



BUILDING ENERGY MANAGEMENT

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ASSIGNMENT PROJECT 2 (40%)

Due Date: July 18, 2020

The goal of this assignment is to collect and synthesize information to address the objectives outlined below, perform supporting calculations and present properly analyzed and supported results.

- For the building presented in your first assignment consider that will undergo a major renovation:
- Evaluate the following two energy conservation measures (ECMs) by considering: 1. Replacing windows to comply with KENAK; 2. Replacing the heat generation unit to comply with KENAK and the new ECODESIGN/Energy Labeling Directives. Determine the total cost (e.g. including works, materials etc based on realistic & documented real local market prices) that will be necessary for the implementation of the above ECMs.
- For each measure independently and then for all the ECMs
 - Calculate the resulting thermal energy savings. Discuss the results
 - Calculate the reduction of CO₂ emissions. Discuss the results
 - Calculate the simple payback periods. Discuss the results
- **Complete the online survey** at <https://www.surveymonkey.com/s/HWC68BD> (*don't forget to INCLUDE YOUR FULL NAME in the address field, in addition to any other comments/suggestions you may have*). Next, in your report, include a coherent overview of your short responses in the survey (e.g. describe in more detail any exterior or interior building maintenance, renovation or refurbishment actions on the building envelope (e.g. install double glazing), the heating system (e.g. switch to natural gas) or other E/M installations, e.g. install solar collector). Specify the year of each action. **If available**, provide actual energy use data (*based on energy bills*) before vs after the action; analyze and elaborate. **Otherwise**, provide relevant literature data (*again based on actual energy use, NOT calculations; give full references*), along with appropriate discussion (elaborate, substantiate-support the key issues with relevant findings from the literature based on actual energy use data).

Instructions

- Submit your report in **English**, in a **single file electronically** (by email). Include a request for return receipt to confirm that the email was properly delivered/received.
- The text should be typed using a font size 12 pt and the number of pages of the main report (without the Appendices) should not exceed **10 pages** (otherwise your grade will be penalized). Follow the guidelines of a **technical report** structure (*Sample Assignment Report: cover page, contents, introduction (e.g. short overview of building-case study from Assignment #1), main contents using proper section headings, conclusions, references, appendices*). Include in Appendices any calculations, detailed drawings, draft notes or computer results (e.g. Excel sheets or other software output), technical specifications or brochures, detailed survey responses or additional clarifications etc., in order to support any results or conclusions presented in the main body of the report. Don't forget to cross reference the main body of the report to the Appendices. Carefully quote references. **Elaborate and substantiate results (not simple observations)**
- **Grading** is based on the following breakdown: Overall presentation (10%), Text coherence and organization (10%), Completeness, technical content, accuracy of calculations, and text originality (80%).
- **Late submissions** past the due date will be penalized with a grade reduction of 5% per day, for upto five days. Reports will not be accepted past this deadline.