

Delaware Bridge Design Competition Proposal Guidelines



Refer to the Bridge Design Competition Website for Important Dates

Proposals Received after the Deadline will not be Accepted

Proposals are **30% (Middle School) 20% (High School)** of the Total Score

Proposal Specifications: The following information offers a detailed explanation of the Proposal Rubric. The rubric can be found at the end of this document and is a helpful guide to follow while formulating the proposal. Judges will use this rubric to evaluate and score each team's report. Reports should be well thought out and provide substantial information on the design process. **Plagiarism will not be tolerated.** All work submitted must be original. Any form of plagiarism, including the use of AI, will result in disqualification.

1. **Proposal Format:** The written proposal should be typed, double-spaced using size 12 Times New Roman font on 8.5 x 11 paper with all pages numbered, and 1-inch margins all around. Additional points are given for the following: style and presentation (sheet border, headers and/or footers, section titles, etc.), mechanics (spelling, grammar, formatting, etc.), and visuals (colors, clarity of provided graphics, photos, charts, etc.). Sections must be labeled and in order of the outline below.
 - a) **Title Page:** Include name of competition, type of bridge, team name, team logo (each team must have a unique logo), name of the school or organization, names of students, name of teacher or advisor.
 - b) **Table of Contents:** Provide a table of contents that highlights each section in the report.
 - c) **Abstract:** Clearly and concisely stated. (At least one (1) paragraph, no more than two (2) paragraphs).
 - d) **Introduction to Team:** Indicate the team's name, team members as well as the background of each member (At least one (1) paragraph per member).
 - a) **Project Objective** – Teams must carefully evaluate the competition guidelines and write a one (1) to two (2) paragraph summary outlining what is required of them for the Delaware Bridge Design Competition. This summary should highlight the key components, including the design and construction of the specified bridge type using balsa wood, the importance of achieving a strong strength-to-weight ratio, and the need to submit a

proposal and CAD drawings before the event. Understanding these requirements is essential for successful participation in the competition.

- b) **Engineering Research** – In this section, teams should present their research findings on bridge-related topics, while highlighting key insights that will influence their design choices and enhance the overall quality of their project. This research may involve studying bridge design and engineering principles, including various bridge types, different components of a bridge, materials, and structural concepts relevant to the specified bridge type. Teams are encouraged to gather information on strength-to-weight ratios, load distribution, and effective design techniques to inform their building approach. Additionally, teams must include at least five (5) pictures, screenshots, or any relevant images that support their research and help illustrate their findings.
- c) **Project Plan** – Teams must provide a brief outline of their project plan for their anticipated design and construction of their balsa wood bridge. This may include a timeline that highlights key milestones, such as completing additional research, finalizing designs and construction process, developing CAD drawings, and preparing for the presentation. Teams can also assign specific roles and responsibilities to each member to promote effective collaboration. While this section is required, teams are encouraged to develop a game plan that suits their unique needs, rather than strictly adhering to the suggested approaches. Clearly defining their strategy and organization may help teams manage their time and resources effectively as they work toward successfully completing their bridge project.
- d) **Conclusion** – In the conclusion section, teams should summarize, in one (1) paragraph, the key points of their report, highlighting the main findings from their research and how these insights will inform their design decisions. This is an opportunity to reflect on the overall design process, including any existing or potential challenges, and how they were/will be addressed. Teams should reiterate the importance of their chosen approach and the expected performance of their bridge in the competition. A strong conclusion will effectively wrap up the team's efforts and demonstrate their understanding of the project.
- e) **Bibliography** – Provide a list of all references used, formatted in MLA style. Include any research related to scientific and engineering principles, bridge construction guidance, software tutorials, and other relevant resources.
- f) The following sentence should be included at the end of each team's proposal with signatures from each team member.

"We hereby certify that the majority of the ideas, design, and work was originated and performed by the students, with limited assistance by adults, as described above."

2. **Submission:** Each team is required to submit an electronic copy of their proposal to Nicholas Dean at Nicholas.Dean@delaware.gov. Paper copies may be submitted if needed, please contact Nicholas well in advance of the deadline to coordinate delivery. All entries become the property of the Delaware Department of Transportation and will not be returned.