



**Participants:** MCS may enter a total of 75 bridges, with 15 bridges being scheduled every 30 minutes starting at 9:30 am and ending with the 11:30 am testing cycle. Participants may include individuals or teams of 2 or more students.

**Submission:** All submissions must be delivered to Sandhills Community College (by school personnel) on Thursday, March 27th to Little Hall, Room 153. Each bridge must have an identification tag that correlates to a Moore County Schools spreadsheet.

**SCC Judges:** **Michael Sassano**, Coordinator, Building Construction Technology and Construction Management Technology, and **Lisa Rodak**, Instructor and Coordinator, Architectural Technology.

**Judging Location:** Sandhills Community College campus at the Outdoor Picnic Shelter

**Notes:** SCC provides the testing apparatus. SCC judges will find the Mass of each bridge and will supervise MCS student testing until failure.

**Determining Bridge Efficiency:** The Utilized Load is the load on the bridge at the time of failure.

**Bridge Efficiency = Load Carried @ Failure / Mass of Bridge**

# Competition Rules

## Dimensions

The solution must meet the following dimensions:

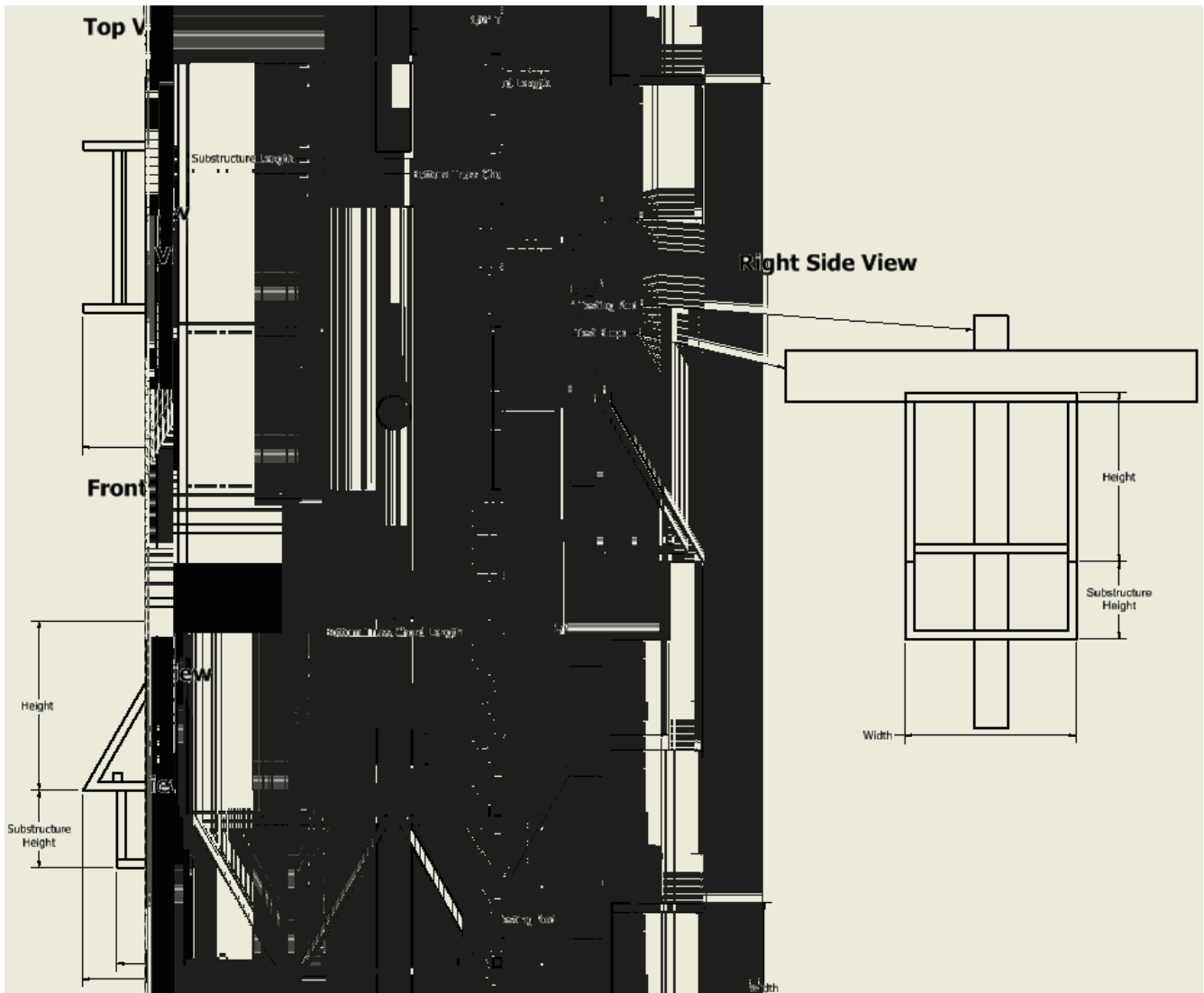
Bottom Truss Chord Length	Minimum	10"	Maximum	12"
Width	Minimum	1.5"	Maximum	2.5"
Height	Minimum	0"	Maximum	3"
Substructure Length	Minimum	7 ¾"	Maximum	8"
Substructure Height	Minimum	1"	Maximum	1 ½"
Test Block	6" long x 2" wide x 3/4" tall			
Span	The structure tester will have a span of 8"			

The following Isometric drawing provides guidance on how the testing block and rod will be utilized.



*Rules Revised/Checked:  
Participants & Dates Updated: 07/15/24*

The following Multiview drawing provides guidance on dimensions and the utilization of the testing block and rod.



### Specifications

1. The solution must be constructed using only 1/8" x 1/8" balsa sticks. The balsa sticks must be wood only – treated, conditioned, coated, or painted balsa is not permitted.
2. A maximum of 20 linear feet of balsa sticks can be used in the construction of the solution.
3. The test block will be 6" long, 2" wide, and 3/4" tall.
4. The test block will be placed on the solution in the center on top perpendicular to the roadbed. There is no minimum measurement from the bottom of the solution to the bottom of the test block. The solution must accommodate the placement of the test block to the center of the solution from the end or from the top.

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Participants & Dates Updated: 07/15/24*

5. No part of the constructed solution may extend above 3" (the test block may extend above 3").
6. The 1/2" test rod must pass vertically through the center of the solution.
7. The span of the abutments will be 8".
8. A tolerance of +/- 1/8" will be applied for the length, width, and height of the solution.
9. The solution may not contact the vertical surface of an abutment below the top of an abutment except if bending occurs during testing.
10. Lamination refers to the combining of two or more pieces of material with the glue grain running in the same direction. Laminations of any kind are NOT allowed in the construction of the solution.
11. Lap joints are allowed and involve the gluing of two pieces of Balsa material with the grain pattern normally at right angles; however, lap joints less than 15° or greater than 165° would circumvent the lamination guidelines and would result in a disqualification.

## **Requirements for Check On-Site**

1. The completed solution will have a neon green label that includes the names of the team members and the school.

## **Testing Requirements**

Testing will be completed using the Sand and Bucket method.

There must be a 1/2" hole at mid-span in the bridge deck to allow for testing. There must be no obstructions below the hole that would prevent the passage of a testing rod and chain.

A 6" long, 2" wide, and 3/4" tall Test Block will be positioned over the hole in the deck at midspan and placed on top of the bridge perpendicular to the roadbed.

Bridges will be loaded initially with only the bucket and testing apparatus. Dry sand will be added after the initial loading until the bridge collapses.

***\*The Sandhills Community College scales will be the official scales for the competition.***

***\*\*Decisions made by competition judges are final. There is no dispute resolution; however, input for future process improvement is always encouraged.***