

Team ID# _____

High School STRUCTURAL DESIGN AND ENGINEERING ASSESSMENT

Complete and submit this form (signed by the chapter advisor) with the Structural Design and Engineering entry, as confirmation that a structure was designed, built, and tested prior to and in preparation for participation in conference competition.

1) Structure weight prior to testing _____

2) Predicted ultimate load carrying capacity: $F_{u,p}$ _____

3) Use the equation to calculate the error in prediction for the ultimate load carrying capacity:

$$E = \frac{F_u - F_{u,p}}{F_u} \quad E \text{ _____}$$

where

E = Error

$F_{u,p}$ = Predicted Ultimate Load

F_u = Ultimate load attained in testing

4) Structural efficiency: N_s _____

Use the equation to calculate structural efficiency:

$$N_s = \frac{F_u}{M}$$

where

F_u = Ultimate load (failure weight) attained in testing

M = Dead weight of structure as measured in testing

5) Predicted failure mode: FM

Where or how was the structure predicted to fail? _____

What are the four major types of forces that act on a structure under stress? _____

What is the static load of a structure? _____

What part of a testing device should be considered live load? _____

What effect would a shorter length test block have during stress testing?

Chapter advisor name

Chapter advisor signature
