

CONSTRUCTION CHALLENGE



OVERVIEW

Applying leadership and 21st century skills, participants submit a scale model display, and portfolio that documents their design idea and plan for their construction solution for the annual theme. Semifinalists demonstrate expertise in construction design through a presentation and an interview. The annual theme will be posted on the [TSA website](#) under *Themes & Problems*.

ELIGIBILITY

One (1) team of at least two (2) individuals per chapter may participate.

TIME LIMITS

PRELIMINARY ROUND

- A. The teams design and construction plan to address the annual theme must be completed during the current school year.

SEMIFINAL ROUND

- A. Ten (10) minutes are allowed for the semifinal presentation and interview broken down as follows:
 - 1. Seven (7) minutes for the presentation
 - 2. Three (3) minutes to respond to questions from judges

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

- A. Participants review the TSA Honor Statement for Competitive Events found in the General Rules and listed in the individual competitive event rules.
- B. Participants design a solution to address the construction problem outlined in the annual theme. The annual theme will be posted on the [TSA website](#) under *Themes & Problems*.
- C. Participants create a scale model/prototype, display, and documentation portfolio while observing the regulations.

PRELIMINARY ROUND

- A. No more than two (2) team representatives report at the time and place stated in the conference program to check in:
 - 1. The scale model/prototype
 - 2. A display
 - 3. A documentation portfolio
- B. Entries are reviewed by judges with neither students nor advisors present based on the following criteria:
 - 1. Judges score the Model/Prototype and Display criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.
 - 2. Judges score the Documentation criteria of those top twenty-four (24) contestants to determine the top twelve (12) semifinalist teams.
- C. A list of twelve (12) semifinalist teams (in random order) is posted.

SEMIFINAL ROUND

- A. A representative from each semifinalist team reports at the time and place stated in the conference program to schedule a presentation/interview time.
- B. Two to four (2-4) representatives from each team report at the assigned time and place to participate in a brief presentation, discuss their chapter's community project, and respond to questions.
- C. Participants pick up their entries from the display area at the time specified in the conference program.
- D. Ten (10) finalists are announced during the conference awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERENCE

- A. The chapter must plan and prototype a construction project to address the annual theme.
- B. Chapters must be involved in the majority of stages of development of the project, from planning to construction of the prototype (where appropriate), by experiencing as many facets of the undertaking as possible.
- C. Model/Prototype and Display:
 1. The materials that make up the scale model/prototype must be student-constructed and assembled.
 2. The display may occupy a space no more than 15" deep x 30" wide x 48" high.
 3. A/C electricity may not be used.
 4. If the display and/or model/prototype requires power, they must be powered by dry-cell batteries or photo-voltaic cells.
 - a. The power supply must physically fit within the display dimensions.
 - b. All power must be switched off once the team has completed set-up.
 - c. If teams want judges to activate any electronic device in their model/prototype/display, complete instructions must be provided to judges on how to power up the model/display.
 5. If operating instructions are necessary, they must be clearly displayed and should include information about turning on devices, logging in, etc.
- D. Once the display set-up time frame has closed, participants may not re-enter the event area.
- E. Identifying information must not be placed on the scale model/prototype, display, or in the portfolio for the purpose of revealing the TSA chapter, however, the entry is excluded from General Rule D.9, and the chapter name or other identifying information may appear in the entry documentation portfolio but only in media clippings, photographs, etc.
- F. Documentation Portfolio:
 1. Documentation portfolio is required and must be secured in a [clear front report cover](#) with the following single-sided, 8½" x 11" pages, in this order:
 - a. Title page with the event title, the conference city and state, the year, and the team/chapter ID number; one (1) page
 - b. Table of contents; pages as needed
 - c. A design brief describing your team's proposal for addressing the theme's construction project. Your design brief should include:
 - i. Your inspiration, proposed solution, and highlight any major features or elements of the project; maximum two (2) pages.
 - ii. Sketches and initial design ideas for the construction project; pages as needed.
 - iii. A description of why major materials were selected for the project; one (1) page.
 - iv. A list of materials to be used in the construction of the proposed solution; maximum two (2) pages.
 - v. A set of drawings outlined in your proposed design for the construction project; pages as needed
 - vi. A description of the regulations or design standards being utilized for the project and how they impacted the design and construction; maximum two (2) pages.
 - d. Work Log (see 2026 & 2027 Forms Appendix); pages as needed
 - e. References must follow a professional citation style of the competitors choosing. Failure to use a professional citation style will result in a rules violation of 20% (twenty percent). Some examples of professional citation styles include MLA, APA, Chicago, and IEEE; pages as needed.
 - f. Photo/Film/Video Consent and Release Forms. If the entry contains images of people (minors require parental consent), proof of consent must be included for each person (see 2026 & 2027 Forms Appendix); pages as needed

PRELIMINARY ROUND

- A. No more than two (2) team representatives set up the entry and submit the portfolio for judging.

SEMIFINAL ROUND

- A. Using leadership and/or 21st century skills, two to four (2-4) representatives are allowed a maximum of ten (10) minutes to present and respond to interview question.

EVALUATION**PRELIMINARY ROUND****Tier 1**

- A. The model/prototype
B. The display

Tier 2

- C. The documentation portfolio

SEMIFINAL ROUND

- A. The presentation and interview

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

TSA HONOR STATEMENT

All work must be created and completed by individual competitors or teams. Plagiarism, the use of Generative Artificial Intelligence (GenAI) software, copyright violation, cheating, and falsification of information are prohibited. Participants may NOT use any generative artificial intelligence (GenAI) tools (e.g. ChatGPT, Google Gemini, GitHub Copilot, etc.). Any attempt to gain an unfair advantage will not be tolerated. Competitors at any level of TSA competition understand and agree to abide by the TSA Honor Statement.

If it is determined that a student violated the TSA Honor Statement, a rules violation of twenty percent (20%) will be incurred.

LEADERSHIP AND 21ST CENTURY SKILLS

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to – Communication, Collaboration/Social Skills, Initiative, Problem Solving/Risk Taking, Critical Thinking, Perseverance/Grit, Creativity, Relationship Building/Teamwork, Dependability/Integrity, and Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Architect
- Community planner
- Construction manager
- General contractor
- Product designer

CONSTRUCTION CHALLENGE

2026 & 2027 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

- ☐ TIER 1 – Model/prototype and display are present
- ☐ TIER 2 – Documentation portfolio is present
- ☐ ENTRY NOT EVALUATED

TIER 1 – MODEL/PROTOTYPE/DISPLAY (40 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Model/Prototype (X2)	Model/prototype is sloppy and does not represent the project.	Model/prototype has some design flaws, but it represents the project.	Model/prototype has a high quality of craftsmanship and clearly depicts the project.	
Display (X2)	Display is sloppy and does not represent the project.	Display has some design flaws, but it represents the project.	Display has a high quality of craftsmanship and clearly depicts the project.	
TIER 1 – MODEL/PROTOTYPE/DISPLAY SUBTOTAL (40 points)				
Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____				
TIER 1 – SUBTOTAL (40 points)				

TIER 2 – DOCUMENTATION PORTFOLIO (80 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Portfolio Contents (X1)	Portfolio is unorganized and/or is missing three (3) components.	Portfolio is generally organized but is missing two (2) components.	Portfolio has all required components in order and is well organized.	
Design Brief (X1)	The design brief is incomplete, lacks a clear explanation of inspiration or solution, and does not highlight significant features or elements.	The design brief provides a basic explanation of inspiration and solution, with a mention of major features, but lacks depth or organization.	The design brief is comprehensive, clearly articulating inspiration, a well-thought-out solution, and highlighting all major features with professional presentation and organization.	
Sketches and Initial Design Ideas (X1)	Sketches and initial ideas are unclear, disorganized, or fail to communicate the proposed design effectively.	Sketches and design ideas are moderately detailed, organized, and convey the proposed design with some room for improvement in clarity or depth.	Sketches and initial ideas are detailed, professionally rendered, well-organized, and clearly convey the creativity and functionality of the proposed design.	
Description of Material Selection (X1)	The description is vague, lacks justification for material choices, or does not connect materials to project goals.	The description provides reasonable justifications for material selection, with some connection to project goals, but may lack thoroughness or specific details.	The description thoroughly justifies material choices, demonstrating a deep understanding of their alignment with project goals and design constraints.	
List of Materials (X1)	The materials list is incomplete, poorly organized, or lacks essential details such as quantities or specifications.	The materials list is complete and organized, providing necessary details but may miss opportunities for improved clarity or precision.	The materials list is comprehensive, meticulously organized, and provides clear, precise details about quantities, specifications, and their relevance to the project.	
Drawings (X1)	The drawings are incomplete, unclear, or fail to meet basic standards of technical drawing.	The drawings are complete and meet basic technical standards, but may lack precision, clarity, or advanced features.	The drawings are detailed, precise, professionally presented, and fully adhere to technical drawing standards, effectively communicating the design.	
Description of Regulations or Standards (X1)	The description of regulations or design standards is superficial, lacks detail, or fails to explain their impact on the project.	The description addresses relevant regulations or standards and provides a general explanation of their impact on the project.	The description is thorough, clearly identifies all relevant regulations or standards, and provides an insightful analysis of their impact on design and construction.	
Work Log (X1)	Log is poorly organized and/or incomplete.	Log is adequately detailed, generally organized, and contains all of the required components.	Log is well documented and contains all required components.	
TIER 2 – DOCUMENTATION PORTFOLIO SUBTOTAL (80 points)				
Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____				
PRELIMINARY SUBTOTAL (120 points)				

SEMIFINAL PRESENTATION/INTERVIEW (50 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Organization (X1)	Participants seem unorganized and unprepared for the presentation/ interview; an illogical explanation of the need and solution is presented.	Participants are generally prepared for the presentation/interview; an acceptable explanation of the need and solution are communicated.	Presentation/interview is logical, well organized, and easy to follow; the need and solution are communicated in an organized and concise manner.	
Knowledge (X2)	Participants seem to have little understanding of the concepts in their project; answers to questions may be vague.	Participants exhibit a general understanding of the concepts in their project.	Participants show clear evidence of a thorough understanding of the project.	
Articulation (X1)	Communication of the design process is unclear, unorganized, and or illogical; leadership and/or 21 st century skills are not evident.	Communication of the design process is somewhat logical and clear; leadership and/or 21 st century skills are somewhat evident.	Communication of the design process is clear, concise, and logical; leadership and/or 21 st century skills are clearly evident.	
Team Participation (X1)	The majority of the delivery is made by one member of the team; the partner(s) may be disengaged from the presentation/interview.	Team members generally are engaged in the presentation/ interview, though one (1) member may take on more responsibility than the other(s).	All team members are actively involved in the presentation/ interview and responses to questions; there is shared responsibility between team members.	
SEMIFINAL PRESENTATION/INTERVIEW SUBTOTAL (50 points)				
Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____				
SEMIFINAL SUBTOTAL (50 points)				
To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.				
TOTAL (170 points)				

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

CONSTRUCTION CHALLENGE

EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

- A. Event coordinator
- B. Judges:
 - 1. Preliminary round, two (2) or more
 - 2. Semifinal round, two (2) or more
- C. Assistants:
 - 1. Two (2) or more individuals assigned to check in, receive entries, and direct students to the display set-up area
 - 2. One (1) individual assigned for security during the set-up time

MATERIALS

- A. Coordinator's packet, containing:
 - 1. Event guidelines, one (1) copy for the coordinator and for each judge
 - 2. TSA Event Coordinator Report
 - 3. Stick-on labels for identifying entries
- B. Display tables for entries (needed at set-up time through pick-up time prior to the close of the conference)
- C. Stopwatch to monitor semifinalist presentations and interviews
- D. Tables and chairs for event coordinator and judges

RESPONSIBILITIES

AT THE CONFERENCE

- A. Attend the mandatory event coordinator's meeting at the designated time and location.
- B. Report to the CRC room and check the contents of the coordinator's packet.
- C. Review the event guidelines and check to see that enough personnel have been scheduled.
- D. Inspect the area or room in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

- E. At least one (1) hour before the event is scheduled to begin, meet with judges and assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.
- F. Ensure the judges have access to the online judging system.

EVENT CHECK-IN

- A. No more than two (2) team representatives check in:
 - 1. The scale model/prototype
 - 2. The display
 - 3. The documentation portfolio
- B. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control.
- C. In order to compete, participants must be on the entry list or must have approval of the CRC.
- D. Requirements for attire do NOT apply during check-in, only on the first day of the conference.
- E. Secure the entries in the designated area.

PRELIMINARY ROUND

- A. Judges independently review the entries based on the following criteria:

Tier 1

- 1. Judges score the model/prototype and display criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.

Tier 2

- 2. Judges score the documentation criteria of those top twenty-four (24) contestants to determine the top twelve (12) semifinalist teams.

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B. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

1. To deduct twenty percent (20%) of the total possible points in this round
2. To disqualify the entry

The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

C. Create a sign-up sheet for the semifinal interviews.

SEMIFINAL ROUND

- A. One (1) semifinalist team representative reports to the time and place stated in the conference program to sign-up for a presentation/interview time.
- B. Two to four (2-4) team representatives report at the assigned time and place for the presentation/interview.
- C. Manage completion of the presentation/interviews.
- D. Discuss rule violations (e.g. 20% deduction, disqualification) and have all relevant parties initial the rating form.
- E. If necessary, manage security and the removal of materials from the event area.