

I. IDENTIFICATION DATA

Thesis title:	Structural Aspects of Reinforced Concrete Building Reconstruction
Author's name:	Bc. Gleb Zhavoronkov
Type of thesis :	master
Faculty/Institute:	Faculty of Civil Engineering (FCE)
Department:	Department of Concrete and Masonry
Thesis reviewer:	Ing. Jiří Rymeš, Dr. Eng.
Reviewer's department:	Červenka Consulting s.r.o.

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	challenging
<i>How demanding was the assigned project?</i>	
The thesis deals with reinforcing existing structures by placing concrete in the former ventilation systems, whose original function is no longer required. The topic is interesting.	

Fulfilment of assignment	fulfilled with minor objections
<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>	
In the first part of the thesis, an overview of the technology is given, focusing on the practical aspects at the construction site. The topic is well covered and understandable. In the second part of the thesis, the load-bearing capacity of the infilled chimney is calculated, and the Axial force-bending moment interaction diagrams are given. The aspects of the long-term behavior can be covered in more depth.	

Methodology	correct
<i>Comment on the correctness of the approach and/or the solution methods.</i>	
In the section regarding the structural design, the solution procedure is correct, starting from the basic topics and then advancing to a more detailed assessment.	

Technical level	C - 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 calculations can be described better, the notation of variables is missing. The technical aspects seem correct. The thesis's merit is that a lot of images are placed in the text to support the written description.	

Formal and language level, scope of thesis	D - satisfactory.
<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 logical flow of the thesis is correct. The figures are not labeled well. Furthermore, the name of the figure's label is consistent and labels "Figure", "Pic.", "Photo", "Chart", and "Fig." can be all found in the thesis. The English grammar should be better.	

Selection of sources, citation correctness	D - satisfactory.
<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>	
The references are listed at the end of the thesis in bibliography, but no references are given throughout the text. Regarding the figures, it is not clear if the author created them or if they are copied or reproduced from literature or the internet. Figure 18 is clearly copied from a product list without being properly cited.	

Additional commentary and evaluation (optional)

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.

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

Summarize your opinion on the thesis and explain your final grading. Pose questions that should be answered during the presentation and defense of the student's work.

The topic of the thesis is interesting, and the practical aspects of this construction technology are well described. The rich photo documentation is beneficial for the understanding of the thesis. The calculations presented in the text should be explained better. The durability aspects mentioned in the thesis assignment could be better explained as well.

I suggest the following topics to be discussed during the Q&A section of the final defense:

- 1) How exactly is the concrete placed into the chimney? How to prevent aggregate segregation if the concrete is poured from heights of several stories?
- 2) How to clean the soot from an old chimney? How to inspect the surface before concrete placing?
- 3) How to ensure proper compaction of concrete in case of placing the concrete into long and narrow ducts?
- 4) In the introduction, the author claims that reconstruction is more profitable than building a new structure. Can you justify this claim?
- 5) The implementation of creep in the calculation is not easily understandable. Why it affects the elastic modulus at an early age? What are the long-term creep effects? Finally, it seems that the axes labels of Chart 55 and 56 are not correct.

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

Date: **31.1.2021**

Signature:

