

I. IDENTIFICATION DATA

Thesis title:	Design methods for flat slabs subjected to punching shear
Author's name:	Haythem Cherif
Type of thesis :	bachelor
Faculty/Institute:	Faculty of Civil Engineering (FCE)
Department:	Department of Concrete and Masonry Structures
Thesis reviewer:	doc. Ing. Iva Broukalová, Ph.D.
Reviewer's department:	Department of Concrete and Masonry Structures

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	challenging
<i>How demanding was the assigned project?</i>	
According to the assignment, the student had to work out a literature search concerning methods for punching design, design a given flat slab and compare the design methods.	

Fulfilment of assignment	fulfilled
<i>How well does the thesis fulfil the assigned task? Have the primary goals been achieved? Which assigned tasks have been incompletely covered, and which parts of the thesis are overextended? Justify your answer.</i>	
The introductory part of the thesis summarizes principles of flat slabs and problematics of punching, presents examples of punching reinforcement. Three methods for punching design are briefly described in the thesis. For selected building, the slab bending moments calculated using a computer model and a bending reinforcement is designed, the punching reinforcement is designed and verified using EC approach and ACI 318 recommendations. Results of used methods are shortly drawn up.	

Methodology	correct
<i>Comment on the correctness of the approach and/or the solution methods.</i>	
Methodology is suitable for assigned task.	

Technical level	B - very good.
<i>Is the thesis technically sound? How well did the student employ expertise in the field of his/her field of study? Does the student explain clearly what he/she has done?</i>	
The level of the thesis corresponds with the requirements on a bachelor's degree graduate.	

Formal and language level, scope of thesis	B - very good.
<i>Are formalisms and notations used properly? Is the thesis organized in a logical way? Is the thesis sufficiently extensive? Is the thesis well-presented? Is the language clear and understandable? Is the English satisfactory?</i>	
The thesis is well organized and sufficiently extensive.	

Selection of sources, citation correctness	A - excellent.
<i>Does the thesis make adequate reference to earlier work on the topic? Was the selection of sources adequate? Is the student's original work clearly distinguished from earlier work in the field? Do the bibliographic citations meet the standards?</i>	
No comments.	

Additional commentary and evaluation (optional)
<i>Comment on the overall quality of the thesis, its novelty and its impact on the field, its strengths and weaknesses, the utility of the solution that is presented, the theoretical/formal level, the student's skillfulness, etc.</i>
In the section 2.2.1.2, I miss the information how value of stress due to punching V_u is determined (in ACI methodology). The balcony slab is a bit over-designed; the depth of the balcony slab could be lower.

The comparison of the methods used for the design should be more detailed and comprehensive.
In my opinion, there is missing edging reinforcement around openings in the slab, and the U-shaped rebar is not correctly depicted in the reinforcement drawing.

III. OVERALL EVALUATION, QUESTIONS FOR THE PRESENTATION AND DEFENSE OF THE THESIS, SUGGESTED GRADE

- I don't understand the statement "The building founded on a foundation slab 200 mm..." in chapter 1.2., as the foundation slab for sure should be thicker. This might be explained during the defense of the bachelor thesis.
- What are the specifics in the analysis of punching in the foundations (foundation slab or shallow pad-footing)?

The grade that I award for the thesis is **B - very good**.

Date: **10.6.2020**

Signature: