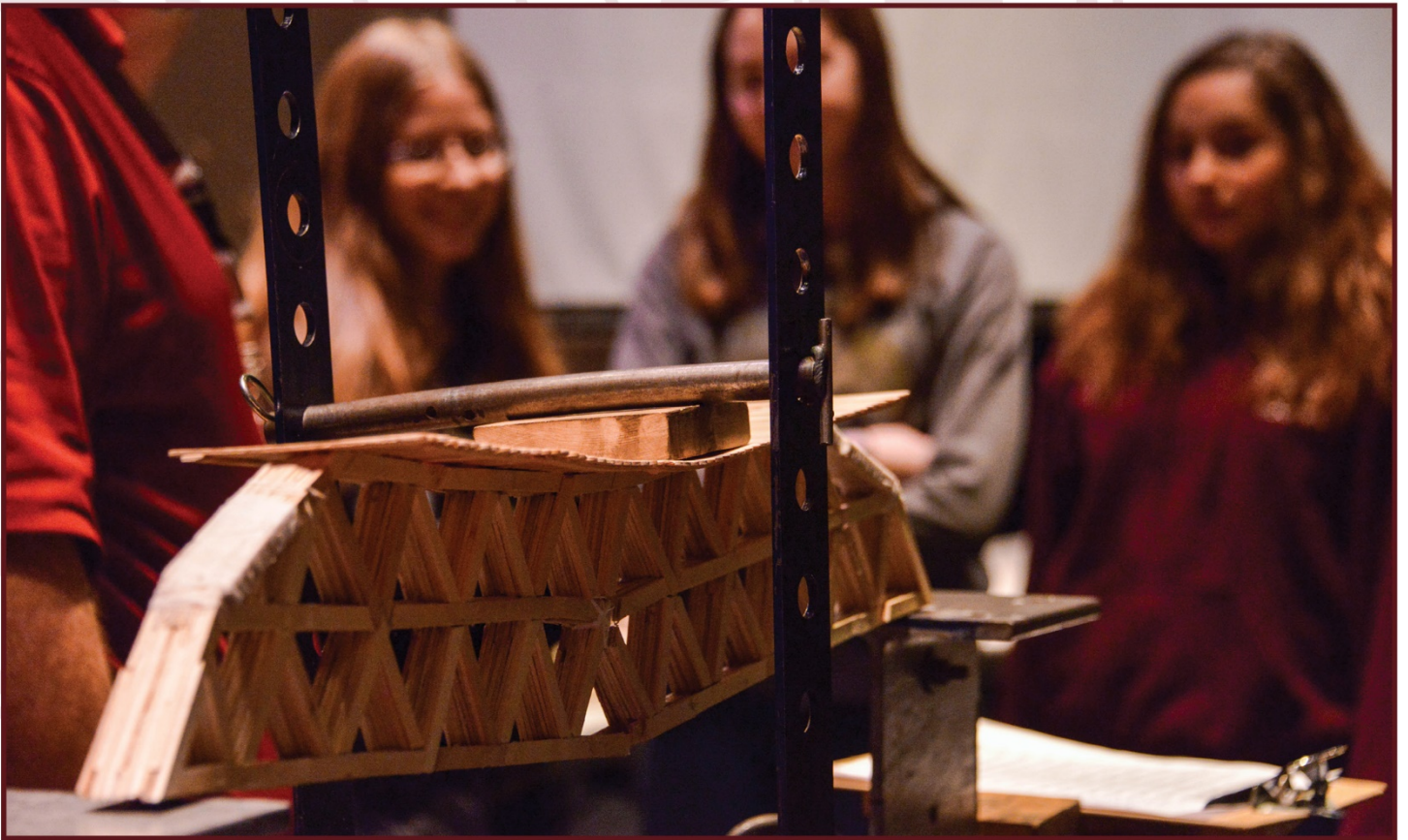


# 19<sup>th</sup> Annual Lyndon Institute Bridge Building Competition



**Saturday, March 21<sup>st</sup>, 2020  
8:00 a.m. Alumni Auditorium**

**Lyndon**  
I N S T I T U T E



## ENGINEERING DEPARTMENT

### BRIDGE BUILDING COMPETITION RULES

**ELIGIBILITY:** All 7<sup>th</sup> and 8<sup>th</sup> grade elementary school age students in the surrounding towns of Lyndon Institute

**REGISTRATION:**

Fill out the included registration form for each team and **return it by March 13, 2020** to:

Lyndon Institute  
Attention: Chad Simpson  
P.O. Box 127  
Lyndon Center, VT 05850  
Chad Simpson: (P)802-535-3641/(F)802-535-3702/[chad.simpson@lyndoninstitute.org](mailto:chad.simpson@lyndoninstitute.org)

**MATERIALS PERMITTED:**

1. Regular Wooden Popsicle sticks (3/8" x 4 1/2")
2. Elmer's White Glue (no Elmer's Glue glue sticks)
3. Wooden Toothpicks (Non-Colored)
4. Dental Floss

**DESIGN REQUIREMENTS:** To avoid disqualification, the following specifications must be met

1. The unsupported span length is 30 inches. The bridge must be a minimum of 32 inches to be placed on the testing apparatus. **Nothing can extend between the abutments on the bridge breaker.**
2. The minimum operating (clear) width of the bridge deck must be 4 1/2". The road deck must be smooth enough to drive a model car across.
3. The maximum outside width of the bridge at any point must be less than 150mm or 5.9 inches so it can fit in the testing apparatus.
4. **The Total Maximum Height (bottom of abutment to top of structure) of the bridge must not exceed 355.6 mm or 14.0 inches.**
5. Bridges must be entirely built prior to being turned in the day before the competition so that they may be judged on aesthetics, workmanship, Originality of Design, and of course checked to meet specifications. Bridges must be delivered on or before **Friday, March 20, 2020**. Please contact me for a time and place of drop off.
6. The maximum Bridge weight is limited to 3kg or 6.6 lbs.
7. Any teams with unapproved materials used in their construction, or not meeting specifications will be disqualified.

**BRIDGE EVALUATIONS:** Awards will be presented for the following:

**(1<sup>st</sup>) Maximum Strength**

**(1<sup>st</sup>) Resistance Factor**

**(1<sup>st</sup>) Most Spectacular Failure**

**(1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>) Overall Best Bridge**

**(1<sup>st</sup>) Workmanship**

**(1<sup>st</sup>) Originality of Bridge Design**

Overall Best Bridge will be scored as follows:

Resistance Factor 50%

Workmanship 20%

Originality 30%

1. Resistance Factor is calculated by the ultimate failure load divided by the square of the dead weight of the bridge.

$$\text{Resistance Factor} = \frac{\text{Ultimate Failure Load}}{(\text{Dead Weight of Bridge})^2}$$

2. The capacity of the bridge will be evaluated by a load applied at the midspan where a bar is placed perpendicular to the bridge deck on a 90mm (3.54”) x 90mm (3.54”) long platform.
3. The bridge is considered to have failed when the vertical deflection at the midspan exceeds 50mm (2”) or it collapses.
4. Workmanship and Originality of the design will be judged before the resistance factor testing.
5. A bonus of 10% (added to the Ultimate Failure Load) will be awarded for the load prediction with an accuracy of +/-5% of the actual failure load.



**BRIDGE BUILDING COMPETITION  
OFFICIAL ENTRY FORM**

***PLEASE RETURN BY MARCH 13<sup>th</sup> (EMAIL/FAK/USPS)***

**SCHOOL NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

City

State

Zip

**TEAM NAME:** \_\_\_\_\_

**TEAM MEMBERS: (2-4 members)**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

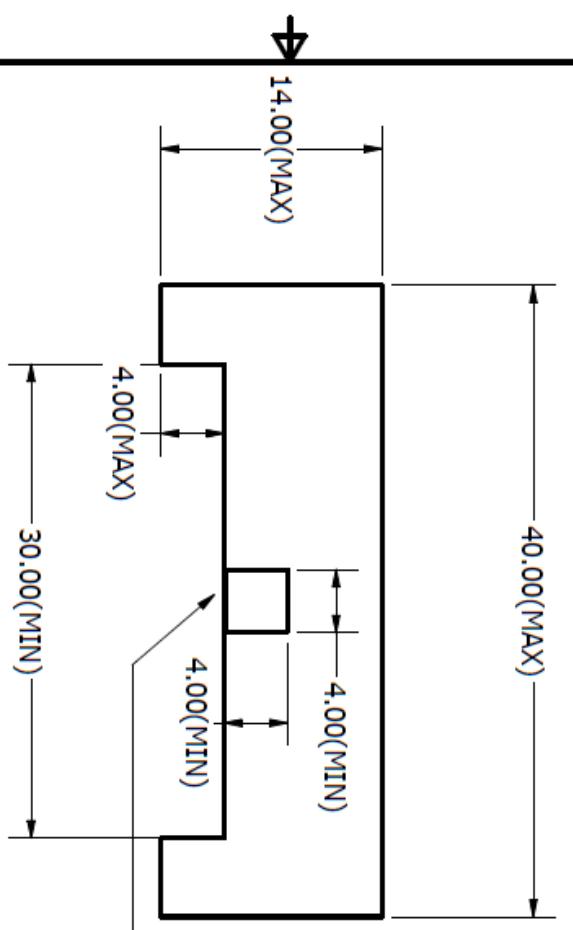
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**TEAM ADVISOR:** \_\_\_\_\_

Name of Teacher, Parent, Administrator, etc.)

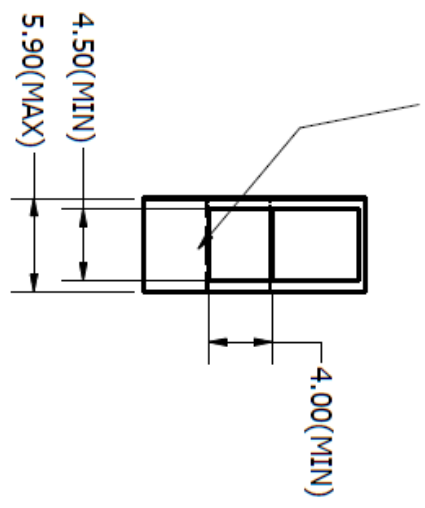
2 1

B A



OPENING FOR CAR TO DRIVE THROUGH

OPENING TO APPLY LOAD



ALL DIMENSIONS ARE IN INCHES. IT IS RECOMMENDED THAT YOUR BRIDGE BE A MINIMUM OF 32" LONG.

2 1

A B