

# NCDOT Model Bridge Building Competition 2018

## FREQUENTLY ASKED QUESTIONS

### GENERAL COMPETITION QUESTIONS

**Will middle school teams compete against high school teams?**

No. There will be separate competitions for middle schools and high schools.

**Can teachers or schools enter more than one model bridge?**

No. Only one model bridge entry will be accepted per school.

**Can individual students enter the competition?**

The competition is designed to encourage students to work in teams with the teachers acting as facilitators. Therefore, the N.C. Department of Transportation strongly encourages teams of at least two students with one or more teachers as facilitators. If it is impossible for a school to develop such a team, then a student with a teacher as a facilitator will be allowed to enter the competition.

**Are you offering the competition next year?**

Yes, the competition is an annual event.

### GUIDELINE QUESTIONS

**Your guidelines specify "no element wider nor deeper than 1/8 inches." Does that specification include joints? For example: Would it be legal if two 1/8-inch x 1/8-inch balsa wood pieces cross over each other, making the joint 1/4-inch? Or, would we need to use 1/16-inch x 1/16-inch balsa wood strips?**

The 1/8-inch x 1/8-inch size requirement does not apply at joint intersections. However, the intersection cannot exceed the size of two individual members, total of 1/4 inch. This is only allowed at the joint areas.

**I would like to put spacers between two pieces of balsa wood, with the measurement of the entire member (balsa wood pieces and spacers) exceeding 1/8." Would the spacers be ruled as joints, making my bridge legal?**

If a spacer is continuous, then a laminated member results. The spacers will be counted as individual members. Each individual member cannot exceed 1/8 inch as outlined in the guidelines.

**The guidelines say commercially available balsa. Does this eliminate the basswood kits that are often used in physics labs?**

Basswood may not be used. Only balsa wood may be used for the competition.

**Are cross-members allowed under the balsa wood deck?**

Yes, cross-members are allowed under the balsa wood deck.

**Are gusset plates allowed at joint connections?**

Yes, one per joint is allowed. The plate, however, cannot exceed 1/8 inch in thickness and 1/2-square-inch in area.

**What type of glue can be used? Our class was wondering if adhesives, such as rubber cement, liquid nail or epoxy styrene resin are allowed, or does the label have to say glue for it to be considered glue?**

The label does not have to say glue for it to be considered glue. If it is an adhesive that can be used to bond two pieces of wood together, it will be acceptable. Any type of glue may be used.

**Is there a drawing or design program that is preferred to create our plans?**

Software is not required to create drawings. Drawings may be drawn to scale by hand using drafting tools such as straight edges, triangles and compasses. There are also many drawing, design and testing software packages available. NCDOT does not endorse any particular software, because it does not know what resources or technical support are available at any given school.

**REMEMBER: The goal of the drawing is for an engineer to be able to build your bridge from that drawing.**

## **DESIGN/PRODUCT QUESTIONS**

**Is a 10-pound container used as a basis for the weight held up to be 20 kilograms?**

The bridge must carry an initial load consisting of a container and the testing hardware. Dry sand will then be added slowly and carefully to the container.

**May we paint our bridge? May we use wood laminate?**

Painting is not allowed, since it could provide some structural benefit. Laminated members are not allowed.

**Can we notch the wood?**

Yes, the wood can be notched.

## **REPORT QUESTIONS**

**Can PowerPoint be used in the presentation?**

PowerPoint presentations are not required, but if you choose to use one, it may only be used at the Bridge Building Competition Finals. Any slides supporting the presentation must be in Microsoft PowerPoint. Remember, the total presentation may not exceed 7 minutes including setup and breakdown.

Please send by the specified date your PowerPoint presentation, along with a PDF of your report and drawings to Sterling Johnson in NCDOT's Human Resources/Talent Management Section.

**For the two-page report, do you want a bibliography? Also, are footnotes required?**

No, since this was not specified in the competition guidelines, the inclusion or exclusion of a bibliography and footnotes is up to the individual teacher. It will not be a part of the judging requirements.