

Truss Bust - The Balsa Wood Bridge Contest

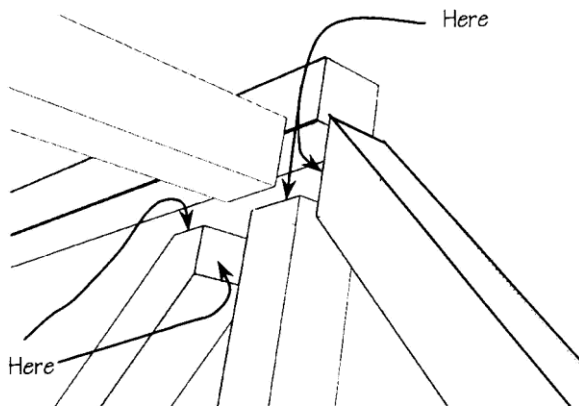
1. Materials

- Two (2) 1/4" by 1/4" by 36" balsawood
- Two (2) 1/4" by 1/2" by 36" balsawood
- Two (2) 1/4" by 1" by 36" balsawood
- Elmer's Glue (white glue)

Only one bridge may be constructed from each set of materials.

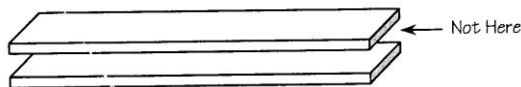
2. Construction Rules

- The only materials allowed for construction is the balsawood listed in section 1.
- Glue may only be applied at the joints of members. This means that no glue should be applied over the joints.
- There may be no lamination at joints.

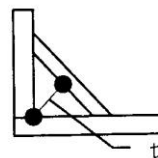
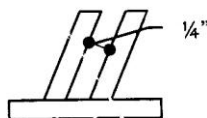
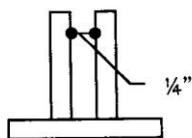


- Any glued area A, must meet the requirement of, A not being much greater than 1/4 in². This applies for any spot where glue is applied.

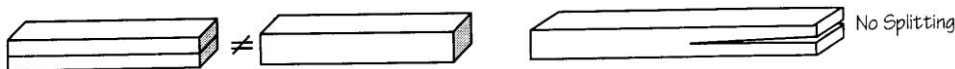
- No lamination is allowed. Lamination is strictly prohibited.



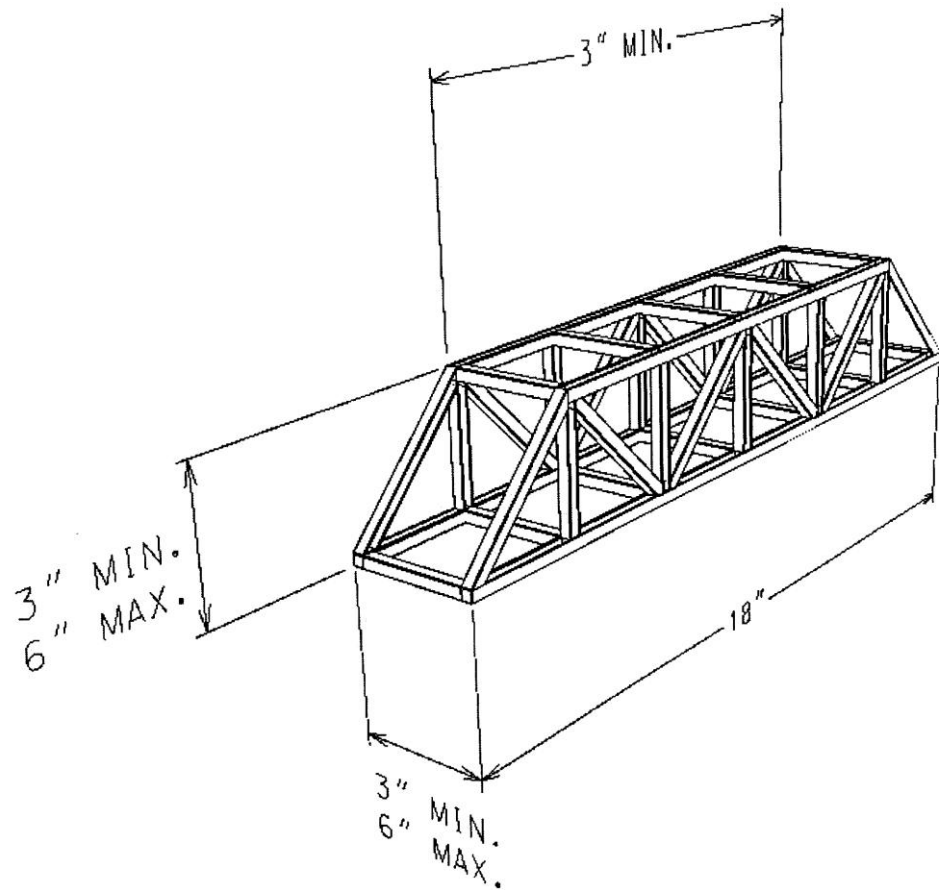
- All parallel braces must have a 1/4" spacing. Corner bracing with $t < l$ (see below) is not allowed.



- No t
- No member can be cut lengthwise to make a more slender member. Only lengths may be altered.

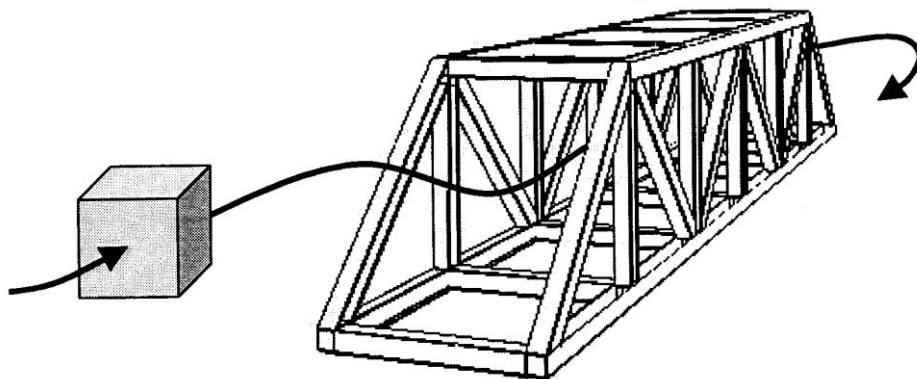


The overall dimensions of the bridge shall be as follows:



Due to varying cutting procedures, a maximum of 1/8" leeway will be allowed for any of the three dimensions.

- The top portion of the bridge must have a minimum length of 3" and must be parallel to the bottom of the bridge. Due to loading procedures, all bridges must meet these criteria.
- A 2" square block must be able to pass through the bridge.

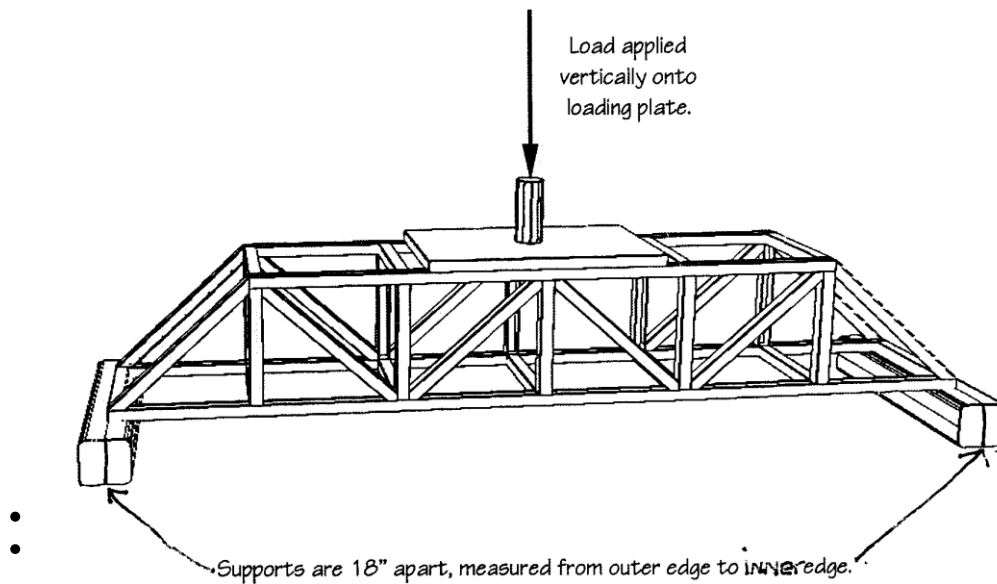


3. Grounds for Disqualification

- Failure to comply with any of the previously mentioned construction rules is reason for disqualification.
- No bridge modifications will be allowed after the bridge has been submitted for testing. This includes removing members, adding members, modifications to the length, height, or width of the bridge. Each school should inspect their bridge according to construction rules prior to submitting it.
- Use of glue other than the glue noted in section 1.
- Use of wood other than the balsa wood listed in section 1.
- Disqualified bridges will be marked and labeled with reason for disqualifications. All decisions made by judges are final.

4. Testing Procedures

- Bridges will be loaded vertically as shown.



- Winners will be selected on the basis of highest efficiency ratio:

$$\text{Efficiency ratio} = \frac{\text{Ultimate load capacity to nearest pound}}{\text{Weight of bridge to nearest 0.1 pound}}$$