

**REVIEWER'S FORM
for thesis evaluation**



1. Identification of the student

Student:	Lavina Jain
Thesis:	Determination of component ratio in a historic lime-based mortar
1 st Institution:	University of Minho
2 nd Institution:	Czech Technical University in Prague
Academic year:	2017/2018

2. Identification of the reviewer

Name:	Cristiana Nunes
Institution:	Ústav teoretické a aplikované mechaniky AV ČR, v. v. i.
Position:	researcher

3. Fulfillment of thesis goals

excellent above aver. average x below aver. weak

The aims of the thesis have generally been achieved. The work provides new results on the accuracy of common methods used to determine the composition of historic mortars and lists general advantages and disadvantages of each method.

Samples of known composition collected from flooring mortars with one year of age prepared based on ancient recipes were used as the case study. The wide range of materials that compose the multi-layered floors and the gradual reduction of the size of aggregates of each layer towards the surface are of particular interest for achieving the proposed goals. This aspect could have been highlighted in the introduction.

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4. Academic/scientific/technical quality

excellent above aver. average x below aver. weak

The study is interesting and the experimental work is thorough and competent, but there are a few issues that reduce the quality of the work. The state-of-the-art is weak. Long citations could have been replaced by a synthesis of the information. The preparation and structure of ancient floors are described, but the definition of the Latin terms used further for referring to each layer such as *statumen* and *rudus* are missing. A literature review on methods and standards/recommendations used for determining the composition of mortars would be most important since the aim of the thesis was "to study selected analytical methods used for the determination of binder to aggregate ratio (...)." As a result, the discussion lacks a comparison of the thesis' findings with those from other studies.

The choice for the sequential implementation of the used methods should have been justified. The experimental work is initiated with acid dissolution of the mortar samples, but it would be more logical to begin with the microscopic analysis, which can give an overview of the composition of the mortars and guide in the selection of other analytical methods, e.g., identify the type of aggregate to find out whether it is soluble in the used acids.

5. Formal arrangement of the thesis and level of language

excellent above aver. average x below aver. weak

The main sections of the thesis are sufficiently organized, but there are some issues with the contents. The introduction should have been more focused on the motivation, scope, and outline of the thesis; there is text in the introduction that belongs to the state-of-the-art. The state-of-the-art should have been organized as to include all relevant information.

There are several language errors (mainly grammar and sentence structure) that significantly affect the clarity of the text. The reference style used in the Reference section is not always consistent, and most of the listed references are missing data. There are several pictures taken from literature without a reference. Figures and tables should always be mentioned in the text before they appear.

Recommendations for future work are missing.

6. Further comments

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7. Grade: _____ **D** _____

Use the following scale

A (excellent)	B (very good)	C (good)	D (satisfactory)	E (sufficient)	F (fail)
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In Prague

July 16, 2018

The Reviewer,

(Cristiana Lara Paulos Nunes)