

Department of Mechanics of Materials and Structures
Design of Reinforced Concrete Structures

2nd test A 29. 11. 2018

Name:

Signature:.....

group A

1. What can you see on the photo to the right?



2. Multistorey prefabricated rc columns for residential buildings during construction. Sketch the prefabricated pocket foundation- column connection!



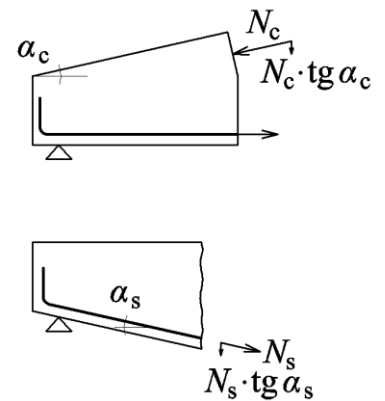
3. What kinds of noise insulations there were designed for the Palace of Arts along the first and second defence lines?

4. Both the isolation pads and the steel springs - as different means of acoustic insulation of the Palace of Arts of Budapest – were prestressed. Why?

5 Characterize high strength concrete (HSC)! What do you know about its composition and where is it applied?

6 Give different surface treatments of visible concrete

7 According to the figure on the right, what is the advantage of the variable cross-section height near the support?



8 Advantages of prefabrication and prestressing of floor constructions

9 What is the maximum span that the reinforced concrete structural members given below can overspan?

-two-way continuous slabs (simple supported)

-COBIAX floor slabs (simple supported)

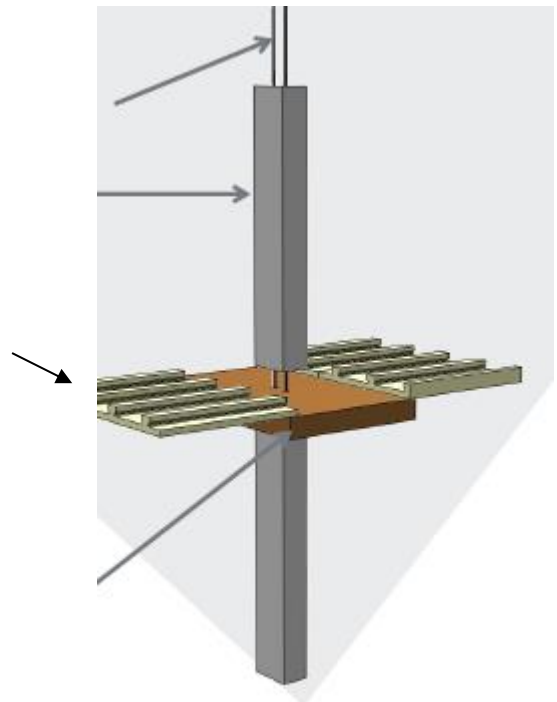
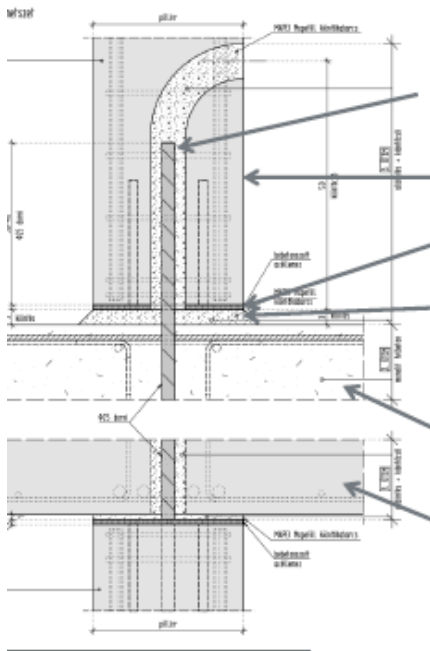
10 Give some ways of restraining long cantilevers by structural design of buildings (make sketches!)

group B

1. Describe the floor construction detail given below! Advantages and disadvantages of the solution?



2. Elements of the structural system of the ASA Construction Company for multistorey residential buildings (Column-floor detail, axonometric view). Write in the middle the name of the different elements indicated on the figures by arrowheads!

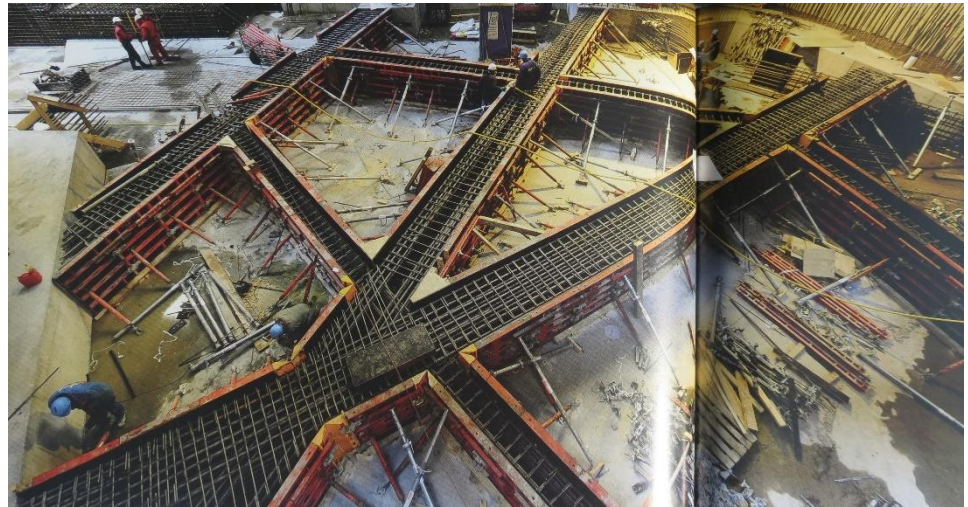


3. By what means there was the acoustic quality improved in the concert hall of the Palace of Arts of Budapest? Describe the way of functioning of them too!

4. Why was it necessary to use upstanding and downstanding isolation pads under the floor construction of the concert hall of the Palace of Arts of Budapest?

5. Fibre reinforced concrete (FRC): why do we put fibres into the concrete, what kind of fibres do we use. Fields of application of fibre reinforced concrete?

6. Construction of metro line 4 Budapest. What can you see on the photo? What is the function of the structural elements under execution?



7. Give different reasons of why are reinforced concrete beams designed with variable sections. Sketch one example – side view and cross-section - giving also the main reason of using variable cross-section!

8. Give the characteristic slenderness range (l/d) of reinforced concrete beams for two different situations (as for load intensity, static model, prefabrication, prestressing)!

9. Why do we have to design flat slabs with cantilever along the perimeter? How should we solve the problem, when for any reason, we cannot design cantilever along the perimeter?

10. What can you see on the photo to the right?
Advantages of the solution?

