Engineers Without Borders  
Taking Solutions — and Standards — Where They Are Needed  
BY ALAN EARLS

It’s a simple enough idea. Engineers Without Borders-USA, based in Denver, Colo., is a number of similarly named groups around the world, aims to deliver engineering project know-how to developing communities worldwide in order to improve their quality of life. In keeping with its academic roots and related goal of providing learning experiences for students, “Most projects are run by individual chapters and most chapters are student-run organizations affiliated with engineering colleges or universities,” says Kelly Latham, P.E., EWB’s international community programs director. In practice, she says, “students are the true leaders, but they work under a mentorship arrangement with professional engineers.”

“Engineers Without Borders allows students to gain hands-on experience in project management, engineering design and implementation,” says Caitlin Augustin, a Ph.D. student at the University of Miami’s Abess Center for Ecosystem Science and Policy, and an ASTM student member. Augustin explains that ASTM International standards are a key part of project design and implementation strategy. “There is a commitment to design and construct projects to standards using the best available technologies, and many of these standards come from ASTM,” says Augustin. Furthermore, ASTM’s educational and student outreach program makes it easy for EWB members to do research and find applicable standards for their projects. Currently a member of ASTM Committee E60 on Sustainability, Augustin was sponsored by ASTM in 2009 in the Washington Internships for Students of Engineering program, a paid 10-week summer internship focused on the public policy process. She also served as president of the University of Miami’s student EWB chapter from 2008 to 2010 and is currently the treasurer for the South Central Florida Professional Chapter of EWB.

Augustin says that when she volunteered as a project manager for a development project in Nicaragua, ASTM provided her team with many resources in Spanish and English, so they were able to work with in-country counterparts to design a project that incorporated the standards from the beginning. “This type of outreach helped me shape the conversation for many EWB projects — helping my school’s EWB teams move away from volunteering to provide a ‘good’ solution to providing a ‘best-in-class’ solution,” she explains.

Engineers Without Borders, she notes, that effort has had a great impact. “Students have been inspired to draft their own sustainable design and construction standards and propose them to ASTM — standards for things such as native green roofs or water quality for localized solar hot water heaters,” says Augustin.

Another ASTM student member, Clemson University’s Kathryn Gasparro, became interested in the program as a freshman. Her plan was to study international relations and civil engineering. “My freshman year, I worked on a biolatrine system that used human waste to produce energy for a community in Liberia,” she explains. At the beginning of her sophomore year, she was asked to lead a Latin American project. “Along with eight other students, we found a nonprofit based in Atlanta and working in communities in Nicaragua. We eagerly contacted them and began a partnership with the nonprofit as well as the community in Nicaragua,” she explains. The joint project is now three years old, focused on plans for a clean water source.

After working with EWB for two years, Gasparro applied for and won ASTM sponsorship in the 2012 WISE internship program. “It had taught a lot about infrastructure projects in developing countries but wanted a more local perspective on infrastructure policy in the United States,” she says. During her summer in Washington, D.C., with WISE, she says she began to understand the connection between policymakers and engineers. After graduation, Gasparro hopes to pursue a career in infrastructure policy and development, “to help communities realize their potential through infrastructure projects that provide transportation networks, clean water and reliable energy sources.”

“Standards play a large role in our work in Nicaragua and with EWB,” says Gasparro. “Understanding how ASTM and quality standards are applied in the U.S. helps us implement best management practices with developing communities.” Indeed, Gasparro says she and her team compiled reports during every phase of their project to make sure that they were, to the best of their knowledge, in accordance with applicable standards.

“Standards are something that all of our EWB projects are required to follow, using either local or international standards,” says Latham. “As an organization we are always trying to make it clear which standards apply where, though it is ultimately an effort that happens at the chapter level and is specific to the community where they are working,” she adds.

“The natural connection between ASTM standards and EWB projects really has the potential to encourage creative solutions at multiple levels,” adds Augustin.

ALAN EARLS is a writer and author who covers business and technology topics for newspapers, magazines and websites. He is based near Boston, Mass.

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