

**REVIEWER'S FORM
for thesis evaluation**



1. Identification of the student

Student:	Krista MacWilliam
Thesis:	Aging Tests to Assess the Durability of Building Materials to Salt Crystalization – Towards a More Realistic and Effective Use of Sodium Sulfate
1 st Institution:	UPC Barcelona
2 nd Institution:	Czech Technical University in Prague
Academic year:	2016/2017

2. Identification of the reviewer

Name:	Jan Válek
Institution:	Ústav teoretické a aplikované mechaniky AV ČR, v. v. i.
Position:	Head of research unit

3. Fulfillment of thesis goals

excellent <input checked="" type="checkbox"/>	above aver. <input type="checkbox"/>	average <input type="checkbox"/>	below aver. <input type="checkbox"/>	weak <input type="checkbox"/>
<p>Comments: The research objectives and goals are clearly defined. They are well related to the common problems in practice where there is a need to understand the risks of material degradation due to the presence of salts.</p> <p>A long lasting problem is the testing procedure which is capable to relevantly describe the durability and resistance of salt laden porous building materials. The thesis aimed at providing some important parameters that could contribute to an improved design of such a test.</p> <p>The objectives were set quite ambitiously and a great amount of work has been carried out heading in a right way to fulfil these objectives. Considering the amount of work and its organization and the ability to present the results in a clear manner it is concluded that the thesis goals have been successfully fulfilled.</p>				

4. Academic/scientific/technical quality

excellent <input checked="" type="checkbox"/>	above aver. <input type="checkbox"/>	average <input type="checkbox"/>	below aver. <input type="checkbox"/>	weak <input type="checkbox"/>
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Comments:

The work is based on a sound knowledge of existing literature and its review. In order to be able to evaluate the design of an accelerated test for the assessment of durability of materials with respect to salt crystallization one has to be aware of the existing testing procedures, behavior of salts, porous systems of materials and water/ water vapor transport mechanisms etc. That all require a good technical and scientific knowledge about materials which the student demonstrated in the State-of-the-Art chapter.

The research work itself focused on variation of the established testing procedure and the methods of assessment of the test effectivity (material degradation). The proposed variation is relevant and it reflects the work of other researchers in this field. The three selected natural stones represent some of the typical lithotypes used in historic structures in the Czech Republic. The obtained results suggest that they were well selected as representatives of different pore systems and thus different moisture transport mechanisms and behavior.

The work determined certain limits of the assessment methods that were used to evaluate the degradation of stones induced by the test.

The laboratory and experimental work has been carried out in a systematic and well organized manner that was required by the nature of the test but at the same time this allowed a proper presentation and evaluation of the obtained results. From the scientific point of view, there is also a benefit in the possibility to interlink the student's work with the aims of the recently opened RILEM TC.

5. Formal arrangement of the thesis and level of language

excellent above aver. average below aver. weak

Comments:

The Thesis are well structured and clearly written. The text is properly referenced and informative. The language is technical and scientific. There is only few minor misspells in the text, which probably have been already corrected in the final print.

Calculated values like moisture content or mass loss, etc. is good to express in a mathematical form as a formula, in addition to its description. This unambiguously defines the calculated value and its units, as well as it is faster to read. This is missing in the Thesis from a formal point of view.

Another thing, that is formally missing is a conclusion section. The results are well discussed and the main points are correctly summarized in the section 5. Discussion and recommendations, however, conclusions of the main findings should be there to highlight the merits of the work.

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6. Further comments

No further comments.

7. Grade: _____ **A** _____

Use the following scale

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

July 20, 2017

The Reviewer,

(Jan Valek, PhD.)