



26TH Annual ASCE Bridge Contest

It's time to test your imagination and your technical skill! The Illinois Valley Branch of the American Society of Civil Engineers is sponsoring the 26th Annual Bridge Contest.

The important information

Preregistration Deadline
Wednesday, February 1, 2017

Bridge drop off
Where: Peoria Riverfront Museum
Date: Saturday, Feb. 18, 2017
Time: 10 a.m. to 12 noon

Loading Contest and Awards
Where: Peoria Riverfront Museum
Date: Sunday, Feb. 19, 2017
Time: 1:30 p.m.

Peoria Riverfront Museum
222 S.W. Washington St.
Peoria, Illinois, 61602

Prizes

- 1st Prize: \$100
- 2nd Prize: \$50
- 3rd Prize: \$30
- 4th Prize: \$25
- 5th Prize: \$20



THE OBJECTIVE:

Design and construct a bridge using standard 3" x 5" (176 mm x 127mm) index cards. The winning team will be judged based on team participation, conformance to the design and construction requirements, a written report, and finally, the performance of the bridge under a dead load.

ELIGIBILITY:

Students must meet the following requirements:

- 1) Currently in the 6th, 7th, or 8th grade.
- 2) Attend a school from the following counties of Illinois:
Fulton, Hancock, Henderson, Livingston, Marshall, Mason, McDonough, McLean, Peoria, Stark, Tazewell, Warren, and Woodford
- 3) Teams may consist of up to four (4) students, with each student working on one team only.

If you have questions about the contest or if your school would like to be contacted by ASCE concerning career guidance information or a speaker to visit your class, please contact:

Keith Plavec
Bridge Contest Coordinator
Maurer-Stutz, Inc.
3116 N. Dries Lane
Suite 100
Peoria, IL 61604
Ph: 309-693-7615
kjplavec@mstutz.com

Curtis Lynn
Education/Speaker Info
Maurer-Stutz, Inc.
3116 N. Dries Lane
Suite 100
Peoria, IL 61604
Ph: 309-693-7615
cjlynn@mstutz.com

Civil engineering is a team effort! Students are encouraged to work in groups. There is a maximum entry of one bridge per team. A pre-registration form and \$10 per team entry fee (non-refundable) is required by the deadline in order to participate in the contest. If a school does not choose to officially participate, students are permitted by ASCE to enter as individuals or teams.



Materials:

Only the following items are acceptable:

- Index Cards – 3” x 5” (76mm x 127mm)
- Glue – only school glue “Elmer’s Brand” or similar brand
- Tape – only “Scotch Tape” or similar brand tape – standard ½” or ¾” wide transparent tape
- Markers, crayons, and colored pencils are permitted for creativity but NO PAINT will be permitted.

Construction:

- Three (3) cards maximum may be layered directly together when forming members or components. IMPORTANT! All folded, closed shape members must be able to be examined visually. A paper punch size hole would be adequate for judges to check layer thickness and construction of closed members
- Where layered members meet at a connection, the sum of all layers may exceed three (3) at the connection only.
- It is not permissible to coat or cover a large area of any surface or edge, of layered or single card bridge members, with tape or glue. Tape and glue must not be a major contributor to the strength of a member but rather act only as an aid in maintaining the member’s shape.
- Tape and glue may be used to provide strength at the connections of members by coating or covering. Bridges will not be awarded full points if the judges determine the connections are of such a size as to provide strength as a member rather than just a connection of members.
- Rolled members may not exceed three layers to the center of the roll.
- Cards may be cut, bent, rolled, etc., to form members of the bridge making use of the above materials only.



Judging:

TEAM (10 POINTS MAXIMUM)

- Group participation is encouraged and awarded with 2.5 points per participant up to a maximum of four (4) participants

BRIDGE CONSTRUCTION (25 POINTS MAXIMUM)

- Conformance to the material and member formation requirements
- Conformance to dimension requirements (length, width, and height)
- Efficient use of members to achieve structural strength
- Feasibility of construction if actual bridge were built
- Sufficient and clearly designated passageway and loading area with pen, pencil, or marker

AESTHETICS (15 POINTS MAXIMUM)



- Pleasing lines and continuity of structure
- Drivability of bridge
- Uniformity, ingenuity, and originality

REPORT (20 POINTS MAXIMUM)

- A brief written report on the planning, design concepts, cost, materials, sketches, resources on bridges, and overall completeness of the report. There is a two page maximum, with sketches and the cover sheet not included.

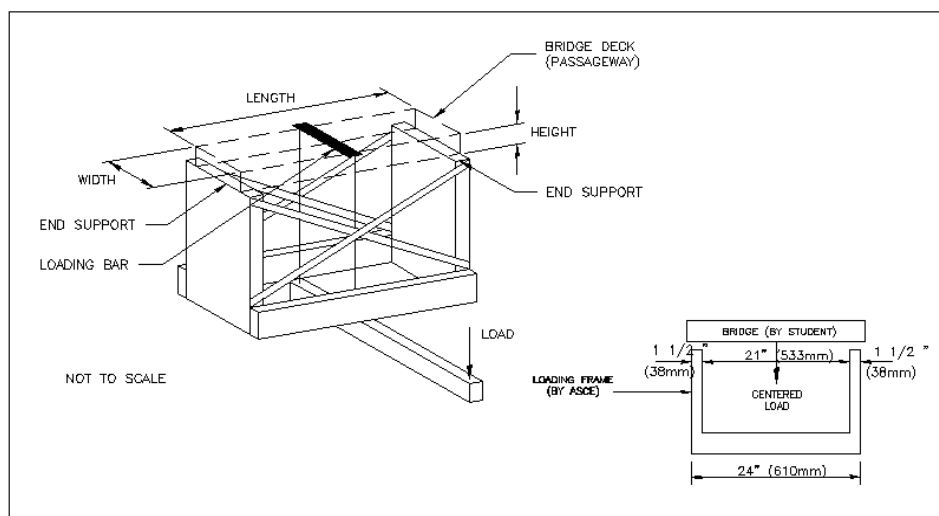
PERFORMANCE (30 POINTS MAXIMUM)

- Loading scores will be based on a 30 point maximum, escalating curve based on the ratio of load carried to bridge weight that an individual entry attains. Remember that it is the ratio that is scored and not the total load carried. Efficient use of material (i.e. minimizing weight) is rewarded. By cutting the bridge weight in half you would double your ratio!! (ratio = load/weight)
- Bridges will be loaded to failure or the point of deflection deemed to be intolerable by the judges.
- Judges will be civil and structural engineers familiar with bridges. Greatest cumulative maximum points will win the competition. In the case of a tie in overall scoring, the bridge with the greater load to weight ration will be declared the winner.



Sizing and Loading:

- Exact construction within the dimensions permitted will receive full points. Remember, bridges that are too short will not fit properly on the loading machine and **cannot be tested!**
- Overall Length: 24" (610mm) minimum - 27" (686mm) maximum
- Overall Width: 3" (75mm) minimum - 4.5" (114mm) maximum
- Overall Height (or Depth): 8" (203mm) maximum
- Bridge must be constructed such that the load bearing points of the bridge rest on the end supports of the loading frame.
- The bridge must be a freestanding structure.
- Solid, one-piece construction will not be allowed. Bridge cannot be a solid beam or a block, but must consist of beams or group of beams at a minimum.
- Bridge shall be constructed so that a 1" (25mm) wide loading bar (approx. 1/4" (6mm) in thickness) may be placed across the bridge width (bridge's short dimension) on the designated pathway at the midspan of the structure



Please Note: Bridges cannot be returned unless the contestant is present after the loading competition on Sunday, February 19, 2017. Prizes will be awarded to winners regardless of attendance on Sunday, February 19, 2017. Judge's decisions will be considered final.