

SAMPE 2004 SUPER LIGHT WEIGHT BRIDGE BUILDING CONTEST



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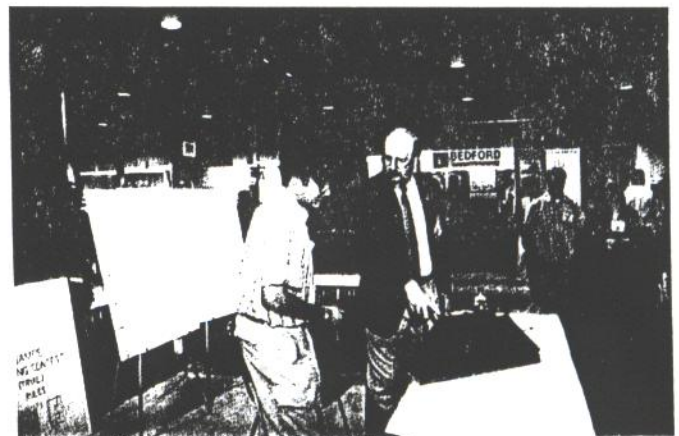
The seventh annual Super Light Weight Bridge competition was held at SAMPE 2004 in Long Beach, CA on May 18th. This year we had 64 teams registered and 52 showed up for testing. Of the 52, seven were professional entries and 45 were University teams. We could have registered 10 more, but we just ran out of materials for the kits.

As usual, we made a few changes from last year. First, we separated the professional and student competitions. We had some earlier feedback that some students felt intimidated. Well, looking at the results in the table, that certainly doesn't seem to be the case. The student teams did quite well.

Another change this year was the use of a pultrusion as the starting point in the contest. In previous years, bridges were built from scratch. This year, a 24-inch pultrusion in the shape of a channel or a flattened "W" was supplied, and the contest objective was to strengthen the pultrusion with minimum additional weight. The two pultrusions weighed either 860 or 435 grams.

This year we had categories of best bridge using carbon, glass, or boron reinforcement. We also required that all University teams provide a poster highlighting some aspect of their bridge. We had almost 50 posters lining the hallway next to the technical sessions. Awards were given for the highest ratios of ultimate load to bridge weight for the three categories listed above. Awards were also given for best posters.

We also ran a separate trial contest for a light weight wing. We had six entries (by invitation only). The objective was to have the strongest wing with the lightest weight. We had a few bugs to work out, including the restriction of using the same fixture as for the bridge. We plan to expand that contest next year.



Five sponsored awards of \$250 each were given to first place winners in the kit categories and the poster session. These were:

- **Carbon/kit:** University of Washington (Sponsor: High Performance Composites magazine)
- **Glass/kit:** University of Washington (Sponsor: Owens Corning Fiberglas)
- **Boron/kit:** University of Washington (Sponsor: Specialty Materials Inc.)
- **Poster:** Stanford University (Sponsor: Boeing Corp.)
- **Wing Contest:** Split amongst all participants (Sponsor: A&P Technology)

Once again, the University of Washington student SAMPE chapter did quite well.

In total, we gave away more than \$3000 in prize money as well as the usual assortment of composite tennis racquets and fishing rods and a composites training course from Abaris, all donated by the sponsors.

The final results are shown on page 54. Individual load-displacement plots are available by accessing the United Testing website at www.tensiletest.com or through the SAMPE website link.

We thank our 41 sponsors for this year. They provided the materials for the kits and the cash and product hardware for the prizes. Without their support, we can't run this contest. We thank United Testing Systems for providing the tensile machine used to load the bridges at the Exhibition. John Reinking and Ahmed Syed of United operated the machine and gathered all the data for us. Also thanks to Chintan Brambhatt

from the Civil Engineering department of Rutgers University. He helped with the book keeping at the testing and with packaging and shipping the kits for the contest. Lastly, Stan Stawski of Scaled Composites authored the Wing contest rules. Many years a contestant, Stan will now be helping to run these contests in future years.

Finally, we note the passing of a long time contest supporter. Jere Watson, President of United Calibration Corporation supported the contest with equipment and custom fixturing and other contributions since the very beginning of the contest in 1998. We will miss him.



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United Testing Systems Inc.

Thank you

SAMPE 2004 Bridge Building Contest Final Results



W start	W new	P ult	Pult/Wnew	School	Team
Carbon Kit (Student)					
435	1752	11979	6.84	Univ. Washington	Team 1
860	2998	16416	5.48	US Naval Acad.	Bauer, Seufert, Burrows
860	2560	11843	4.62	US Naval Acad.	Bauer, Seufert, Burrows
860	2429	9232	3.80	US Naval Acad.	Bauer, Seufert, Burrows
435	1722	5731	3.33	So Dakota Sch of Mines	Team 2
435	1086	3274	3.01	Univ. Auckland 2	Baumgartner
435	1762	5198	2.95	San Diego State Univ.	Seyforth
435	1059	3123	2.95	Cerritos College	Alfaro
860	1746	5108	2.93	Univ. Auckland	Osborn, Bennett
860	1318	3803	2.89	Cerritos College	Team 1
860	2172	5698	2.63	US Naval Acad.	McClay, Smith
860	1505	3812	2.53	US Naval Acad.	Reidmille, Gordon, Stein
860	2489	6111	2.46	So. Dakota Sch of Mines	Team 4
435	1533	3467	2.26	San Diego State Univ.	Team 2
860	1869	3952	2.11	So. Dakota Sch of Mines	Team 5
860	1929	4032	2.09	Drexel Univ.	Titchenal
435	1393	2738	1.95	So. Dakota Sch of Mines	Team 1
860	1121	1103	0.98	Winona State Univ.	Smith, Sikkind, Mueller, Strauss,
Glass Kit (Student)					
435	2208	12284	5.56	Univ. Washington	Team 2
860	1874	5732	3.06	So Dakota Sch of Mines	Team 3
435	1583	4485	2.83	So Dakota Sch of Mines	Team 6
435	1838	4850	2.64	Cal State LA	Team
860	2405	6208	2.58	Boy Scout Troop 676	O'Callaghan
860	1173	2640	2.25	Univ. Dayton	Team 6
435	1842	4001	2.17	Cal State LA	Team
860	1174	2464	2.10	Univ. Dayton	Team 3
860	1329	2769	2.08	Cerritos College	Rand
435	1476	2927	1.98	San Diego State Univ.	Team 4
435	1734	2937	1.69	San Diego State Univ.	Team 3
860	1192	1984	1.66	Univ. Dayton	Team 4
435	1436	1853	1.15	Cal State LA	Team
435	994	685	0.69	Univ. Dayton	Team 1
435	1016	637	0.63	Univ. Dayton	Team 2
Boron Kit (Student)					
435	1549	8847	5.71	Univ. Washington	Team 3
860	1739	3449	1.99	Winona State Univ.	Smith, Sikkind, et al
435	944	1733	1.83	Cerritos College	Team 4
435	638	526	0.83	CPSLO	Vilven
Carbon Non-kit (Student)					
860	1751	10351	5.91	Stanford	Team
435	1572	8473	5.39	Stanford	Team
860	3467	17790	5.13	West Wash	Kiesser
435	1475	6209	4.21	West Wash	Small
860	1508	5500	3.65	UCSB	Upadhyaya
860	1447	4381	3.03	UCSB	Marks
435	634	281	0.44	Univ. Dayton	Koos
Glass Non-kit (Student)					
860	1787	1824	1.02	Mt Miguel High School	Parker
Professional - Kit					
860	2658	6662	2.51		Brian Flinn
860	1194	2600	2.18		Yves Mathieu
860	3986	6347	1.59		James Jones
Professional - Non kit					
435	881	6638	7.53		Stan Stawski
860	6200	24400	3.93		Brian Flinn
435	1431	4097	2.86		Joseph Marshall
435	1326	3574	2.69		Hans Neubert
Poster Session					
	First			Stanford Univ.	
	Second			Drexel Univ.	N. Titchenal
	Third			San Diego State Univ.	S. Seyforth
	Fourth			San Diego State Univ.	J. Churchwell
	Fifth			Univ Dayton	M. Stanley
Wing Contest					
	Weight	P ult	PIW		
	473	1465	2.86	Univ. Washington	Team (corrected for 24" length)
	488	1142	2.34	H. Neubert	
	589	1221	2.07	UC Santa Barbara	Team
	507	973	1.92	S. Stawski	
	693	1324	1.91	So Dak Sch of Mines	Team
	1337	2210	1.65	San Diego State Univ	Team