

Super Light Weight Bridge Building Contest

by Dr. Howard S. Kliger

The fifth annual Super Light Weight Bridge competition was held at SAMPE 2002 on May 14th. This year we had 45 teams registered, and 36 showed up for testing, including two bridges shipped in from the University of Auckland, New Zealand and two elementary/junior high entries (each with a supervising parent who just happened to be a composites engineer).

The bridge structure this year was similar to the three post triangulated structure from last year. Awards were given for the highest ratio of ultimate load to bridge weight, or P/w, and also for the bridges with the highest relative stiffnesses.



As usual, prizes consisted of an

assortment of composite tennis racquets, fishing rods, a titanium driver and a softball bat, a composites training course from Abaris, and more than \$1800 in cash, all donated by the sponsors.

The final results are shown on page 51. Individual load-displacement plots are available by accessing the Instron website at www.Instron.com or through the SAMPE website link.

First place in the student categories were teams from the University of Washington and UC Santa Barbara. In the professional categories, Stan Stawski of Scaled Composites and Brian Flinn, also advisor to the University of Washington team, were first place win-



ers. Stawski also built the bridge with the highest relative stiffness.

This will be the last year for the three post support geometry. Next year we will return to the conventional 2D simple span supports. A number of university advisors have recommended this because the simple geometry is more easily integrated into their undergraduate design courses.

Finally, we must thank our 36 sponsors for this year. They provided the materials for the kits and the prizes. Without their support, we can't run this contest. A special thanks also goes to Christos Papakonstantinou, from the Civil Engineering department of Rutgers University, he packaged and shipped the kits for the contest.



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Final Results - SAMPE 2002 Light Weight Bridge Building Contest

Contestant's Name	School	Bridge Weight (grams)	Peak Load (kgf)	Bridge Efficiency P/w	Relative Stiffness kgf/mm ² /grams	Exten @ Peak Load (mm)
Student Grade 1 (Kit)						
27-Univ. Wash	Univ of Washington	190.8	1205	6.3	17.8	4.8
40-J. Duarte	Whittier Christian School	287.9	1411	4.9	13.1	4.4
43-Cerritos A	Cerritos College	368.4	1465	4.0	6.7	9.3
44-Cerritos B	Cerritos College	235.4	870	3.7	8.7	5.2
33-U. Dayton	Univ. of Dayton	553.5	1555	2.8	13.7	3.3
15-SGL-B	Univ. of Auckland	728.3	1827	2.5	4.4	9.2
4-CPSLO	Cal Poly San Luis Obispo	308.9	657	2.1	3.2	17.6
8-CPSLO	Cal Poly San Luis Obispo	333.2	577	1.7	3.2	7.9
14-SGL-A	Univ. of Auckland	967.1	1231	1.3	3.6	4.2
3-CPSLO	Cal Poly San Luis Obispo	399.8	435	1.1	1.4	13.3
34-U. Dayton	Univ. of Dayton	1260.9	1309	1.0	3.0	9.4
12-Levi Roeselar	West Side Elementary	447.4	168	0.4	0.2	20.0
Student Grade 2 (Non-kit)						
23-UCSB	UC Santa Barbara	656.2	5677	8.7	18.5	5.3
41-Western Washington	Western Washington Univ.	212.9	1162	5.5	11.6	9.5
20-Winona	Winona State Univ.	183.2	900	4.9	13.0	8.3
29-Univ. Wash	Univ. of Washington	270.2	1144	4.2	8.8	11.1
28-U of Wash	Univ. of Washington	313.4	1056	3.4	17.3	2.3
9-UCSB	UC Santa Barbara	469.7	1458	3.1	33.2	1.4
38-Stanford	Stanford Univ.	749.1	1552	2.1	13.0	4.1
36-U.Utah	Univ. of Utah	425.1	871	2.0	6.1	5.3
21-Winona	Winona State Univ.	162.8	299	1.8	1.8	14.9
42-Cerritos	Cerritos College	11970.0	10707	0.9	1.0	12.3
Prof. Grade 1 (Kit)						
30-Flinn	Univ. of Washington	180.4	1170	6.5	22.1	4.7
1-Huang	Raytheon	456.9	1063	2.3	5.5	14.5
16-Lin	Univ. Auckland	555.8	931	1.7	1.7	14.9
Prof. Grade 2 (Non-kit)						
7-Stawski	Scaled Composites	107.5	1901	17.7	43.2	5.4
25-Duarte	BAE Systems	684.7	8316	12.1	16.9	10.4
18-Cary Martin	Hexcel	492.3	5820	11.8	17.1	8.1
2-Neubert	Programmed Composites	474.7	4225	8.9	24.2	4.5
11-Arizola	Texas Composite	542.6	2774	5.1	8.0	7.2
10-Ailstock	Texas Composite	413.8	1330	3.2	3.9	8.3
32-Klosterman	Univ. of Dayton	1344.8	3630	2.7	3.8	9.5
31-Klosterman	Univ. of Dayton	1623.7	3331	2.1	1.9	17.3
24-David File	Pacific Works	219.8	189	0.9	4.4	2.4
26-Byrons	Programmed Composites	246.5	152	0.6	3.2	11.8
13-Falabella	Hexcel	99.4	45	0.5	4.5	1.2

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