SUPER LIGHT WEIGHT BRIDGE BUILDING CONTEST

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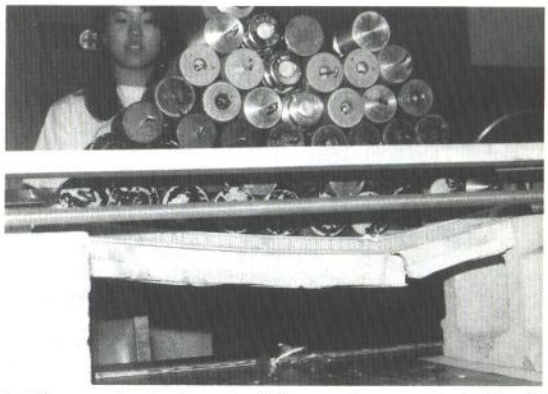
The SAMPE organization has been encouraging and challenging the local chapters to develop programs which will introduce advanced composite materials into secondary school science education. The New Jersey Chapter, in partnership with the New Jersey Science Supervisors Association (NJSSA), conceived the idea of a state-wide bridge building contest where the objective would be to build a 3 inch wide bridge which would span 22 inches (between 2 cinder blocks) and support 100 pounds for at least 1 minute. The challenge was to make the bridge as light as possible using composite materials supplied to contestants in kit form.

SAMPE New Jersey and NJSSA co-sponsors of the state-wide contest this year, were responsible for all technical aspects of the contest such as materials and rules, as well as the publicity and school contact for the contest. That partnership was key to the project's success. (NJSSA is the organization of public and private school science supervisors.)

The contest was first announced in the November 1990 newsletters of both SAMPE New Jersey and NJSSA. Approximately 150 school responses were received by NJSSA and 3 by SAMPE New Jersey. Since we only had sufficient materials for 30 kits, it was necessary to select participants, and this was done by a NJSSA committee.

The kits contained an assortment of donated materials for the bridge building. Also, a video tape on the materials, how to mix the resins, laminate, and how to make a light weight bridge.

Most innovative bridge supports all 45 kg with ease. Note the carbon fabric shear side panels and Nomex® honeycomb used in sideways compression. Also Kevlar® yarns at the bottom kept the base from expanding. Though not the lightest bridge (216 grams), it won the Prince racquet.



This bridge worked—barely. The students who built this one now have a much better appreciation for crack tip propogation, speed, and critical crack length.

Contributors of materials included: Allied Signal, Amoco Performance Products, Atkins and Pearce, Baltek, BASF Celion Fibers, CIBA-GEIGY, DuPont, Hexcel, Mahogany Co. of Mays Landing, Mutual Industries, Pacific Anchor Division of Air Products, Owens Corning Fiberglas, Sankyong Industries, Textile Technologies, Inc., Textron Specialty Materials, Tonen Corporation., U.S. Gypsum.

The contest finals were held on May 16th. Approximately 95 people representing 20 high schools throughout New Jersey attended. Cash prizes of $200, $100, and $50 were awarded to the students building the 3 lightest performing bridges. They were from Ridgefield High School (109 grams), JFK High School (136 grams), and Dickenson High School (151 grams). A fourth award - and perhaps the most prized—was a Comp 110 graphite tennis racquet graciously donated by Prince Manufacturing. This went to the team with the most innovative use of composite materials. Matt Maassen and Eric Uhrane, juniors at Parsippany Hills High School, used almost every material in the kit to snare this prize. The arched design used vacuum molded carbon fabric shear panels, a clear nylon road surface, and Nomex® honeycomb in directions that are best described as imaginative.

HEXCEL'S AGREEMENT WITH DREXEL UNIVERSITY FOR CONDUCTIVE POLYMER TECHNOLOGY

Hexcel Corporation announced it has signed an agreement with Drexel University for the right to evaluate and