Construction City

Bridge Builder Division

Introductions & Attendance

1. Introductions & Sign-up List
2. Event Overview & Schedule
3. Rules Presentation
4. Bridge Design Sheet
5. Construction Hints
6. Help Needed

Construction City – Bridge Builder Div.

1. Team Size: 4 to 9 scouts (5/6 is ideal number)
2. 5th grade Scouts = Arrow of Light Scouts
3. Adult participation/help is absolutely necessary (2/3 is ideal)

Schedule of Event (times are approximate)

- 7:30am : Check-in/Registration
- 7:45am : Instructional Session
- 8:15am : Teams break-out for design/planning
- 8:45am : Commissioner Approval & Begin Work
- 9:00am : Opening Ceremony
- 11:30am : Lunch
- 12:00pm : Completed bridges are weighed & tested
- 12:30pm : Clean-up, Closing Ceremony & Awards

Rules Review

1. Four (4) to Nine (9) scouts with a minimum of 2 adult partners
2. Design must be submitted & approved by Bridge Commissioner
3. Approved plans kept on site for review by site inspector(s)
4. Major design changes will require a “variance” from Bridge Commissioner

Rules Review (cont.)

5. Bridges can only be built with the supplied materials.
   a) Twelve (12) rolls of Bridge Builder tape
   b) Decorations/coloring are permitted using poster board, construction paper, etc. (No Mess materials)
   c) No knives, razor blades, exacto knives, etc. *Only provided hacksaw blades to be used!*
6. Bridge Dimensions
   a) Built within the marked out areas on the floor
   b) Maximum of 4’ wide and 5’ tall – minimum span (length) is 14’
   c) Test structure support points are 12’ apart
   d) No portion of the bridge can extend below the support points

Rules Review (cont.)

7. Each bridge must have provision for two – 12” wide x 12” high travel lanes
   a) Single 24” wide lane or 2-12” lanes
   b) Lanes may not slope more than 12” over the length of the bridge
   c) Lanes must have a minimum of 18” of structure above them and stay within 5’ height limit
8. Laminated members may not exceed 1” in total thickness – multiple laminated members must be spaced at an 8:1 ratio of spacing to depth

Rules Review (cont.)

9. Provision for load testing beam
   a) 6” x 6” square opening completely through entire width
   b) Bottom of hole shall be flush with the lowest travel lane
10. Load Testing
   a) Bridges placed on test structure and weighed
   b) Load applied until failure
      i. Bridge collapse | 12” deflection | “Unsafe for public transportation”
   c) Award certificates given based on load capacity to weight ratio (Expert, Deluxe & Designer) and Most Creative, Most Realistic, Best Decorated
   d) The key to winning the load testing competition is not maximum load but highest ratio

Bridge Design Sheet

1. Draw to scale
2. Two (2) required views
3. Scouts should be able to explain their design
4. Approved stamp

Construction Hints

1. Bridge Types
   a) Beam Bridge
   b) Arch
   c) Truss
   d) Cable Stay
   e) Suspension
2. Long sections
3. Past successful bridge designs – Keep it Simple!
4. Remember your time constraint – plan your team member roles!

Help Needed

1. Bridge Commissioners (2)
2. Recorder (1)
3. Tape/Hacksaw Distributor (1)
4. Help Setting Up – Friday, November 22, 2:00-6:00 (adults)

QUESTIONS