

October 22, 2009

**TO: Science/Math Teachers**

From: Chris Bass, PE  
Model Contest Chairman

Subject: MES Model Contest

Enclosed you will find a copy of the announcements and specifications for the 2009 – 2010 Mississippi Engineering Society Model Contest for Mississippi High School Students.

If you desire to enter this year's contest please return a completed Registration Form to the address listed below by no later than February 5, 2010.

**MES Model Contest  
c/o Chris Bass  
P.O. Box 180429  
Richland, MS 39218**

If your school is located over 70 miles from a regional you may apply for special consideration testing. This request must be made in writing by the sponsoring teacher or school administrator and should include the school's address, number of students participating, and the number of bridges that will be entered. If special consideration is granted an engineer from the MES Model Contest Committee will schedule a date and time for the bridges to be tested at the school in question. This special consideration is not guaranteed and will only be given if a committee member is available to perform the test.

In the past years we have or have arranged for engineers to give presentations to classes on bridge design and construction. If you are interested in having an engineer give a presentation to your class please send a request to [cbass@engservice.com](mailto:cbass@engservice.com). We will make every attempt to fulfill each request but due to time restraints and geographical limitations it will not be possible to accommodate everyone.

If you have any questions about the contest please do not hesitate to contact me.

Respectfully

Chris Bass, PE  
Model Contest Chairman

Enclosures

General Entry Requirements  
MES Model Contest

1. Students may enter only one model. Students may enter the contest as individuals, as a group, or as a class. If they choose to enter as a team or class and win a regional contest the team or class shall choose no more than two students to represent them at the State Final.

(If students wish to enter as a team or as a class they will need to indicate so on the entry form. Each team or class member who plans to attend a regional event should send in an entry form.)

2. We will hold regional competitions at the following locations and dates  
Pine Belt Area            Saturday, February 20, 2010  
Oxford Area                Saturday, February 27, 2010  
Jackson Area               Saturday, March 6, 2010

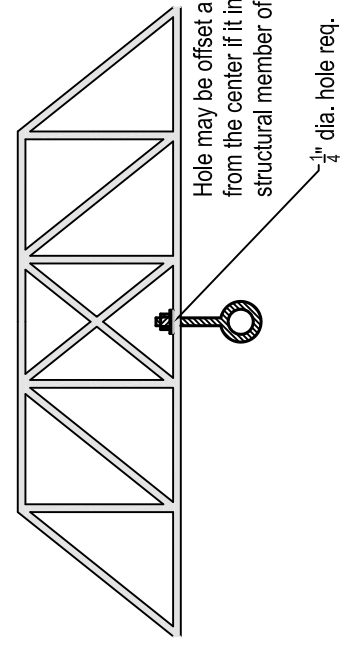
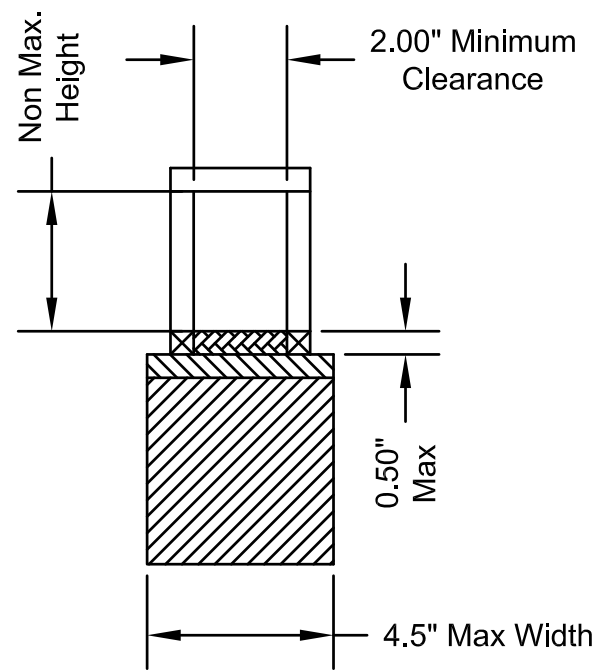
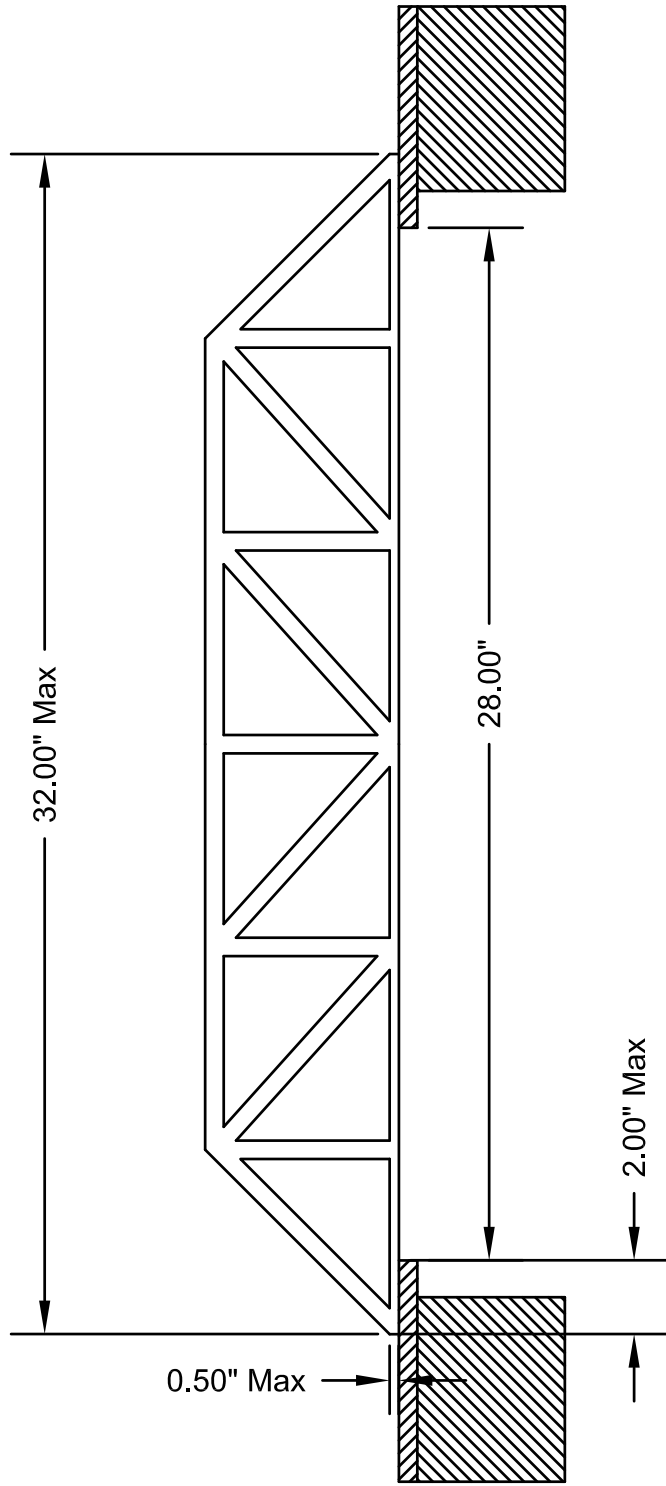
Details concerning the time and exact locations of these events will be mailed to the students and teachers after their entry forms are received.

3. The first, second, third and fourth place winner of the regional contest will participate in the state final. The final will be held in April 2010 at a location and time as yet to be determined.
4. The judges of each contest will choose a model to receive a Judges' Award. This award will be given to the bridge that has the most innovative design. If a bridge finishes in the top three it will not be eligible for the Judges' Award. The Judges' Award winner from each regional will compete in the State Finals.
5. We will weigh the models on the day of the competition and assign each model an entry number.

## Technical Specifications

1. **General:** Design for the 2009 – 2010 MES Balsa Model Contest is a single point loaded bridge. The design shown on the next page is not necessarily a sound one and information contained therein is not intended to specify size, location, or spacing of bridge members. The drawings are intended solely to indicate limiting dimensions and manner of applying the load. The bridge may be of any type (truss, plate girder, beam, etc.) provided it complies with all these specifications.
2. **Dimensions:** The dimensional requirements for the bridge are as shown on the next page. The bridge shall have a maximum overall length of 32 inches and be designed to span a clear distance of 28 inches (allowing a nominal dimension of 2 inches maximum for each end to rest on the approach plates). There is no limit to the height of the bridge but no part of the bridge shall hang more than 6 inches below the approach plate.
3. **Roadbed:** Each bridge will contain a roadbed that will have a ¼" hole at the midpoint of the bridge.
4. **Clearances:** A minimum width of 2 inches and a minimum vertical clearance of 3 inches above the approach plate shall be provided for the entire length of the structure.
5. **Materials:** The only materials allowed for the construction of the bridge are balsa wood and glue. Any glue may be used. All other materials (Weights, Approach Plate) will be provided by MES on the day of the competition.
6. **Loads:** The bridge must be designed to support its own weight. Additionally, the bridge must be designed to support a live load consisting of a single point load. The dimensions of where the point load will be placed are shown on the next page. The total weight of the load is 25 pounds.
7. **Construction:** Construction shall follow all of the above specifications (dimensions, clearance, materials, etc.). Glued joints should be neat and clean in appearance. Laminated members will be permitted. Although straight lines are shown in the example, the use of curved members will be allowed as long as all other specifications relating to dimensions, clearances, etc. are satisfied. (Note: Balsa wood, when slightly moistened, becomes pliable and bends quite readily.)
8. **Testing Procedure:** Each model will be weighed prior to load testing. Each model will be placed on a load frame and will be measured for dimensional requirements. The bridge will be loaded with a total of 15.0 lbs. If the bridge does not fail after loading the weight will be removed and total weight of 25lbs. will be added. If the bridge does not fail it will be eligible to win a first, second, third, or fourth place award. All weight will be added in five pound increments.
9. **Failure Modes:** The bridge will be considered to have failed under any one or combination of the following circumstances:
  - a. A total or partial collapse of the bridge which causes the load vehicle to fall off the roadbed and bridge.

A bridge which has failed will be ineligible to win a first, second, or third place award. However, a bridge which has failed will be eligible to win the judge's award.
10. **Winners:** The lightest bridge which has not failed will win first place, the second lightest bridge which has not failed will win second place, etc.



Hole may be offset a maximum of 1/2" from the center if it interferes with a structural member of the bridge.

Contestants shall provide a 1/4" hole in the bridge for a load attaching bolt.

**Mississippi Engineering Society**  
**2009 - 2010 High School Model Contest**  
**Entry Form**

Students / Captains Name \_\_\_\_\_ Grade **9, 10, 11, 12**  
circle one

Address \_\_\_\_\_  
\_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Teachers Name \_\_\_\_\_

Schools Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Please Circle the Regional You will Attend      Jackson      Oxford  
Pine Belt

Are you entering this event as a      Team      Class      Individual  
Circle one

Note: List Individual team members on the reverse side of this application

\_\_\_\_\_  
Students Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Teacher or Parents Signature

\_\_\_\_\_  
Date

Please send all questions to [cbass@engservice.com](mailto:cbass@engservice.com)

