees'

- 'Raise your hand', 'Agree/Disagree' and 'Laugh' using 'set status'
- Ask questions in 'Chat'
- See who is talking in 'Attendees'
- · 'Mute your mic' when you are not talking

Contracting: Q1

What do you want out of this training?

- Gain a better understanding of what conceptual design actually mean
- Be better prepared for the IStructE exam
- Gain some useful Conceptual Design tools and techniques
- Gain efficiencies, better process
- · Increase your scope to influence conceptual design on projects

Contracting: Q2

What can you offer other people?

- What can you offer? Sharing experiences with others including experience of having sat the IStructE exam
- Sharing tools and techniques you already use...
- Knowledge and experience of design and delivery workflow
- Project-specific experience

Contracting: Q3

How might you sabotage it?

- · It's late!
- · Feeling ungenerous, unwilling to share ideas etc.

That's our contract to each other

- Our terms of engagement
- · We will review these every session

Review of last week

Review of last week

- Use a design brief to review last week's work
- Do this review in breakout rooms
- This is a brief that you are going to be working with today

Breakout instructions

- Download the PDF file in the 'Design Brief' box in your breakout area
- Discuss the brief for the Hazel Hill Wood hideaway
- On the white board, write down key learning outcomes from last week
- Give examples using this brief

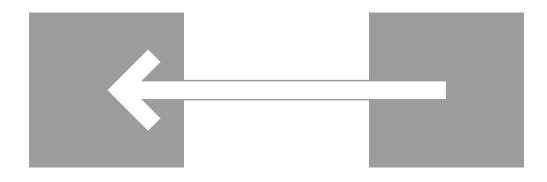
Review of last week Switch to breakouts



Breakout instructions

- Download the PDF file in the 'Design Brief' box in your breakout area
- Discuss the brief for the Hazel Hill Wood hideaway
- On the white board, write down key learning outcomes from last week
- Give examples using this brief

Review of last week Switch to main layout



What did we learn about the briefing phase in the design process?

The brief: 4 elements of a brief

- The explicit what they do say.
- The implicit what they mean by what they say.
- The assumed what they don't thing they need to say.
- The unknown what they don't say because they haven't yet realised they want it.

The brief: The designer's paradox

The client doesn't know what they want until they know what they can have. You don't know what the answer will necessarily look like until you have started designing.



Workwork What did you learn from your Workwork?

3

Where do ideas come from?

Where do ideas come from?

An idea is a new connection between existing elements in the mind

Control two things:

Control two things: 1. The information in the mind

Control two things: 1. The information in the mind 2. How we form new connections

Information

1. The brief

- 1. The brief
- 2. Professional knowledge

- 1. The brief
- 2. Professional knowledge
- 3. Outside interests

- 1. The brief
- 2. Professional knowledge
- 3. Outside interests

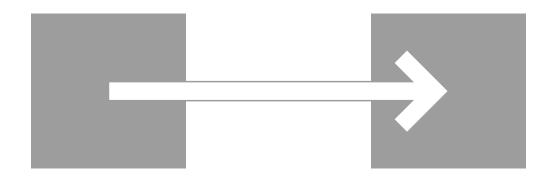
What information does the brief provide?

What information does the brief provide

- 1. Background/context
- 2. Geometry
- 3. Relationships
- 4. Use cases

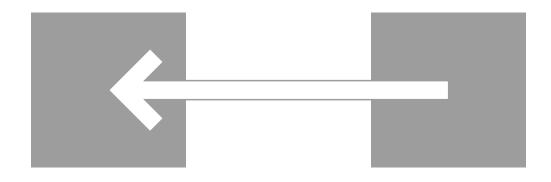
- Sketch the site
- What key information does the brief provide you with?
- What questions do you have which may lead to more more information?
- Annotate your sketch with useful information you have found and questions that arise

What information does the brief provide? Switch to breakout review



- Sketch the site
- What key information does the brief provide you with?
- What questions do you have which may lead to more more information?
- Annotate your sketch with useful information you have found and questions that arise

What information does the brief provide? Switch to main layout



What information does the brief provide?

- 1. Background/context
- 2. Geometry
- 3. Relationships
- 4. Use cases

Write down in your hand-outs

- 1. How you can use this technique in your work to prepare for the exam
- 2. How you can use the technique in the exam

Three sources of information

- 1. The brief
- 2. Professional knowledge
- 3. Outside interests

What do you already know about that you can draw upon?

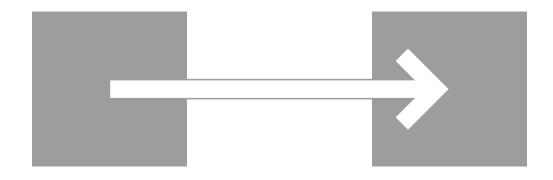
What do you already know about that you can draw upon?

- 1. Structural typologies
- 2. Material properties
- 3. Construction techniques
- 4. Reference projects

Brainstorm examples of each of the following that it would be useful for you to know about to help you generate ideas in response to this brief

- 1. Structural typologies
- 2. Material properties
- 3. Construction techniques
- 4. Reference projects

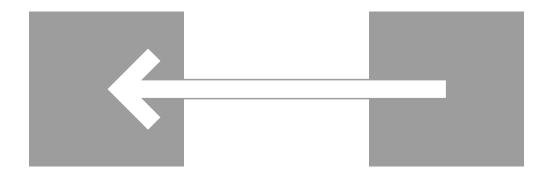
What professional knowledge? Switch to breakout review



Brainstorm examples of each of the following that it would be useful for you to know about to help you generate ideas in response to this brief

- 1. Structural typologies
- 2. Material properties
- 3. Construction techniques
- 4. Reference projects

What professional knowledge? Switch to main layout



What do you already know about that you can draw upon?

- 1. Structural typologies
- 2. Material properties
- 3. Construction techniques
- 4. Reference projects

Write down in your hand-outs

- 1. How you can use this technique in your work to prepare for the exam
- 2. How you can use the technique in the exam

Three sources of information

- 1. The brief
- 2. Professional knowledge
- 3. Outside interests

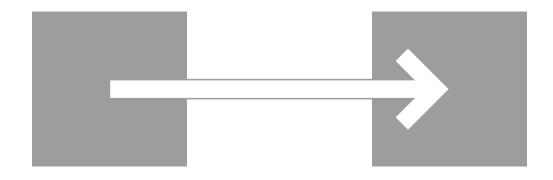
How can outside interests provide information?

How can outside interests provide information?

- 1. Personal interests
- 2. Experiences
- 3. Things you have seen

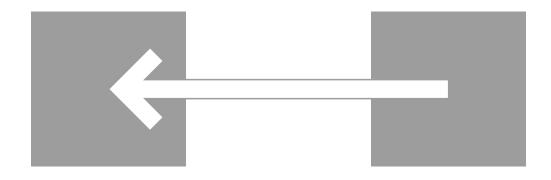
- Everyone choose one of their outside interests
- Take turns to say how an aspect of your outside interest could inspire a new idea
- Don't worry at this stage no suggestion is a bad suggestion.
- Capture suggestions on the white board

What outside interests? Switch to breakout review



- Everyone choose one of their outside interests
- Take turns to say how an aspect of your outside interest could inspire a new idea
- Don't worry at this stage no suggestion is a bad suggestion.
- Capture suggestions on the white board

What outside interests? Switch to main layout



How can outside interests provide information?

- 1. Personal interests
- 2. Experiences
- 3. Things you have seen

Write down in your hand-outs

- 1. How you can use this technique in your work to prepare for the exam
- 2. How you can use the technique in the exam

Three sources of information

- 1. The brief
- 2. Professional knowledge
- 3. Outside interests

5

Mixing

1. Ask 'what if?'

- 1. Ask 'what if?'
- 2. Change the key system

- 1. Ask 'what if?'
- 2. Change the key system
- 3. Draw from a different perspective

- 1. Ask 'what if?'
- 2. Change the key system
- 3. Draw from a different perspective

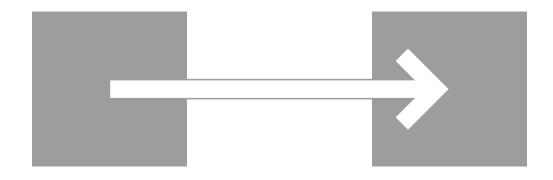
Asking 'what if?'

Asking 'what if?'...

- 1. Money was no object?
- 2. We had to build the structure next week?
- 3. All materials had to come from the site?

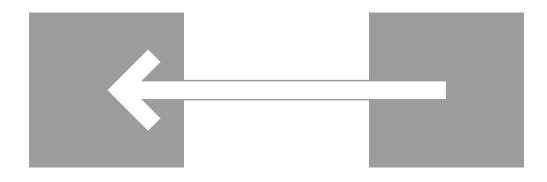
- Each person takes it in turn to ask 'what if...?', completing the sentence however they like
- The others write down or sketch the ideas that come to mind when the question is asked

Ask 'what if?' Switch to breakout review



- Each person takes it in turn to ask 'what if...?', completing the sentence however they like
- The others write down or sketch the ideas that come to mind when the question is asked

Ask 'what if?' Switch to main layout



What happened when you asked 'what if?'

Write down in your hand-outs

- 1. How you can use this technique in your work to prepare for the exam
- 2. How you can use the technique in the exam

How can we mix the information in our minds to create new connections?

- 1. Ask 'what if?'
- 2. Change the key system
- 3. Draw from a different perspective

What is the key system?

What is the key system?

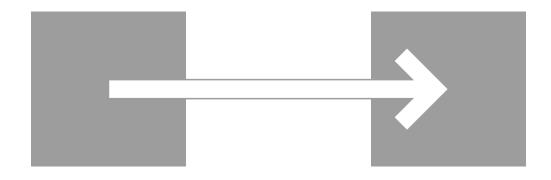
The key system is the system in the solution which dominates the solution space.

Once that system has been determined, it sets the main parameters for the design

Breakout instructions

- Discuss what the 'key system' is likely to be in the solution space
- Suggest different design solutions for that key system.
- What is the impact of changing the key system on the design?

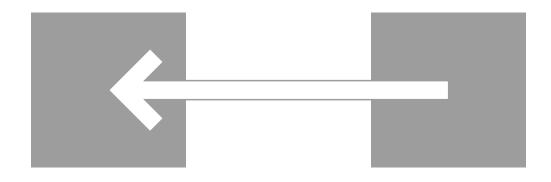
Changing the key system Switch to breakout review



Breakout instructions

- Discuss what the 'key system' is likely to be in the solution space
- Suggest different design solutions for that key system.
- What is the impact of changing the key system on the design?

Changing the key system Switch to main layout



What happened when you changed the key system?

Write down in your hand-outs

- 1. How you can use this technique in your work to prepare for the exam
- 2. How you can use the technique in the exam

How can we mix the information in our minds to create new connections?

- 1. Ask 'what if?'
- 2. Change the key system
- 3. Draw from a different perspective

Workwork

Workwork

Develop an idea for the hideaway

- It doesn't matter how unusual it is or how feasible it is.
- · 4 volunteers to submit an idea that we can use in the 3rd workshop

Keep a daily briefing diary

- For the design task you are working on that day
- How are you gathering information and how are you mixing it?
- See the example on the next slide
- Send a scan of your daily briefing diary if you want us to comment on it to: info@thinkup.org
- Send scans by Monday 30th April at 5pm London time

Workwork

Day	Task	Information gathering	Mixing
Tuesday			
Wednesday			
Thursday			
Friday			
Monday			

Details of the next session...

Next session

- 11:30am 1:30pm London time
- Please log on half an hour earlier to make sure your audio is working correctly.

Thank you!

think up