



Middle School Tower Design 2016

Event Coordinator:

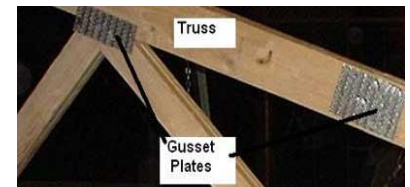
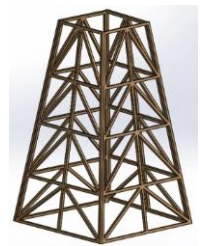
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Description:

Build a wood tower out of $\frac{1}{8}$ " or smaller material. This tower will be tested using a single point testing apparatus to failure. (see ex. Picture below) Maximum of 3 towers per school.

Rules:

- **Tower must be constructed with $\frac{1}{8}$ " or smaller solid wood material.**
- No plywood, particle board, laminated wood of any type will be accepted. Only solid wood. Common acceptable examples are basswood strips, balsa strips, hardwood strips.
- **Size Requirements -**
 - Tower must be a minimum of 15" tall (height) in order to be tested.
 - There is no maximum on tower width (left to right) and depth (front to back) for the tower to be tested.
 - The tower must not have anything obstructing the center of the interior. A chain that is attached to the top testing block will be dropped through the center of the tower to support the weight below. The opening for the chain needs to be 1". Please see example picture below.
 - The minimum opening throughout the center of the entire tower is 1" x 1".
 - No plywood, particle board, laminated wood of any type will be accepted. Only solid wood.
- **Glueing -**
 - Any type of glue will be allowed in tower construction!
 - Glue should only be in or surrounding the joints. This will only add more weight to the tower and not strength if glue is running all over. It will also make it look unattractive.
- **Joints -**
 - Gusset plates are allowed in tower construction. This is a real life appropriate use of gusset plates.
 - Gusset plates can not cover the entire side of the tower. This would not be a typical use.
 - Gusset plates can be made from any type of paper or paper card stock material and attached with glue.
- **NO ON SITE CHANGES TO ANY TOWER WILL BE ALLOWED**
 - Any changes to towers after they arrive for check in will result in automatic disqualification.
- **Testing Requirements (see picture below):**
 - All members must wear safety glasses during testing.
 - All towers must be weighed in at the beginning of the competition.





- Tower will be tested to failure.
- Towers will sit on a 16" X 18" base with a hole in the center and a 5"x 5" block and chain will sit on top of the tower to support a bucket to which weight will be added.
- For a weight to be counted, the tower must support it for 3 seconds.
- Tower winners will be based purely on structural efficiency of design.
- Structural Efficiency = Load supported (grams or lbs.)/Mass of tower (grams or lbs.)

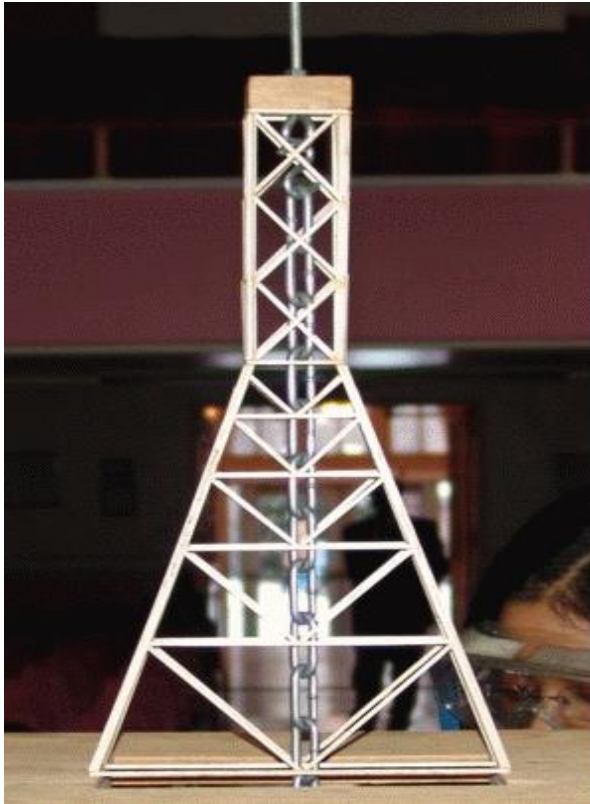


DIAGRAM OF
COMMON USE
OF A GUSSET
PLATE

