A design build activity for a “design build” course - DTU Orbit (21/10/2019)

A design build activity for a "design build" course

This paper deals with the CDIO course "Design Build", which is taught in the first semester of the Bachelor of Engineering education at the Technical University of Denmark’s Department of Civil Engineering. A specific design build assignment has been developed for the course, and the paper describes this course activity. The "Design Build" course revolves around the activity that the students should build a model house of their own during the course. The only demands stipulated are that the house should be made as a scale 1:20 model of a realistic house and that is should be thermally insulated and tight. The students work together in groups of four. As part of the CDIO process, each group of students should work through a conceptualization phase, where the requirements for the house are defined. Then follows the phase where the house is designed as the best possible solution fulfilling the requirements the students had set. Next, for implementation, the model house is constructed in the workshop, and the measuring system is tested and installed in the house. Finally, the house will be operated by putting it on the ground in an outdoor test field where it is exposed to the Danish climate for two weeks while the indoor temperature and heat consumption are logged. The experimental findings shall be compared to a theoretical value for the heat loss, which is found from a calculation method the students learn in a parallel course. While the course has resulted in a lot of enthusiasm among the students towards the specific construction task, it has also led to some initial frustration that the course content was not given as a well described assignment, and that the course curriculum had to be to some extent self-defined. This has been a challenge to the very young students who have participated in the course.

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