

The **Institution**
of **Structural**
Engineers

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*The Institution
of Structural
Engineers*

My route to MIStructE - Personal view point

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MSc (Hons), CEng, MIStructE

Introduction

- Koen Meert, Belgium
- Sixconstruct – Design Department 
12 Str Eng – 30 Draftsmen
Design&Builds - Value Engineering – Temporary works
for buildings, civil works, marine works,...
- Head of Structures Middle East – responsible for tall
buildings, stadiums, industrial buildings, malls, ...

Timeline

- 2003: graduated as Structural Engineer, Ghent University
- 2003 – 2011: worked mainly for consultant
- 2011: decided to join Besix/Sixconstruct and move to Dubai
- 2012: started working on Chartered Membership
- 2015: passed the exam

Why MIStructE?

- Belgium : CEng doesn't exist, nobody asks for this, no added value
- When arriving in Dubai, people asked me about CEng
- Started reading on website IStructE:
 - the **world's largest membership organisation** dedicated to the art and science of structural engineering (27,000 members in 105 countries)
 - **internationally recognised** source of expertise and information
 - **supporting and protecting** the profession of structural engineering
- Only 2 Belgians are MIStructE so “Why not? Let's do this!”

Difficulties and challenges

- Graduate Member: Belgian Universities not recognised in UK
- No mentor in company for guidance :
 - How do you make IPD/portfolio? What is expected in this?
 - All my experience was from Belgium – other language, Eurocode,...
 - Who will sign this off?
- Interview : how to prepare, what is expected,....?
- Exam

Difficulties and challenges - solutions

- Graduate Member: Belgian Universities not recognised in UK
→ translate degree, ask University for EU conformity,... → OK
- No mentor for guidance in company:
 - How do you make IPD/portfolio? What is expected in this?
 - All my experience was from Belgium – other language, Eurocode,...
 - Who will sign this off?
- Interview : how to prepare, what is expected,...?
- Exam

Difficulties and challenges - solutions

- Graduate Member: Belgian Universities not recognised in UK
- No mentor for guidance in company:
 - How do you make IPD/portfolio? What is expected in this?
 - All my experience was from Belgium – other language, Eurocode,...
 - Who will sign this off?
 - Start to collect info
 - Translate to English
 - Search for people to sign documents
- Interview : how to prepare, what is expected, ...?
- Exam

} → portfolio accepted for interview

Difficulties and challenges - solutions

- Graduate Member: Belgian Universities not recognised in UK
- No mentor for guidance in company:
- Interview : how to prepare, what is expected,...?
 - 30 min – 1hr : just talking about portfolio
 - Interview was 3 – 4 hrs dealing with many questions
 - Passed all objectives except “Materials”
 - Very disappointed but encouraged me to study more about materials, educating myself more about this objective
 - Passed the year after
- Get ready for the Exam !!

Exam

- Everybody can design a 4 – 5 storey building



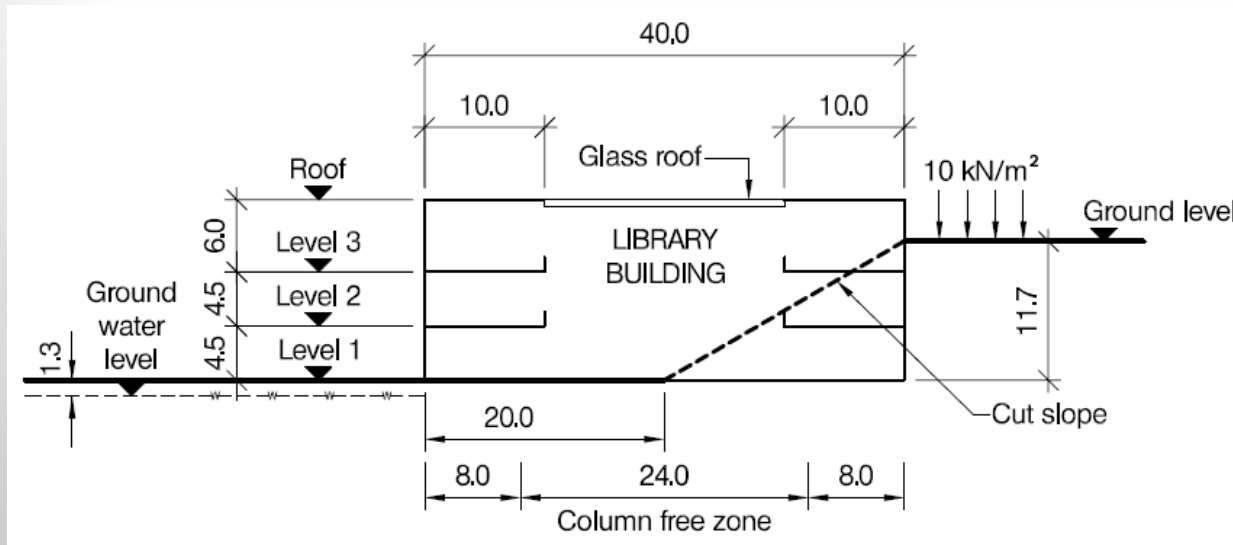
- Idea was to pass it from the first time
- Passed exam only after 3 attempts

Why did I fail twice?

- I did not do things fundamentally wrong
 - No lack of structural engineering capacities
 - I always answered all parts
 - I read the brief carefully to make sure all items were covered
 - I did sufficient calculations and drawings
- } no instant failure

Why did I fail twice?

- 1st exam (April 2014) – Library building



- Option 1 – RC column and slab / steel roof truss / RC cores / retaining wall bracing in two orthogonal directions / piled foundation (adopted)
- Option 2 – Steel frame / raft foundation / different span / different core locations

Why did I fail twice?

- Although different spans, different materials, different foundations → examiners found both options very similar and cannot be considered as two distinct solutions
- Other comments: raft foundation in the atrium area is not necessary / calculations very sketchy / drawings are too much sketches / method statement does not reflect the main issue of excavation, temporary supports, construction method.
- General: Calculations and drawings are poor.

Why did I fail twice?

Lesson learnt:

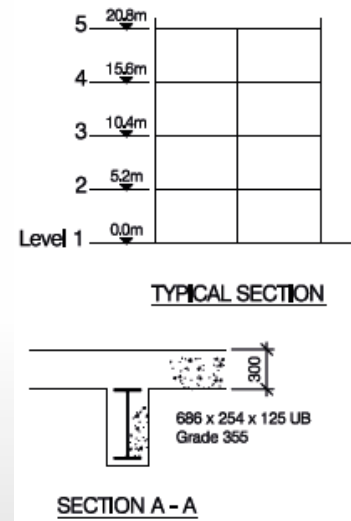
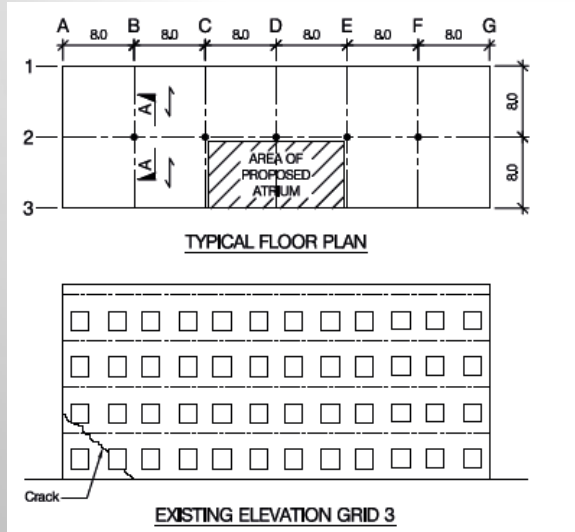
- I only know for 25% how to pass the exam

More attention to:

- Make 2 **COMPLETELY** different solutions
- Don't include "**uneconomical**" items
- Calculations to be **more detailed**, same applies to drawings
- Method statement to address excavation, temporary supports, ..., basically explain **how would you construct it?**

Why did I fail twice?

- 2nd exam (January 2015) – Industrial building to apartments



- Option 1 – precast floor on new transverse steel beams and columns / Atrium elevation bracing by vertical trusses / Lateral stability by end shear walls and floor plate action
- Option 2 – new precast floor slabs 8m spanning transversely from new central beam to perimeter walls for infill floors / Atrium with different trusses/spans/bracings

- Positive comments:
 - 2 distinct and viable solutions
 - Very good and positive letter
 - Good and clear calcs, drawings no major comments
- Negative comments:
 - Overlooked central beam infringement with height clearance
 - Script not easy to follow, foundations not clearly explained
 - method statement acceptable but more explanation on temporary bracings required
- Result: passed part 1 but had a score of 19 on part 2 (where required 20) → exam review by **Chief Examiner adjudication** but unfortunately considered it to be failure

Why did I fail twice?

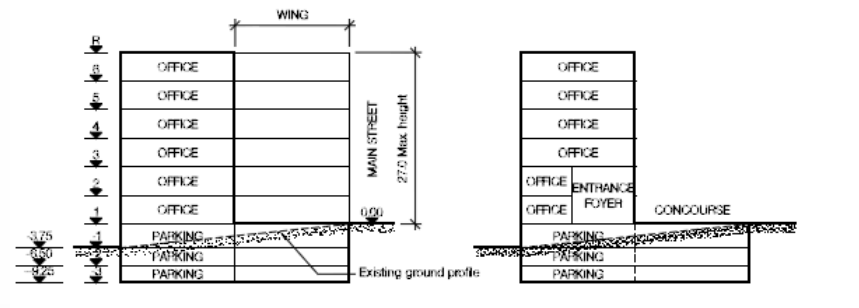
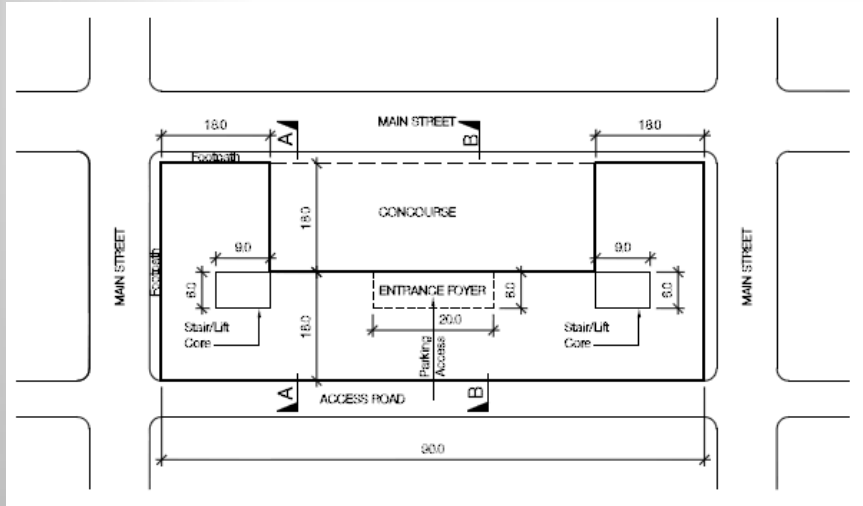
Lessons learnt:

- I only know for 75% how to pass the exam

More attention to:

- READ the question to make sure you address all items, even the “hidden” ones
- Make script easy to follow:
 - examiner wants to see how and what you think (for example: why do you not consider a certain option to be viable). Very important to write this clearly down so they see you know
 - more references to standards (e.g. basement – explain which class of BS 8007 and why)

- 3rd exam (July 2015) – City centre new office block



- Option 1 – RC column and slab / RC cores / movement joints (add'l shear walls) / transfer beams to parking / secant piles / piled foundation
- Option 2 – different grid / steel frame / no internal columns / no transfer beams / bracings / no movement joints / sheet piles / raft foundation (differential settlement check)

Why did I pass?

- I was prepared to know for **100%** how to pass the exam:
- **addressed all items**, even the “hidden” ones (limited bracing possibilities due to small part stone cladding, rest is glazing)
- Made **script easy to follow**:
 - explanations on basement / movement joints / ...
 - did small calculations in part 1 showing that proposed solutions are workable
 - made clear letter, calculations and drawings
 - made detailed method statement, e.g. Protection for pedestrians (public footpath, traffic flow is to be maintained during construction), construction of basement, how to build transfer structures,...

Some advise

For the interview of core objectives:

- Make it relevant to your experience
- Study for weak points
- Do a mock interview with colleagues, speak to others – try to know what is expected

Some advise

For the Exam:

- Be **prepared** – get confidence
- Make **folders** (design – drawings – past papers/cut thinking time)
- Practise many **mock** exams (min. 6 scripts, 7 hr writing)
- **Discuss** mock exam with colleagues, read **examiner reports** (explains what they are looking for)
- Be **determined** (you have to accept to sacrifice lots of free time)

But finally

You will succeed !!



Thank you!