

Revolutionary digital learning for science, math and engineering

Solar Engineering Summer Camp 2016



Computer modeling with Energy3D

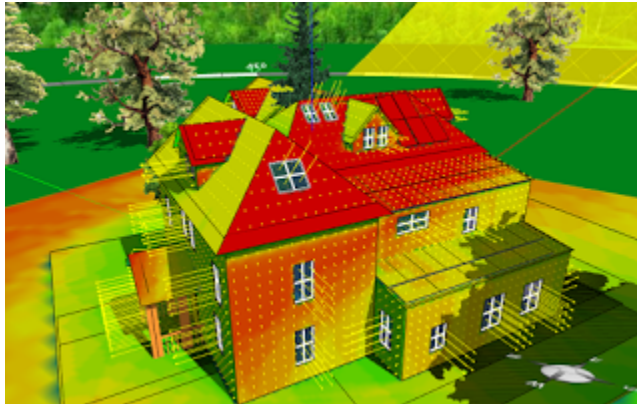
The free Solar Engineering Summer Camp offered by the Concord Consortium was an intensive week-long event that focused on learning and applying solar science, 3D modeling, and engineering design. It featured a solar engineer from a leading solar company as a guest speaker. The activities included hands-on and computer-based activities that were designed to inspire and empower children to solve real-world problems and become *change makers* who will hopefully create a more sustainable future.

This year, eleven children (age 11-16) participated in the event that took place on Concord Consortium's east coast campus. Participants became the *science advisors* for their parents, investigating how their own houses could be turned into a small power station that supplies the energy needed.

Using Google Earth and our [Energy3D](#) software, they made 3D computer models of their own houses, designed different solar array layouts, and then ran computer simulation to evaluate and compare



Poster session with parents



A 3D house created and studied in the event

their yields. They performed cost-benefit analysis of different solutions, based on which they completed solar assessment reports about the solarization potential of their own homes. At last, they presented their results in a poster session and discussed their findings with their parents.

The parents were generally very supportive. Some even helped their kids measure the dimensions of their houses (unfortunately, Google Earth does not provide sufficient information for students to retrieve the geometry of their houses; so some kids must learn how to measure the heights of their roofs using other methods such as [photogrammetry](#)).

How did the little science advisors do their jobs in terms of informing their parents then? When asked "Did your child's Solar Assessment Report make you change your view or interest in solar energy?", a parent responded in the exit survey: "We already have solar panels on our house. This project allowed me to consider our energy needs and additional options for increasing our capacity to generate electricity." This example shows that even for those people who already have solar panels on their roofs, the findings from their kids might have spurred them to think about more possibilities.



3D houses created by kids

As a side note, I noticed an interesting response from a parent: "She enjoyed using the software to design our house. She said it was an interesting topic, but she cautioned me not to rely solely on her calculations to base our decision on whether to convert to solar energy use for our house." The kid is right -- all models have limitations and engineers must use caution. A science advisor should inform her advisee that a model may fail.

This entry was posted in Main Blog and tagged CAD, Computer-aided design, Computer-Aided Engineering, Energy3D, SmartCAD, Solar energy, Solar radiation modeling on July 22, 2016 [<http://blog.concord.org/solar-engineering-summer-camp-2016>] by Charles Xie.
