

JUDGING CRITERIA

Bridge Building Challenge 2015

Judging Category	Category Weighting	Judging Criteria	Marking Scheme	Judges Scores (0 - 100) no decimal point	Final Category Score
			Excellent 90 to 100 Great 80 to 89 Good 70 to 79 OK 60 to 69 Insufficient 0 to 59		
Construction Technique and Quality	15%	Did the team explain in detail the design and construction process?	Judge A	0.75x15% is	
		Did the team convey an understanding of construction principles?	75		
		Did the team use technical terms to refer to the bridge, e.g. soffit, abutments, wingwalls, etc?	Judge B		11.25%
		Have beams been used effectively, e.g. I beam, laminated?	80		
		Did the team produce sketches or calculations to support their design? Were the sketches scaled to produce the final?	Judge C		
Did the team test their design? Did they build a prototype and test it? Did they make improvements accordingly?	70				
Did the team find effective solutions to any challenges that were faced?	Average	75/100 or 0.75			
Is there a good fit and finish to the final design?					
Does the design show a lot of visible excess glue?					
Creativity & Aesthetics	15%	Does the bridge have a totally random structure (award fewer points) or is it a standard design (award average number of points) or does it use a very innovative and creative design approach (award high points)?	Judge D	12.50%	
		Did the team speak enthusiastically about the design?	85		
		Did the team speak clearly and with confidence?	Judge E		
		Does the design depict paintwork or other decorations?	90		
		Does the design depict good use of shape and color?	Judge F		
Did the designer(s) use any innovative or creative techniques?	75	Average	83.3		
Engineering Analysis	30%	Did the team convey an understanding of technical knowledge?	Judge G	27.51%	
		Did the team convey an understanding of engineering principles?	90		
		Did the team convey an understanding of forces, e.g. tension and compression?	Judge H		
		Did the team explain any design decisions that were based on the efficient use of resources to meet the objectives and constraints?	95		
		Did the team consider safety aspects, e.g. hand rails, lane markings, etc.?	Judge I		
Did the team explore designs of existing bridges?	90	Average	91.7		
Strength to Mass Ratio	40%	This is a ratio calculated as follows: $\frac{\text{maximum load registered by the bridge buster before failure}}{\text{mass of the bridge}}$	45 lbs	24.00%	
		In order to earn full marks in this category, your bridge must have a strength to mass ratio of at least 100 (this means that your bridge should support 100 times its own mass). For example, if your bridge supports a load of 45 lbs and it weighs 0.75 lbs (or about 340 grams), then its ratio is 60. This strength to mass ratio is 60% of the target ratio (100), therefore your final score in this category will be 60% of 40% category weight which is 24%	0.75 lbs = 60		
			60/100= 60% of target ratio = 0.6 x 40%=		
TOTAL	100%	Take note of the penalties for rule violations listed in the "BBC 2015 Rules".		75.26%	

There will be one judging station for each of the four categories. Teams should prepare a separate 2 to 4 minute presentation for each of the four categories. Each station will have 3 judges and after they hear your presentation on the particular category, each of them will assign a score out of 100. An average of the judges scores will be used in order to calculate the final score for that particular category. Please contact Brett Chmiel at brett.chmiel@peo-mc.ca with any questions.