

THESIS SUPERVISOR FORM



1. Identification of the student:

Student:	Evi Susanti
Thesis:	Numerical evaluation of the bearing capacity of the All Saints Church walls in Broumov
1 st Institution:	UPC Barcelona/UNIPD Padova
2 nd Institution:	Czech Technical University in Prague, Czech Republic
Academic year:	2016/2017

2. Identification of the supervisor:

Name:	Pavel Kuklik
Institution:	Czech Technical University in Prague, Czech Republic
Position:	Professor

3. General comments

I have been in contact with Mrs. Evi Susanti since April 2017, it was the date when she actually started her thesis work on "Numerical evaluation of the bearing capacity of the All Saints Church walls in Broumov". The master thesis consists of several parts. In the beginning is briefly described the history of the region and the Broumov group of churches. Then was introduced the All Saints' Church and its current state. The study was started off by summary of findings from preliminary historical, geotechnical background studies. The main part is focused on the numerical analysis using ATENA 2D finite element (FEM) software, ATENA-Gid FEM software and Geo5 geotechnical FEM software. The software has been used to assess the safety of the church walls with regards to damages it currently faces. Two sets of calculations were carried out. The first set of models aim to assess the bearing capacity of the enclosure wall, which is the main structural element in the church. She calculated the sufficient bearing capacity for the potential vertical load even with significant unexpected overload, respectively.

The second set of models involve modelling the structure with the subsoil underneath it. The deterioration of both structural components and subsoil were taken into consideration in analysis of the bearing capacity of the structure, estimation of geotechnical parameters and soil-structure interaction modelling. Mrs. Susanti proposed the repair regime to control the presence of moisture surrounding the church proximity. Furthermore, there is proposal on additional tests and monitoring to obtain a more accurate mechanical properties of the wall's constituting materials is elaborated.

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Lastly, a few methods of foundation strengthening are discussed in view of potential need to strengthen the foundation in the future.

Mrs. Susanti has proven very good ability to collect, analyze and classify a large amount of diverse information. She carried out the master thesis without significant intervention from me. For me it was the fruitful cooperation on partial solving of the Czech culture heritage preservation and saving.

In general I can state that Mrs. Susanti in her thesis work successfully coped with all tasks assigned to her. I regard Mrs. Evi Susanti as a diligent and hardworking young professional who is capable to solve advanced tasks related to analysis of monuments and historical constructions. Therefore, I recommend her admission to the state exam and to process of the defending act of her thesis.

4. Grade: _ A (excellent) _

Use the following scale

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

July 14th, 2017

The Supervisor,

Pavel Kuklik