SUPERVISOR'S OPINION OF FINAL THESIS

I. IDENTIFICATION DATA

Thesis name:	**Stochastic Micro-modelling of Historic Masonry**
Author's name:	**John Adamek**
Type of thesis :	master
Faculty/Institute:	Faculty of Civil Engineering (FCE)
Department:	Department of Mechanics
Thesis supervisor:	prof. Ing. Petr Kabele, Ph.D.
Supervisor's department:	Department of Mechanics

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment **extraordinarily challenging**

Evaluation of thesis difficulty of assignment.

The student selected a challenging research topic, which focused on development and application of a novel approach to multiscale modeling of historic masonry. The main goal was to determine the overall macrosopic strength and stiffness of irregular masonry while systematically taking into account its random topology. The methodology was to be demonstrated on a case of one of churches from the Broumov Group.

Satisfaction of assignment **fulfilled**

Assess that handed thesis meets assignment. Present points of assignment that fell short or were extended. Try to assess importance, impact or cause of each shortcoming.

The student fully satisfied the assignment. He prosed and applied an approach, in which masonry was analyzed by the finite element method as a two-phase composite on two scales (micro and meso). The unevenness of the matrix on the mesoscale was represented by random fields, parameters of which were obtained from the microscale models. The material parameters of the basic constituents (mortar and stones) as well as topology of the masonry were determined by on-site inspection and laboratory testing.

Activity and independence when creating final thesis **A - excellent.**

Assess that student had positive approach, time limits were met, conception was regularly consulted and was well prepared for consultations. Assess student's ability to work independently.

John was very proactive during the entire period of developing his thesis. We had regular meetings for which he was always well prepared and during which he presented his progress and discussed further steps. He showed a great deal of independence while elaborating the assigned tasks.

Technical level **A - excellent.**

Assess level of thesis specialty, use of knowledge gained by study and by expert literature, use of sources and data gained by experience.

To fulfill the goals of the thesis, John had to use not only the expertise gained during the SAHC coursework, but he also had to acquire additional theoretical knowledge in the fields of mechanics of composites and statistics by independent literature study. At the same time, he had the get acquainted with advanced use of the finite element program Atena and statistical software FREET. The theoretical and computational work was complemented by acquisition of samples at the site and advanced laboratory testing. He utilized and integrated all these skills and information in a creative way.

Formal and language level, scope of thesis **A - excellent.**

Assess correctness of usage of formal notation. Assess typographical and language arrangement of thesis.

The thesis is written in a good English and follows the general rules for notation and formal arrangement of technical publishing. The extent is appropriate for Master's thesis.

Selection of sources, citation correctness **A - excellent.**

Present your opinion to student's activity when obtaining and using study materials for thesis creation. Characterize selection of sources. Assess that student used all relevant sources. Verify that all used elements are correctly distinguished from own results and thoughts. Assess that citation ethics has not been breached and that all bibliographic citations are complete and in accordance with citation convention and standards.
As mentioned in the previous paragraph, the student was proactive in acquiring additional knowledge from the literature. He performed a state of the art review and identified appropriate articles for deeper study. The bibliographic citations conform to the conventions and ethical standards.

Additional commentary and evaluation *Present your opinion to achieved primary goals of thesis, e.g. level of theoretical results, level and functionality of technical or software conception, publication performance, experimental dexterity etc.*
I enjoyed supervising John's thesis research. During the time of our collaboration, he showed a great deal of reliability, diligence, and independent thinking. I believe the thesis brings some new ideas, which lead to a more systematic, rigorous, and accurate approach to modeling of irregular masonry and analysis of historic structures.

III. OVERALL EVALUATION, QUESTIONS FOR DEFENSE, CLASSIFICATION SUGGESTION

Summarize thesis aspects that swayed your final evaluation.

I evaluate handed thesis with classification grade **A - excellent.**

Date: **19.7.2019** Signature: