

# FOOTHILL PHYSICS BALSA WOOD BRIDGE BUILDING CONTEST

## Materials:

24 ft of 3/32" x 3/32" balsa wood and one tube of "Testor's Cement for Wood Models" (green and white tube, small size)

**NO materials other than balsa wood and Testor's glue may be used.**

## Specifications:

Maximum mass: 13.5 grams (as determined by Science Department designated balance)  
NOTE: It is difficult to determine the amount of wood and glue actually used in a bridge by visual inspection, so a mass limitation has also been set. A bridge which uses no more than

24 ft of wood and 1 tube of glue should be within 13.5 grams.

Bridge must be free-standing Maximum length: 24 cm

Minimum length of deck, and minimum clearance between piers: 10 cm

Minimum distance between top of tower/bottom of piers 16 cm

Maximum width: 3 cm

Minimum width of deck: 3 cm

Maximum deck height: 8 cm

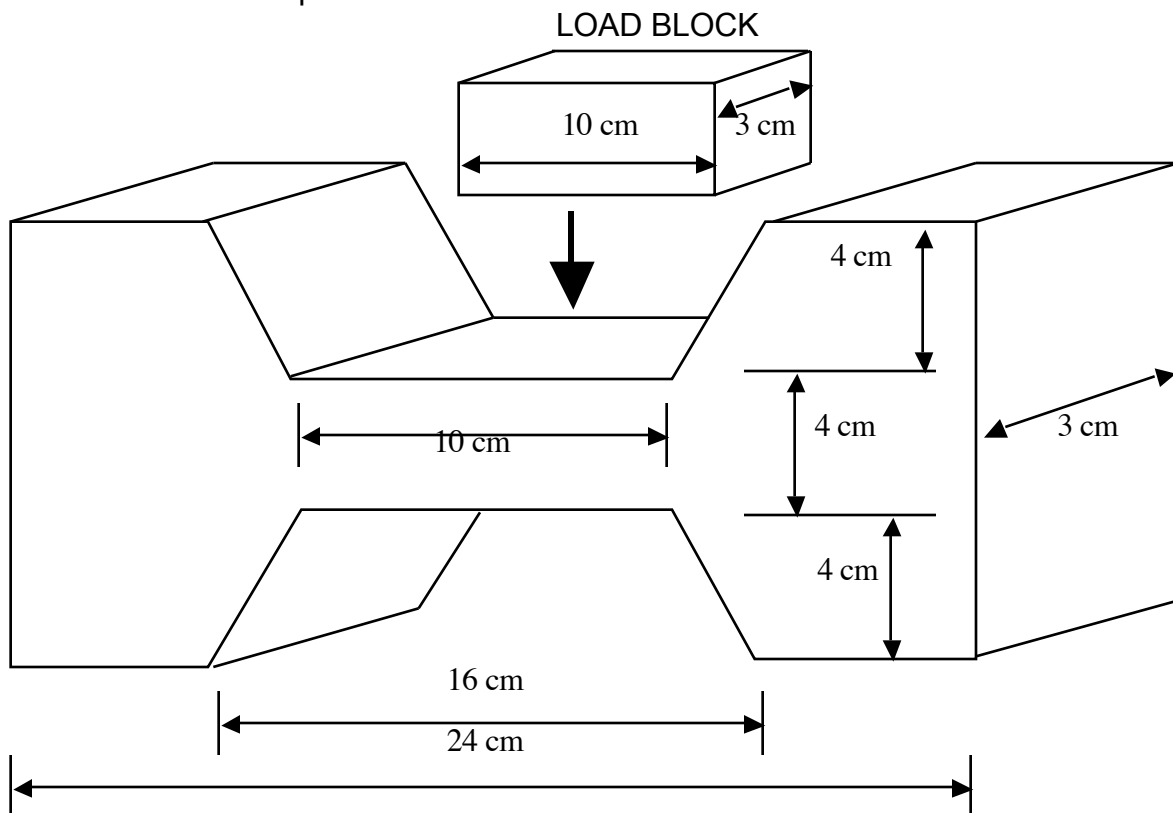
Maximum tower height: 12 cm

Minimum height: 5 cm

Minimum vertical clearance at center of span: 4 cm for entire 3 cm width

NOTE: Bridge must fit in a mold with maximum outer dimensions shown, and must have 2 trapezoidal openings with minimum dimensions shown. Bridge may have openings larger than the minimum if desired.

Channel bottoms & tops must be clear



CONTINUED...IMPORTANT INFORMATION ON OTHER SIDE

**Lamination:**

No more than two balsa sticks may be laminated together, and there must be a minimum space equal to the width of one stick between laminated beams which run parallel to each other. Beams which meet in a joint, or which are in contact when crossing, will not be considered laminations, provided that the meetings or crossings are deemed incidental to a rational design, and are not present primarily for laminating.

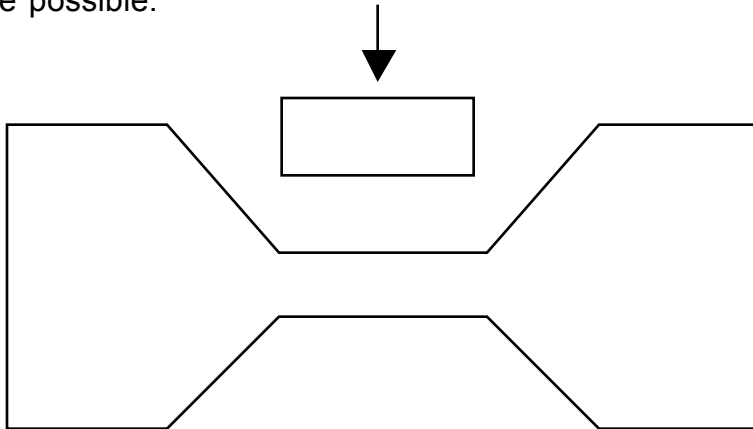
**Testing:**

Step 1: The bridge dimensions are checked on a template/mold.

Step 2: The mass of Bridge is measured.

Step 3: The load will be applied to a **3 cm x 10 cm** test block centered on the bridge.

Bridges will be tested at Foothill to 500 lb. manually. Actual testing apparatus and pictures of past testing will be shown. If there are bridges that survive the 500 lb. test, further testing may be possible.



**Eligibility:** Mandatory for Foothill Physics students, but other interested Foothill students, staff, parents, etc., are also invited to participate.

**Credit:** Credit and associated concerns for physics students will be discussed in class.

**Prizes:** Top 10 Place Bridges will receive prizes.

**SEE YOUR INSTRUCTOR IF YOU HAVE QUESTIONS**