



*The Seventeenth Annual* **BRIMS** Regional  
**BRIDGE BUILDING CHAMPIONSHIPS**  
*Sponsored by* **Scott & Murphy, Inc. and Stupp Bridge Company**  
*March 10, 2012 at Stupp Bridge Company*

## **2012 MIDDLE SCHOOL RULES**

**General Description: The bridge must be a top-loading bridge. (The ‘loading plane’ will be the top of the bridge. No part of the bridge may extend above the loading plane.)**

1. Materials
  - (a) The bridge must be constructed only from 3/32-inch square cross-sectioned basswood and any commonly available adhesive.
  - (b) The basswood may be notched, cut, sanded or laminated in any manner.
  - (c) No other materials may be used. The bridge may not be stained, painted or coated in any fashion with any foreign substance.
2. Construction
  - (a) The bridge mass shall be no greater than 25 grams.
  - (b) The bridge must span a gap of 300 mm and be no longer than 400 mm.
  - (c) The width of the bridge must be not more than 80 mm
  - (d) The loading plane (top of the bridge) must not be greater than 100 mm above the support surfaces
  - (e) ***The bridge must have a minimum clearance of 50 mm above the support surface at mid-span***
  - (f) No portion of the bridge shall extend below the top of the support surfaces.
  - (g) The bridge must be constructed to provide support for the loading plate at three loading positions. The loading positions will be at the center of the span and at 45 mm left and 30 mm right from the center of the span.
3. Loading & Testing
  - (a) The load will be applied by means of a 35 mm x 35 mm loading plate. A 9.53 mm (3/8 inch) diameter eyebolt is attached from below to the center of the plate. During loading, the edges of the loading plate will be parallel to the longitudinal axis of the bridge. The load will be applied by means of a bucket hanging from the eyebolt into which sand and weights are added until bridge failure occurs or a load of 50 kg is held.
  - (b) Bridge failure is defined as the inability of the bridge to carry additional load, or a load deflection of 25 mm under the loading location, whichever occurs first. The bridge with the highest structural efficiency, E, will be declared the winner

$$E = \text{Load supported in grams} / \text{Mass of bridge in grams}$$

***Decisions of the judges are final.***