

2006 SUPER LIGHT WEIGHT BRIDGE AND WING BUILDING CONTESTS

Howard Kliger, H.S. Kliger & Associates and Stan Stawski, Scaled Composites

The SAMPE '06 hosted the ninth annual Super Light Weight Bridge competition and the third annual Light Weight Wing competition. This year we pre-registered 52 bridge teams and 18 wing teams. Of these, 40 bridges and 15 wings showed up for testing. In addition, we had an outstanding display of student posters in the center hall area.

The contests continue to grow. This year's total of 70 entries is the largest number to date. Some of the schools conduct internal contests first, which accounts for the difference between the pre-registrations and the actual tested units. We estimate that 150 students participated. We limited the bridge competition to students only but allowed professionals into the wing contest. There were only a few, and judging from the wing results, the students more than held their own.

As usual, we changed the rules from last year. For the bridge contest, we required an upper deck that could support 50 pounds dead weight in addition to the mechanically applied load to the main deck. Also, we added a new material class to the standard glass and carbon systems. There was a Natural Fiber category this year. Students could use jute, sisal, flax or hemp yarns and fabrics. Supposedly, the Canadian schools had an advantage since the US Government bans the sale of hemp in the USA. Maybe they think that engineering students would try to smoke it. (We've been told that the hemp used in reinforcing fabrics is not smoking quality.)

NASA LaRC was the primary sponsor of the Wing contest again this year. The wing geometry this year required a constant airfoil cross section along its entire 24 inch length. The challenge was to build a wing that would weigh no more than 284 grams and would support a center load with a maximum 2.0 inch deflection. The wing holding the largest load was the winner.

Results for both contests are given on page 70.

All of the awards were given out at the Student Awards Breakfast on Wednesday, May 3rd. First place winners in each category received \$300 sponsored awards. These were:

- Bridge - Carbon/kit: University of Washington (Sponsor: Spencer Composites)
- Bridge - Glass/kit: University of Washington (Sponsor: Owens Corning Fiberglas)
- Bridge - Carbon/non-kit: University of California Santa Barbara (Sponsor: High Performance Composite magazine)
- Bridge - Natural Fiber/kit: University of Washington (Sponsor: A&P Technology)
- Poster: McGill University (Sponsor: Boeing Corp.)
- Wing - Student: University of Washington (Sponsor: NASA Langley Research Center)
- Wing - Professional: Branden Smith (Sponsor: NASA Langley Research Center)

In all, we gave away more than \$7000 in prize money as well as the usual assortment of composite tennis racquets and fishing rods. Other useful awards included composite training courses from Cerritos College and Abaris.

Once again, we thank our 46 sponsors for their support. 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. United Testing Systems provided the tensile machine used to load the bridges at the Exhibition. We also acknowledge the very strong financial support from NASA Langley and The Boeing Company.

2006 SUPER LIGHT WEIGHT BRIDGE AND WING BUILDING SPONSORS

American GFM	Dunstone	NASA LaRC	Development
Bast Fibers LLC	Fabric Development	National Starch and	Scaled Composites
Boeing	FyfeCo	Chemical	Seattle SAMPE
Boston SAMPE	Henkel Aerospace Group	NJ SAMPE	Shakespeare
Composites One	Hexcel	Northern CA SAMPE	Spencer Composites
Composites Specialists	Hexion Specialty Chem	Northern Fiberglass Sales	Toho Tenax America
Composites Worldwide	High Perf Comp Mag	Owens Corning Fiberglas	United Testing Systems
DeGussa	Hitco	Plascore	Utah SAMPE
Delson	Huntsman Chemical	Prince Sports	V2 Composites
DIAB	Mutual Industries	Radcure/Utility	Zoltek

(Continued on page 70)

SAMPE Bridge & Wing Building Contests - 2006 Final Standings



Team	wt(grams)	P(lbs)	P/wt	Standing
Bridge - Carbon Kit				
Univ. Washington	1315	8396	6.38	1
USNA (Womack/Lehman/Penrod)	2019	8437	4.18	2
McGill Univ.	2428	7953	3.28	3
McGill Univ.	1212	2185	1.80	4
McGill Univ.	1970	3487	1.77	5
San Diego State U.	1581	2644	1.67	6
McGill Univ.	3529	5370	1.52	7
Cal State LA	1338	1916	1.43	8
SDSM&T	1120	1568	1.40	9
SDSM&T	1679	2102	1.25	10
SDSM&T	1383	1707	1.23	11
Cerritos College	1340	1622	1.21	12
SDSM&T	1435	1418	0.99	13
Cerritos College	2073	1937	0.93	14
Cerritos College	2410	1611	0.67	15
U. British Columbia	517	177	0.34	16
Univ. Dayton				

Bridge - Carbon Non-Kit				
UC Santa Barbara (Berquist/Clemons/Wang)	669	6229	9.31	1
Univ. Washington (Brutke/Wiyino/Chan)	1471	12669	8.61	2
Western Washington	1868	5597	3.00	3
Western Washington	631	1310	2.08	4
UC Santa Barbara	1668	2985	1.79	5
Univ Nevada Las Vegas				
Cerritos (Glover)				
Most Innovative Carbon Bridge				

Bridge - Glass Kit				
Univ. Washington (Yang/Witkowski/Dang/Brutke)	1970	13124	6.66	1
Univ. Washington (Morris/Wahlborg/Louks/Eng)	1529	8102	5.30	2
USNA (Womack/Lehman/Penrod)	2085	7847	3.76	3
USNA (Womack/Lehman/Penrod)	1270	2920	2.30	4
SDSM&T	2950	6712	2.28	5
San Diego State U.	2545	4851	1.91	6
McGill Univ.	2415	3875	1.60	7
USNA	2116	2215	1.05	8
Cal State LA	1589	1481	0.93	9
SDSM&T	1493	775	0.52	10
U. British Columbia	2040	763	0.37	11
SDSM&T				
San Diego State U.				
Most Innovative Glass Bridge				

Bridge - Natural Fiber Kit				
Univ. Washington (Wong/Khatayevich/Qadir/Morris)	1762	6808	3.86	1
Univ. Washington (Khatayevich/Qadir)	2758	10066	3.65	2
Univ. Washington (Khatayevich/Qadir)	1961	5541	2.83	3
USNA (Dobie/Riddle/Tressler)	2405	2853	1.19	4
McGill Univ.	1861	2115	1.14	5
Cerritos College (Lau)	1757	1674	0.95	6
Univ. Southern Cal	1072	754	0.70	7
Univ. Dayton	3528	1547	0.44	8
Cal State LA				
Cerritos (Lau)				
Most Innovative Natural Fiber Bridge				

Wing - Student Class				
Univ. Washington (Hale/Emery/Cohrs)	**	1112		1
San Diego State U.		662		2
San Diego State U.		596		3
Univ. Maryland (Kothari/Jacoby)		573		4
Univ. Maryland (Kothari/Jacoby)		509		5
UC Santa Barbara (Allen/Nada/Wolff/Smith)		458		6
Cerritos College		435		7
Univ. Maryland		327		8
UC Santa Barbara		260		9
Univ. Maryland		210		10
San Diego State U.		196		11
Univ Nevada Las Vegas				

Wing - Prof Class				
Branden Smith		788		1
Michael Warek		549		2
Brian Flinn		N/A		*
Stan Stawski		1148		

** Max wt of all wings was 284 grams; * Not eligible for prize

Posters				
McGill Univ. (Team 2)				1
Univ. Maryland (Kothari/Jacoby)				2
UC Santa Barbara (Berquist/Clemons/Wang)				3
UC Santa Barbara (Berquist/Clemons/Wang)				4
McGill Univ. (Team 1)				Hon Men
SDSM&T (James)				Hon Men
SDSM&T (Kirby)				Hon Men
Univ. Maryland (Kothari/Jacoby)				