

2025 Korea Regional Bridge Building Contest Rules and Specifications

These rules and specifications have been designed by the Korea Regional Coordination Committee based on the official rules for the 2025 International Bridge Building Contest.

For more information about the Korean regional contest visit our website, www.trinityengedu.com, or our YouTube channel, www.youtube.com/@IBBCKorea. For information about the international contest, visit <http://bridgecontest.phys.iit.edu>. For any further enquiries, please contact mark.ancliff@trinityengedu.com.

This is a contest for individual high school students, not teams. The object of this contest is to see who can design, construct and test the most efficient bridge within the specifications. Model bridges are intended to be simplified versions of real-world bridges, which are designed to permit a load to travel across the entire bridge. In order to simplify the model bridge design process, the number of loading positions is reduced, and to allow the contest to proceed in a reasonable amount of time, only one loading position is actually tested. These simplifications do not negate the requirement that the bridge must be designed to accept a load at any of the positions. Bridges determined by the judges to not meet this requirement will be disqualified and tested as unofficial bridges.

The top two placed students will receive and invitation to attend the 2025 International Bridge Building Contest in Chicago, Illinois, USA, on Saturday, April 26th, 2025.

1. Materials

- a. The bridge must be constructed only from 2.5 mm square cross-section basswood (available in the kits provided).
- b. Any commonly available adhesive may be used.
- c. The basswood may be notched, cut or sanded in any manner but must still be identifiable as the original basswood.
- d. No other materials may be used. The bridge may not be stained, painted or coated in any fashion with any foreign substance.

2. Construction

- a. The bridge mass shall be no greater than 25.00 grams.
- b. The bridge (see **Figure 1**) must span a gap (**S**) of 300. mm, be no longer (**L**) than 400. mm, no wider (**W**) than 80. mm, and no taller (**H**) than 100. mm above the

- support surfaces. The bridge structure must extend below the support surfaces (**B**) by no more than 10. mm.
- c. The bridge must contain an "arch-type" structure which starts below the main support plane (see Figure 1) and spans between the supports. An arch uses curved members for its main load carrying members. For this contest, the arch shall be composed of either curved members or two or more straight segments arranged to approximate an A-frame or a multi-segmented frame. The arch element must make contact with the vertical faces of both support surfaces and may extend above the support surfaces in the center of the span.
- d. The loading plane shall be horizontal and shall lie a distance (**P**) between 10. mm and 100. mm above the support surfaces.

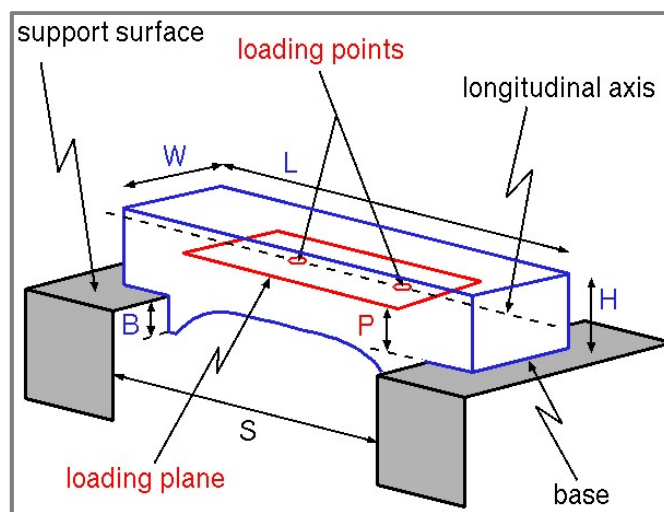


Figure 1

- e. The bridge must be constructed to provide for the loading plate (see section 3 below) at each of the two loading points, 20. mm and 40. mm on either side of the center of the 300. mm span along the longitudinal axis of the bridge.

3. Loading

- a. The load will be applied downward, from below, by means of a 40. mm square plate (see **Figure 2**). The thickness of the plate will be less than 13. mm and will have a 10. mm diameter threaded rod eyebolt attached from below at its center with a standard hex nut. The plate will be horizontal with two sides parallel to the longitudinal axis of the

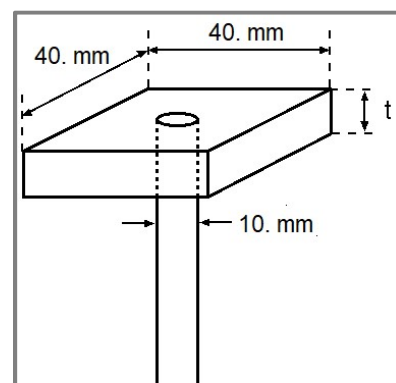


Figure 2

bridge.

- b. The load will be applied on the longitudinal axis of the bridge at one of two loading points: 20. mm and 40. mm on either side of the center of the 300. mm span.
- c. On the day of the competition, the judges will randomly decide which of the two loading positions will be used; it will be the same for all bridges.

4. Testing

- a. On the day of the competition, contestants will center their bridge on the support surfaces, adjusting them to ensure contact with the downward projecting portions of the bridge.
- b. The loading plate will be placed from above on the threaded rod with two sides parallel to the longitudinal axis of the bridge and secured with a hex nut.
- c. The load will be applied from below until the bridge fails (see 4.d.). Competition loading will stop at 50. kg.
- d. Bridge failure is defined as the inability of the structure to carry additional load. If a bridge has leg(s) which fail, the bridge will have failed regardless of whether it can still support a weight.
- e. The bridge with the highest structural efficiency, ***E***, will be declared the winner. Bridges failing above 50. kg will be considered to have held 50. kg for efficiency calculation.

$$E = \text{Load supported in grams (50,000g maximum)} / \text{Mass of bridge in grams}$$

5. Qualification

- a. All construction and material requirements will be checked prior to testing. Bridges failing to meet these requirements will be disqualified. If physically possible, disqualified bridges may be tested as exhibition bridges at the discretion of the builder and the contest directors.
- b. If, during testing, a condition becomes apparent (i.e., use of ineligible materials, inability to support the loading plate, bridge optimized for a single loading point, etc.) which is a violation of the rules or prevents testing as described above in Section 4, that bridge shall be disqualified.
- c. Entrants of the bridges with the two highest structural efficiencies (as calculated in 4.e.) will be eligible to compete in the international competition.
- d. The decisions of the judges are final.