

OFF THE GRID



OVERVIEW

Throughout the world, people are working to become more self-sustaining when it comes to landscaping and architectural design. Sometimes, the purpose is to live off the grid, and other times it is to create a smaller carbon footprint; yet other times, it is to meet a need in locations where there is not access to power, water, or other basics. There are many options for sustainability throughout the world, but sometimes a location limits or enables those options.

Applying leadership and 21st century skills, participants conduct research on a sustainable energy source or system for a home in a specified country. Teams will create a display, a model, and accompanying documentation. The model can be of the entire home the team designs or of the specific sustainable process or system highlighted by the team.

Semifinalists demonstrate competency by presenting and responding to questions about their design. The design brief for this competition will be posted on the [TSA website](#) under *Themes & Problems*.

ELIGIBILITY

Three (3) teams per state may participate; individual entries are permitted

TIME LIMITS

Ten (10) minutes are allowed for the semifinal presentation and interview broken down as follows:

- A. Seven (7) minutes for the presentation
- B. 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 access the design brief posted on the [TSA website](#) under *Themes & Problems*.
- C. Participants develop a solution to address the challenge using sustainable, off-the-grid practices based on the given country's climate conditions, infrastructure, construction methods, and a given budget.
- D. Participants prepare their documentation, display, and model according to the regulations.
- E. Participants prepare a presentation and be prepared to respond to questions from judges.

PRELIMINARY ROUND

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

SEMIFINAL ROUND

- A. No more than two (2) team representatives report at the time and place stated in the conference program to sign up for a presentation/interview time.
- B. One to three (1-3) team representatives report at the assigned time and place stated in the conference program to participate in the presentation/interview.
- C. Judges score the presentation/interviews.
- 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. Participants must understand the fundamental concepts and principles of the sustainable architecture that they are implementing. Research should focus on the technology and processes used to optimize sustainability and promote off-the-grid living for the scenario described in the annual design brief.
- B. Display and Model:
 - 1. The display must include:
 - a. Model of the solution or model of a system used for the design
 - b. Name of the given location, including city/town and country/province.
 - c. A world map clearly indicating the location of the given country
 - d. A description of the challenge or problem being addressed
 - e. An overview of the team's solution, including how it works and how it will address the given issue.
 - f. Supporting information that conveys the utility of the given solution (i.e. graphs, charts, schematics, figures), as needed.
 - 2. The size of the display and model may not exceed 15" deep x 30" wide x 48" tall. The documentation portfolio must be placed in the display with the model and remain within the dimensions.
 - 3. A/C electricity may not be used.
 - 4. If the display and/or model 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/display, complete instructions must be provided to judges on how to power up the model/display.

- 5. Once the display set-up time frame has closed, participants may not re-enter the event area.

C. 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 ID number; one (1) page
 - b. Table of contents; one (1) page
 - c. A description of how the team interpreted the design challenge and an explanation of the style and merits of the solution; maximum two (2) pages
 - d. A description of the country's environment, climate, natural resources, and economy; maximum two (2) pages
 - e. Bill of materials comprised of items used to construct and implement the solution, including project costs of each line item, which is not to exceed the given budget from the annual design brief; pages as needed
 - f. Description of alternative solutions and a discussion of why the chosen solution was utilized instead; maximum two (2) pages
 - g. CAD drawings (each drawing to be submitted on maximum drawing sheets cut size B [11" x 17"] with appropriate scale size noted on the drawing); pages as needed
 - i. Schematics showing the incorporation of the system into existing infrastructure in the given design brief
 - ii. Diagrams explaining design elements
 - h. References and resources page. Participants must cite a minimum of three (3) credible resources; pages as needed
 - i. Work Log (see 2026 & 2027 Forms Appendix); pages as needed

PRELIMINARY ROUND

- A. No more than two (2) team representatives check in the entry and set up the display, observing the following:
1. Models must fit within the allotted display space
 2. A/C electricity is prohibited
 3. Dry cell or photo-voltaic cells may be used for power, if desired
 4. The power source used must fit within the maximum display area
 5. All power must be turned off once setup is complete.
 6. If operating instructions or login information are necessary, they must be clearly displayed
- B. Violation of the following will result in disqualification:
1. No liquids, viruses, live plants, or animals may be used as a part of the display.
 2. No harmful or illegal substances may be displayed.

SEMIFINAL ROUND

- A. Participants may reference the display, model, and portfolio. No additional materials or devices are allowed for the presentation.

EVALUATION

PRELIMINARY ROUND

Tier 1

- A. The display
- B. The model

Tier 2

- C. The documentation portfolio

SEMIFINAL ROUND

- A. The presentation/interview

Refer to the official rating form for more information.

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.

STEM INTEGRATION

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

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:

- Appraiser
- Architect
- Construction manager
- Environmental engineer
- Interior designer
- Urban and regional planner



Participant/Team ID# _____

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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 – Display and model are present
 TIER 2 – Documentation portfolio is present
 ENTRY NOT EVALUATED

TIER 1 – DISPLAY (50 points)			
CRITERIA	Minimal performance	Adequate performance	Exemplary performance
	1-4 points	5-8 points	9-10 points
Display Components (X1)	Display is unorganized and/or is missing three (3) or more components.	Display has most components and is generally organized; it has sufficient content.	All components are included in the display content and the organization is excellent.
Communication of Solution (X3)	The description of the country and design is unclear or vague; there is little to no mention of the sustainable design features.	The description of the country and design of the style are included; however, some sustainable design features are missing.	The description of the country and design of the style are clear, effective, and convincing.
Creativity (X1)	Display lacks originality; none or very few design principles are integrated in the display.	Some resourcefulness and ingenuity are evident in the display; some essential design principles are generally used.	There is clear evidence of an inventive, unique, and creative display; essential design principles and elements are integrated.
TIER 1 – DISPLAY SUBTOTAL (50 points)			

Record scores in the column spaces below.

TIER 1 – MODEL DESIGN (40 points)			
CRITERIA	Minimal performance	Adequate performance	Exemplary performance
	1-4 points	5-8 points	9-10 points
Effectiveness of Design (X1)	The design is ineffective in meeting the needs of the challenge.	The design is somewhat effective in meeting the needs of the challenge.	The design is clearly effective in meeting the needs of the challenge.
Aesthetic Appeal and Functionality (X1)	There is little to no evidence of consideration of aesthetics and curb appeal in the design; systems in the model do not match or work with the design.	There is some evidence that aesthetics and curb appeal have been considered in the design; most systems in the model match or work with the design.	There is clear evidence that aesthetics and curb appeal are fully and effectively integrated into the design; all systems in the model work with the design.
Creativity and Innovation (X1)	The design lacks originality and exhibits few, if any, creative and/or innovative applications.	Some unique, innovative, and creative concepts are incorporated in the overall design.	Unique, creative, and innovative approaches are fully incorporated into the design.

Record scores in the column spaces below.

TIER 1 – MODEL DESIGN (40 points) – continued			
Model Design (X1)	The model is not informative and does not effectively nor accurately represent the design.	Most of the model is informative and accurately represents the design.	The model effectively displays the solution to the challenge and accurately represents the design.
TIER 1 – MODEL DESIGN 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 (90 points)

TIER 2 – DOCUMENTATION PORTFOLIO (80 points)			
CRITERIA	Minimal performance	Adequate performance	Exemplary performance
	1-4 points	5-8 points	9-10 points
Portfolio Components (X1)	Portfolio is unorganized and/or is missing three (3) or more components.	Portfolio is missing one (1) or two (2) components and/or is loosely organized.	Portfolio has all required components in order and is well organized.
Description of Design Interpretation (X1)	The description of the design and style is unclear or vague; includes little or no mention of the sustainable design features.	The description of the design and explanation of the style are included; they are adequately presented.	The descriptions and merits of the design, and an explanation of the style, are clear, effective, and convincing.
Description of the Chosen Country (X1)	There is little or no evidence of research done; the country's environment, climate, natural resources, and economy were not addressed clearly or at all.	Most, but not all, of the required areas of research are present and documented; some aspects are missing.	All of the research areas are clearly documented and well presented.
Description of Alternative Solutions (X1)	The team fails to articulate alternative solutions and/or why the chosen solution was utilized.	The team makes an attempt at outlining other potential solutions and somewhat explains the choice of the solution presented.	The team highlights alternatives to the proposed solution and is able to logically convey why the chosen solution was selected.
Bill of Materials (X1)	Many elements are missing or incomplete.	Most, but not all, elements are included.	All elements are included, and are detailed and explained clearly.
Drawings (X1)	A few of the required drawings are present, but they are lacking in quality.	Most, but not all, of the required drawings are included and are in the proper format.	All required drawings are included and in the proper format.
Resources/ References (X1)	There is little to no effort to provide resources or references.	Resources and references are included and are somewhat credible.	There is clear evidence of the appropriate use of applicable resources and references.
Work Log (X1)	The Work Log lacks major elements of documentation.	The Work Log is somewhat complete, and generally reflects the time and work necessary for the project.	The Work Log completely and accurately reflects the time and work necessary for the project.
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: _____

Record scores in the column spaces below.



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PRELIMINARY SUBTOTAL (170 points)

Record scores
in the column
spaces below.

SEMIFINAL PRESENTATION/INTERVIEW (50 points)			
CRITERIA	Minimal performance	Adequate performance	Exemplary performance
	1-4 points	5-8 points	9-10 points
Organization (X1)	Participant(s) seem unorganized and unprepared for the presentation; illogical explanation of the problem and solution is presented.	Participant(s) is/are generally prepared for the presentation; explanation of the problem and solution are generally communicated.	Presentation is logical and easy to follow; the problem and solution are communicated in a concise manner.
Articulation (X1)	Communication of the design project is unclear, unorganized, and or illogical; leadership and/or 21 st century skills are not evident.	Communication of the design project is somewhat logical and clear; leadership and/or 21 st century skills are somewhat evident.	Communication of the design project is clear, concise, and logical; leadership and/or 21 st century skills are clearly evident.
Delivery (X1)	The participant(s) is/are verbose and/or uncertain in its presentation/interview; participants' posture, gestures, and lack of eye contact diminish the presentation/interview.	The participant(s) is/are somewhat well-spoken and clear in its presentation/interview; participants' posture, gestures, and eye contact are acceptable in the presentation/interview.	The participant(s) is/are well-spoken and distinct in its presentation/interview; participants' posture, gestures, and eye contact result in a polished, natural, and effective presentation/interview.
Knowledge (X2)	Participant(s) exhibit little understanding of the concepts in their project; answers to questions may be vague.	Participant(s) exhibit a general understanding of the concepts in their project.	Participant(s) show clear evidence of a thorough understanding of the project.

SEMIFINAL PRESENTATION/INTERVIEW SUBTOTAL (50 points)

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initiated 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 (220 points)**

Comments:

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

JUDGE

Printed name: _____ Signature: _____

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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 for check-in, two (2)

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 entries, as needed
- B. Tables for entries
- C. 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(s) in which the event is being 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/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. Check in participants at the time and place stated in the conference program.
- B. No more than two (2) participants check in:
 - 1. The model
 - 2. The display
 - 3. The documentation portfolio
- C. Ensure the model and display does not exceed: 15" deep x 30" wide x 48" high. Measurements need to be taken immediately after the model and display have been set up by the competitors.
- D. Check to make sure the entry does NOT include:
 - 1. Liquids, viruses, live plants, or animals
 - 2. Harmful or illegal substances.
- E. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control.
- F. In order to compete, participants must be on the entry list or must have approval of the CRC.
- G. Requirements for attire do NOT apply during check-in, only on the first day of the conference.
- H. Place a team identification number stick-on label in the lower right-hand corner of each display.
- I. 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 display and model 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 presentation/interview sign-up sheet.

SEMIFINAL ROUND

A. One (1) team representative reports at the assigned time and place to sign up for the presentation/interview.

B. One to three (1-3) team representatives report at the assigned time and place for the presentation/interview.

C. Participants may reference the display and the portfolio. No additional materials or devices are allowed for the presentation.

D. Judges review the presentation and ask pertinent interview questions.

E. Discuss rule violations (e.g., 20% deduction, disqualification) and have all relevant parties initial the rating form.

F. Manage security and removal of all materials from the area.