

OPPONENT'S OPINIONName, titles and workplace of the opponent: *prof. Ing. Jiří Bašta, Ph.D., ČVUT v Praze, FS, U12116*Thesis title: *Design of Heating System in a Family House*Name of the applicant: *Marton Hélio Da Costa Miranda Guedes* 6-EE-2022

The difficulty of the topic:	<input type="checkbox"/> too high <input type="checkbox"/> high <input checked="" type="checkbox"/> average	The chosen methods	<input type="checkbox"/> suitable <input checked="" type="checkbox"/> partly suitable <input type="checkbox"/> not suitable
Solution procedure:	<input type="checkbox"/> excellent <input type="checkbox"/> correct <input checked="" type="checkbox"/> partially suitable <input type="checkbox"/> incorrect	All used sources are correctly cited	<input type="checkbox"/> yes <input checked="" type="checkbox"/> partially <input type="checkbox"/> no, the work shows signs of plagiarism
Language and text editing:	<input type="checkbox"/> excellent <input type="checkbox"/> good <input type="checkbox"/> sufficient <input checked="" type="checkbox"/> inadequate	Graphic design:	<input type="checkbox"/> excellent <input type="checkbox"/> good <input type="checkbox"/> sufficient <input checked="" type="checkbox"/> failed
Candidate has fulfilled the assignment of the thesis:	<input type="checkbox"/> completely <input checked="" type="checkbox"/> partially <input type="checkbox"/> not fulfilled	Professional level:	<input type="checkbox"/> excellent <input type="checkbox"/> good <input type="checkbox"/> sufficient <input checked="" type="checkbox"/> failed

Achieved results, contribution and practical applicability of the work:

The bachelor thesis had to deal with the thermal-technical parameters of the building and the design of functional heating of a family house including the calculation of heat and fuel demand. Due to the reporting of the bachelor thesis with this quality, the thesis has no benefits.

Comments on the work:

Formal deficiencies include, for example, incorrect description of quantities and their units in the list of quantities. A very poor level of the English language, including many typos. Units are sometimes given in round brackets and sometimes in square brackets. Tables do not respect the pages.

More serious, however, are the factual deficiencies. The first paragraph on page 1 is false. Formula (3) on page 5 is unusable and the heat loss through windows is calculated from formula (2). The heat loss of rooms cannot be given in units for the sake of accuracy of the calculation. The number needs to be rounded to fives or tens. Points 1 to 3 on page 14 are meaningless for the recalculation of radiators output, as they belong to electric radiant heating. On page 16, first paragraph, the author refers to the figure below, which is not there. The second half of the first paragraph on page 18 is nonsense, as is the last paragraph on page 20. Heating elements and fittings are DN15 or DN10, i.e. the smallest internal diameter is 12,4 mm. For copper, we can use a dimension range from 10x1 upwards. Page 27 is completely confused and the pre-setting of the thermostatic valves and control fittings/units for each heating element is wrong. The pressure drop of a conventional radiator cannot be considered zero. On page 39 it is incorrectly stated that hydraulic balancing is OK if the pressure drop deviates by 10 % from the required pressure drop. The correct figure is the flow through the radiator, not the pressure drop. Despite the fact that the author must know the definition of a safety device from the basic course, on page 40 in the first paragraph he makes complete nonsense. The size of the expansion pressure vessel is incorrectly stated. The coefficient of thermal expansion from a temperature difference of 10 K was incorrectly determined and should have been determined at a temperature difference of 45 K. The unit of fuel requirement is incorrect. The drawings are missing. There is some attempt at a developed schematic and floor plan drawing inserted in the paper on pages 43 and 44, but this cannot be considered as drawing documentation.

The references used mainly show materials for tutorials and lectures. The actual efforts to search for relevant international literature are completely lacking.

I recommend revising this bachelor thesis.

Questions for applicants:

I don't have any questions for the graduate student.

Classification of work:	<input type="checkbox"/> A excellent	<input type="checkbox"/> B very good	<input type="checkbox"/> C good	<input type="checkbox"/> D satisfactory	<input type="checkbox"/> E sufficient
	<input checked="" type="checkbox"/> F failed			Advocacy Recommendations: <input type="checkbox"/> I recommend <input checked="" type="checkbox"/> I don't recommend	

Date: 7. 7. 2022**Signature:**