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Sustainability through hands-on experience: Solar Decathlon

Ongun Berk Kazanci*, Lotte Bjerregaard Jensen, Christian Rønne, Bjarne W. Olesen

DTU Civil Engineering

*Corresponding author email: onka@byg.dtu.dk

It is crucial to reflect the idea and concept of sustainability into something tangible. An international student competition, Solar Decathlon, achieves exactly this through giving the students an opportunity to design, build and operate a plus-energy house that uses solar energy as its only direct energy source. The competition consists of many different sub-competitions such as energy-efficiency, sustainability, architecture, market viability and others.

DTU has competed in Solar Decathlon twice, in 2012 in Madrid, Spain and in 2014 in Versailles, France. The student-designed, built and operated houses were constructed and tested in Denmark and then transported to the respective competition locations. Figure 1 shows these two houses.



Figure 1. The exterior views of the two houses: FOLD (left) and EMBRACE (right) (Source: Solar Decathlon Europe)

Student involvement takes place in different ways including special courses, theses, integration into existing DTU courses, and sometimes even on a voluntary basis. The students learn to think the design process from a holistic point of view and learn to think of buildings as a part of a bigger energy structure.

The competition in its nature is multi-disciplinary and involves a broad range of professions from computer science, architectural engineering to building services engineering. The students involved in the competition obtain a unique hands-on experience in designing a sustainable and plus-energy dwelling that is a once in a lifetime experience.