The purpose of this project is to design a double decker bridge (non-kit), with a high load to weight ratio, that complies with the Ninth Annual Super Light Weight Bridge Building Contest rules. After the examination of previous design, a truss structure was selected for our design. Hand calculations were used to determine the required dimensions of the structure and its components. The design changed in result of unexpected structural behavior during test, and as problems arose in manufacturing.

Manufacturing
Changes in our design were made during the manufacturing process.

Tube packing
0° plies where tightly rolled up and then stuffed into a tube that was lined with resin. The length of the tube packing was determined from simple stress analysis. After packing, the tubes were placed in an oven to cure (see Fig 2).

Upper Deck
Upper deck consists of 3 plies (0/90/0), and foam utilizes the "hat:" structure. The foam structure was inspired by the hole that had to be in the upper deck (see Fig. 6 and 7). Two strips of foam were cut and then trimmed to form the hat structure.

Car Cradle
Steel strips were curved to keep support straps in place, and to also distribute load on carbon fiber supports (see Fig. 8). Side rails were then welded to keep car from sliding off. Holes were then drilled into steel to reduce the weight of the cradle. Also, steel strips were welded between the steel strips to keep them from swinging inward.