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Human Faces:

"Community Spirit" by Captain Victor M. Nakano, P.E. & Captain Reid E. Vander Schaaf, P.E.

Bringing together local industry and academics to achieve an objective can be a very positive experience. This was especially true when the United States Military Academy at West Point, PDJ Components of Chester, NY; and Roe Brothers of Florida, NY, teamed up to compete in the 2001 National Timber Bridge Design Competition. This is an annual competition, coordinated by Southwest Mississippi Resource Conservation and Development (RC&D), the U.S. Department of Agriculture, the Natural Resources Conservation Service and partially funded by the Southern Forest Products Association. Each team is required to design, build and test a bridge constructed of wood structural members. The wood used in this project must be from commercially available species and treated to American Wood Preservers Association standards for "above ground use." It must measure four meters (13.1 ft) long by 1.2 meters (3.9 ft) wide, with no individual piece exceeding 2.1 meters (6.55 ft) long. In addition, it must be a minimum of 75 percent wood by weight and capable of maintaining a load of 20 kN (4500 lbs). Judging is based on deflection criteria, innovation, weight, constructability and aesthetics.

Sid Ketchum, President of PDJ Components, and Arnold Bieling, President of Roe Brothers, donated all of the lumber for the bridge. Ketchum also offered the use of his shop to cut and assemble the three main trusses. In March, the cadet team spent a memorable afternoon at PDJ Components cutting, splicing and assembling the truss supports under the super-vision of the shop foreman. Technological advances such as computerized cutting, laser alignments tools and impact rollers impressed the cadets. Nevertheless, the highlight was getting a chance to work side by side with people in local industry, an experience impossible to duplicate in the classroom. Similarly, the people at PDJ Components had a chance to interact with the young cadets and learn about their unique academic lifestyle.

"We at PDJ were excited to have the opportunity to be involved in this project and to be exposed to daily life at West Point," commented Ketchum. "It was a great experience to work with the cadets in the shop and give them a taste of our industry. Likewise, it was also wonderful to participate in Cadet Projects Day and learn more about West Point and the other engineering experiments the Cadets are working on. Arnold Bieling and four of us from PDJ received 'Top Brass Treatment' and were quite impressed with the enthusiasm, politeness and discipline of the cadets. I would certainly participate in projects like this in the future. It's a positive experience for everyone involved."

Within a few weeks the cadets had completed the timber bridge. Loaded with 20 kN (4500 lbs), the bridge deflected 5.53 mm (0.21 in) and had a net deck deflection of 0.53 mm (0.02 in). The

total weight of the bridge was 271 kg (600 lbs) with 9.1 percent non-wood materials. Results of the competition were released in early May with the cadet team earning first place in both Most Practical Design and Best Bridge Deck Design, as well as second place in the Willamette Industries Overall Design and Best Support Structure. Based on these results, the bridge took first place overall in prize money, \$2,500. This success brought a great deal of satisfaction and pride to everyone involved, further enhancing the team esprit de corps between academics and industry. The actual timber bridge will become an integral part of the West Point Elementary School Nature Trail Project.

This cooperative partnership between the United States Military Academy, PDJ Components and Roe Brothers serves as an excellent example of how academics and industry can work together to achieve common goals and foster better community relations—a partnership that we hope to continue.

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