

Frequently Asked Questions

1. ***“If our team proposals are determined to be complete by the judges, you will be invited to the 2010 Bridge Challenge.” Are there any costs from the local district associated with the schools participation in this competition?***

Each three member team with one advisor/chaperone will receive mileage reimbursement for one vehicle based upon the State of Michigan Mileage Reimbursement Rate. This rate is currently at 0.362 per mile. If you decide to travel with two teams plus chaperones in a larger vehicle, the reimbursement rate is currently at 0.50 per mile. If you have several teams coming to the Challenge in a bus, please contact Jan Pohl at 517-373-9571 to discuss reimbursement rates.

Breakfast and lunch on the day of competition will be provided at the hotel. No other meals will be provided or reimbursed.

Each three member team with one advisor/chaperone will be allowed two overnight rooms at the Raddison in Lansing. You must reserve the rooms with your own credit card. Upon check-in, the overnight charges for these rooms will be transferred to MDOT's bill for payment.

2. ***Can you coat the string in glue?***

No, this is considered laminating.

3. ***Can pieces be glued on the edge of one piece to the side of the other (typically popsicle sticks to balsa wood)?***

Yes. At the joints, more than one layer may be required. These joints may not exceed ½ inch in thickness. A multi-layered joint may not exceed one-half inch in length.

4. ***What should the width of the road for the suspension bridge be? We are unsure whether to make the dimensions compatible for a car that is one inch by one inch, or for a car that is 2 inches wide by one inch tall.***

The width of the road must be wide enough to accommodate a car that is 2 inches wide x 1 inch tall.

5. *Can the base of the towers be wider than an inch and three quarters? We understand that the base of the towers must rest on the platform between the square columns. And from what we concur, based on the pitsco bridge tester dimensions, the width of that platform is only one and three quarters. Is that correct or is the platform wider than that?*

The width of your columns can be any dimension that you feel will give you strength during the testing process. The base of the towers must be designed in a way that they will sit on the surface of the testing pads. The top of the testing pads are the only place where the bridge may come into contact with the Pitsco tester.

6. *Does 12 inch span mean the opening of the bridge must raise or swing open 12 inches?*

No, the length of the moving span must be a minimum of 12 inches. However, when the bridge is in the open position, a 2 inches wide x 4 inches tall block of wood (car) must be able to pass under the bridge.

7. *Are there any limitations on how we use and attach the gears?*

There are no limits on how many gears you can use from the kit. To attach the gears, you must use the items that are in the kit. If the hole in the gear is too small, you may enlarge it.

8. *Is there a minimum or maximum width of the bridge?*

No, there is not a maximum width, but please keep in mind, the "column" that the bridge sits on while being tested is 4.5 inches wide. The only width requirement is: A car that is 2 inches wide by 1 inch tall must be able to drive across the bridge while the bridge is closed.

9. *Can the suspension bridge be a cable-stayed design or strictly suspension?*

Yes, it can be cable stayed.

10. *The guidelines say we are limited to the supplies in the Challenge bridge kits. Are we limited to the amount in the Challenge bridge kits? Can we purchase more of the identical popsicle sticks, or can we only use the amount given?*

You are limited to the amount in the bridge kit. You cannot add more items to the bridge kits. You can purchase more supplies to build a test bridge.

11. I have not been able to get Model Smart to incorporate a cable or arched wood (only straight lengths). Is this possible? Or do you know of another testing program that can be used for the groups building the suspension bridges?

By using Joint-Move, you can "arch" the bridge. They merely show how results of first using Member-Add and then using Joint-Move. The joint move option creates more joints than a typical arch would create and may not test out as strong using model smart.

12. Can the students drill bigger holes in the gears, so there is less sanding of the dowel?

Yes, it is your choice if you want to drill or sand - either way is fine

13. If someone has designed their bridge but not built it yet, would they be able to put much into these tables other than the bridge member information? If they have not tested it yet and therefore have no calculations, is it acceptable to insert into the proposal that "data will be forthcoming following future testing?"

If model smart is used, they could make a table of design vs. breaking load. The table would consist of a main design, then simple modifications and how the modifications affect the breaking load. The different types of designs vs. the different breaking loads could be used to create a table. A table could be as simple as time spent vs. progress, ie.; planning stage 6 hours - 5% progress of entire project, Design stage 30 hours - 35% progress. I can think of several variations that would work. The students need to be creative. Calculations should be done prior to building the bridge. These calculations must be included in the proposal.

14. Does the 12 inch maximum height of the Drawbridge include the moveable leaf in its open position?

The 12 inch max. height would be in the closed position.

15. I need to know what size hole we should allow in our drawbridge?

The hole should be 5/8 inches or larger.

16. "Maximum clearance underneath the bridge may be no more than 2 inches when the bridge is in the closed position." That would mean the bridge structure must hang below the tops of the 3.25 inches tall support columns. Are you sure 2 inches is not the minimum clearance under the closed drawbridge?

Two inches is correct. The bridge is tested with a 2 inch x 4 inch block while the drawbridge is in an open position.

17. Are we allowed to use double members – like what is shown in the ModelSmart booklet on page 7-9?

According to our rules, you cannot use double members.

18. At the joints, the balsa wood may need to be more than one layer thick. These joints may not be more than 1/8 inch thick. If we are using 1/8 inch balsa wood, how can this be?

The balsa wood used to construct each bridge must be only one layer thick. At the joints, more than one layer may be required. Joints may not exceed one-half inch in thickness. A multi-layered joint may not exceed one-half inch in length.

19. Is the entire bridge including the suspension component being tested, or is it only the roadbed being tested?

The load block does sit on the deck of the bridge, but the bridge itself is considered to be one complete component - the entire bridge is placed on the testing device.

20. On the single leaf bascule type bridge, is the clearance under the bridge measured at the center of the lifting portion of the bridge or at the tip of the lifting portion?

The rules say "The maximum clearance under the bridge may be no more than 2 inches when the bridge is in the closed position." There should not be any point under the bridge that exceeds 2 inches. If the 2 inches x 4 inches block that is required to go under the bridge, when the bridge is in the open position, is able to go under without touching the bridge, the bridge will be accepted.

21. When the bridge is tested for ultimate strength, do you have to place the block on the roadway deck. For example; if the bridge is set up as a drive through bridge, the three pound weight is placed on the driving deck during the float test, but during the ultimate strength test, can they place it on the top of the bridge?

When we test for the ultimate strength, we do need to put the testing block on the road - the rod that connects the block to the testing machine would not be long enough to go all the way to the top of the bridge. Make sure that the load block can be positioned over the center of the deck, and allow access for the hex nut to be secured to the rod.

22. I remember reading somewhere during the registration process that I can change group members up to a certain date, is this true? I have a few people wanting to switch teams.

You can switch team members up until March 1, 2011, but you must contact Jan Pohl at 517-373-9571 before the change can be completed.

23. Can the balsa wood be bent to make an arch, either by steam or soaking...or is this against the rules?

You can bend the balsa wood.

24. Are the floating bridges tested before or after they are in the water?

The floating bridges are tested on the Pitsco bridge tester after they are in the water.

25. What is the minimum or maximum spacing between the towers? Does the towers have to sit completely on the tester pad or can some of the tower exceed the tower pad?

The maximum spacing between the towers is limited due to the requirements that the total length of the bridge must be 15" (including towers).

The base of the towers must be designed in a way that they will sit on the surface of the testing pads. The top of the testing pads are the only place where the bridge may come into contact with the Pitsco tester. The vertical supports for the tester will be positioned 14" apart (on center).

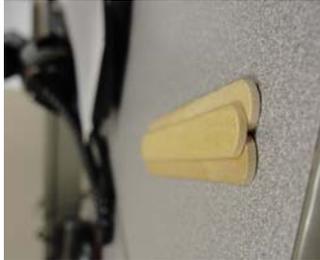
There is no requirement that says the tower base is limited to the dimensions of the tester base (tower can exceed the tester pad).

26. Are these joints acceptable or is this laminating?

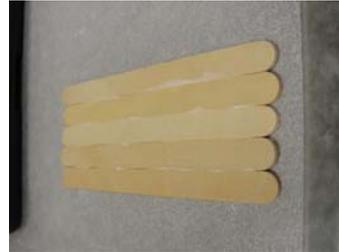
Picture A
not acceptable



Picture B
2nd view of Picture A
not acceptable



Picture C
edge to edge is not laminating. This is acceptable.



Picture D
not acceptable – greater than 1/2" of lamination



27. Does the bridge deck have to be 15"?

The bridge overall length must be 15", but the deck itself does not have to be 15".