

PHYSICS Balsa Bridge Building Contest

Rules and Regulations

Construction Restrictions

1. Materials used in the construction of the bridge shall consist only of **commercially available rectangular balsa stock and glue**.
2. The total mass of the bridge plus glue must not exceed **100.0 g**.
3. The bridge shall contain **no element wider than 1.0 cm (3/8 ") nor thicker than 0.65 cm (1/4 ")**. Two or more elements, each separately meeting this requirement, may be laminated together to construct members exceeding these dimensions.
4. The bridge shall be "free standing".
5. An approximately level "roadway", of **minimum length 40.0 cm**, shall be provided. This roadway shall have a **minimum width of 5.0 cm** and shall allow a 5.0cm cube to pass freely along its extent.
6. No fastening mechanism except mechanical interlock of the balsa pieces or commercial glue is permitted.
7. The bridge design shall allow the **standard test frame** to be placed on the roadway surface with the load support rod extending below the bridge base.

Bridge Testing

1. The bridge pedestals shall be placed on level surfaces separated by approximately 35 cm. These surfaces shall be level with respect to each other.
2. The standard test frame will be placed on the roadway over the centre of the bridge span. Depending on the bridge design, the load applied to the bridge shall be suspended from a single 1/2 " diameter rod placed in the centre slot of the test frame.
3. A container shall be suspended from the load-supporting frame. To this container (which may be pre-weighted with steel weights as warranted in the opinion of the judge(s)), **dry sand and/or steel weights shall be added at a slow, steady rate, until either an audible cracking sound together with visual evidence indicates the failure of some structural member or glue joint of the bridge, or until a suitable reference point on the roadway at the centre of the span has been lowered by more than 5.0 cm**. A competitor may not participate in the addition of weight to his/her own bridge. **All decisions of the judge(s) are final**.
4. The total mass of the test frame, container, hanging devices and container contents, divided by the mass of the bridge, will be recorded as the competitor's score.