

PUBLISHED BY NSPE JAN | FEB 09

PLUS

Academy Names

Top Achievements 4

The Debate Over Biofuels 18

Through EWeek, Engineers

Make It Work 32

PE

The Magazine for Professional Engineers

Riding Out the Storm

*As the U.S. sinks deeper into a recession,
how are professional engineers weathering
this economic tempest?*

Federal Agencies Find It's Not Easy Going Green

Federal agencies are facing a difficult task in meeting a required reduction in energy use by federal buildings, according to a recent report.

The report, produced by the Federal Facilities Council and other organizations, outlines a number of changes that may be necessary to meet a mandated 30% energy reduction in federal buildings by 2015, as required by the Energy Independence and Security Act.

Enacted in December 2007, the law also requires one quarter of federal facilities to undergo energy and water evaluations annually and changes the timeframe for life-cycle costing from 25 years to 40 years. Additionally, the law stipulates that new and major renovations of federal buildings must be designed to reduce fossil

fuel-generated energy consumption and requires the General Services Administration to establish an Office of Federal High-Performance Green Buildings.

According to the report, which was produced by attendees of a workshop, a lack of funding for energy-efficiency projects is a main concern. Workshop participants recommended the creation of a government-wide revolving fund for energy improvements and energy-efficient equipment. They also recommended that federal agencies receive more flexibility to sell unneeded assets and use the money to improve their buildings.

Another area of concern is the technical feasibility of achieving the new requirements. Federal agencies need technical and design guidance as well as an inte-

grated design and procurement process, according to the report. New energy-saving technologies also need to be available through the federal procurement process so they can be evaluated and specified.

Workshop attendees also recommended the development and distribution of case studies covering best practices and the continued development of the Whole Building Design Guide (www.wbdg.org). Developed by federal agencies, the Whole Building Design Guide is a Web-based portal that provides information on building-related guidance, criteria, and technology from a "whole buildings" perspective.

The Federal Facilities Council, established in 1953, operates under the National Research Council's Board on Infrastructure and the Constructed Environment.

Keeping It Real

A new competition from the Department of Energy aims to engage students in engineering and technology by asking them to solve a problem not drawn from a dusty textbook but from the struggles of actual engineers.

This inaugural year of DOE's Real World Design Challenge asks teams of high school students to design a more fuel-efficient aircraft, a pressing issue for an airline industry that has seen fuel costs jump from 10%–20% of their operating costs to 30%–40%.

Ten states are piloting the program: Connecticut, Hawaii, Kansas, Massachusetts, Minnesota, Oklahoma, Pennsylvania, Vermont, Virginia, and Washington. About 160 teams and nearly 1,000 students are involved. Next year, the program will expand to 25 states, and the remaining states will be added the third year.

In this year's challenge, students were given a fixed fuselage and tail section to work with, as well as a predefined weight and engine performance. They used Pro/ENGINEER CAD software, donated by



Parametric Technology Corp., to change the wing characteristics to achieve the desired efficiency.

Teachers who coach the teams of three to seven students receive two days of training on the CAD software. Program coordinators hope that they will bring

these new skills into their regular classroom instruction in addition to using them to guide the students in this extracurricular program.

Mentors from national laboratories and agencies, industry, and higher education also sign on to help teams. Teams and mentors use Windchill, an online collaboration program also donated by Parametric, to discuss their work.

Submissions for the state round of competition were due February 2. After the 10 state winners are chosen by a judging panel assembled by the states, DOE will release a national challenge that builds on the work done in the state challenges. The state winners will have 30 days to complete that challenge, and then they will present their solutions at a mini-conference in Washington, D.C., March 19–22. Scholarships will be awarded to the national winning team and their school district.

To learn more about the Real World Design Challenge or to volunteer as a mentor, visit www.scied.science.doe.gov/RWDC.