U.S. DEPARTMENT OF ENERGY
SOLAR DECATHLON

RULES

Last Updated: January 25, 2017

Introduction

The U.S. Department of Energy Solar Decathlon showcases innovative solar-powered houses designed, built, and operated by collegiate teams. The winner of the competition is the team that best blends technology, market potential, and design excellence with smart energy production and maximum efficiency.

The Solar Decathlon provides participating students with hands-on experience and unique training that prepares them to enter the clean energy workforce. Solar Decathlon participants are more likely to work in the clean energy field, start clean energy businesses, and influence others to pursue energy efficiency and renewable energy technologies.

The Solar Decathlon is structured to reward projects that pursue thoughtful and impactful innovation within a fully functional competition prototype. Teams are expected to demonstrate how the techniques, products, and solutions integrated into the prototype can significantly impact the residential housing market in the United States.

Teams must present a design that is appropriate for a target market of the team's choosing while functioning competitively at the competition site. The participant teams work not only to develop and build their houses but also to enhance the systems' integration and generation of knowledge on sustainable construction. Solar Decathlon will offer students a unique opportunity for learning by bringing a project from concept to completion. The projects are to be developed by multidisciplinary teams, providing the opportunity to learn not only about technical issues but also about teamwork, communication skills, a sustainable lifestyle, and socio-economic issues in order to ensure the viability of their project.

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CONTESTS

The Solar Decathlon competition consists of 10 separately scored contests, and some contests contain one or more subcontests. The team with the highest total points at the end of the competition wins. Points are earned through jury evaluation, task completion, and monitored performance. Measured contests are evaluated based on the criteria indicated in the contest details. The scoring of the juried contests is more flexible than the scoring of the measured subcontests, however, for the sake of fairness, the jurors will use the evaluation method described in Appendix B-1.

Table 1: Contests and Subcontests

Juried		
Contest Number	Contest Name	Points
1	Architecture	100
2	Market Potential	100
3	Engineering	100
4	Communications	100
5	Innovation	100
6	Water	100
	Juried Total	600

Measured					
Contest Number	Contest Name	Points	Subcontest Name	Points	Tasks or Periods
7	Health and Comfort	100	Temperature	55	558
			Humidity	25	558
			Indoor Air Quality	10	320
			Air Tightness	10	1
8	Appliances	100	Refrigerator	8	766
			Freezer	8	766
			Clothes Washer	10	5
			Clothes Drying	20	5
			Cooking	12	6
			Hot Water	42	14
9	Home Life	100	Lighting	30	30
			Home Electronics	10	25
			Dinner Party	10	2
			Game Night	5	1
			Commuting	45	5
10	Energy	100	Net Zero Energy	60	-
			Energy Value	40	-
	Measured Total	400			
	Total	1,000			

Contest 1. Architecture

A jury of architects shall assign an overall score for the design's architectural conceptual coherence, merit, integration, and implementation. The jury will consider the submitted deliverables (see Appendix D) and perform an on-site evaluation of the competition prototype (see Appendix B).

The jury shall consider the following specific criteria in its evaluation:

Architectural Concept and Design Approach

- How well did the team utilize an overall clear concept, idea or ideas to guide the development of the whole design process?
- How well does the design solution and competition prototype house demonstrate overall coherence among disciplines and systems of the home?
- How appropriate is the home to its target site? Does it address unique issues and challenges in its design and execution?
- How effectively will the overall architectural design offer a sense of inspiration and delight to Solar Decathlon visitors?

Architectural Implementation and Innovation

- How effective was the team in its use of architectural elements including, but not limited to: scale and proportion, indoor/outdoor connections, composition, and linking of various house elements?
- How effectively did the team create a holistic and integrated design, inclusive of space, structure, and building envelope?
- How well does the team integrate both natural and electric lighting into the competition prototype?
- How well does the competition prototype demonstrate quality design through material selection, well-conceived details, and architectural implementation?[1]
- How well did the team integrate energy-efficiency concerns, energy production technology, and performance considerations into the architectural design?
- To what degree did the team integrate transportation and pre-fabrication strategies and detailing into the competition prototype?

Documentation and Presentation

- How effectively did the reviewed deliverables enable the jury to conduct a preliminary evaluation of the design prior to its arrival at the competition site?[2]
- How effectively does the team use digital technology, such as photography or graphics, to represent their competition prototype remotely?
- How accurate, complete, and clear are the competition drawings and specifications?

[1] The jury should consider the design, detailing, and implementation from the perspective of a professionally constructed house. Student-built or installed elements should be evaluated as if they were professionally built and installed.

[2] Effective deliverables are expected to accurately reflect the competition prototype as it appears on the competition site.

Contest 2. Market Potential

A jury of professionals from the homebuilding industry shall assign an overall score for the design's attractiveness to the team-defined target market and market impact potential.[3] The jury will consider the submitted deliverables (see Appendix D) and perform an on-site evaluation of the competition prototype (see Appendix B). The team must define a target client, with a minimum level of detail as indicated in Table 2.

The jury shall consider the following specific criteria in its evaluation.

Market Potential

- To what extent could the design and integrated design elements positively impact the U.S. residential energy efficiency and renewable energy industry?
- How successfully do the competition prototype house, material, equipment, and design details demonstrate exterior and interior appeal for the target client?
- How effectively does the team use sustainability features and strategies to make a positive contribution to the marketability of the house to the target client?
- How effectively does the team demonstrate the market need for the competition prototype house and associated components?

Livability

- How well do the design details support a safe, functional, convenient, comfortable, and enjoyable place to live?
- How successful is the design of the house's lighting, entertainment, and other controls?
- How successfully do the design details of the competition prototype meet the unique needs and desires of the target client?

Cost Effectiveness[4]

- To what extent does the house offer a cost-effective value to the target client? To what extent is the cost-effectiveness supported by reasonable and complete market analysis?
- How do the sustainability features integrated into the competition prototype enhance the home's market value?
- How successfully was cost effectiveness considered in design decisions?
- To what extent does the estimated competition prototype cost align with market needs and expectations?

Buildability

- How effectively do the reviewed deliverables provide sufficient quality and detail to enable a general contractor to estimate and build the design as it appears on the competition site?
- How challenging would the competition prototype be to construct successfully? How successfully does the design respond to the target site, client, or climate?
- How successfully does the team cost estimate reflect the competition prototype house as it appears on the competition site?

Table 2: Examples of Target Client Definition

Characteristic or Requirement	Example #1	Example #2	Example #3
Location of permanent site	Minot, ND	Folsom, CA	Boston, MA
Client demographic	Working professionals	Recent graduate	Retired individual
Household income	$85,000	$180,000	$30,000

[3] Teams shall define a target client with a minimum level of specificity as indicated in Table 2. The target market defined for the competition prototype house must be a primary residence intended for year-round occupancy. The jury will evaluate all construction details, style, and design details as demonstrated by the competition prototype as part of the Market Potential contest. For example, whether the competition prototype house has 2 bathrooms or 3 bathrooms is less relevant than the design, functionality, material, and detail choices made for the bathroom.

[4] Whereas no points are directly assigned based on the estimated construction cost of the house, the jury will evaluate whether cost-effective decisions were made with respect to the client demographic and expected house performance. A professional cost estimator will evaluate a team-developed estimated construction cost and prepare a summary indicating its thoroughness, reasonableness, and accuracy to the Market Potential jury. Teams must provide justification to have the cost of particular innovative technology included at a cost equal to a market-ready equivalent.

Contest 3. Engineering

A jury of engineers shall assign an overall score for the design's engineering merit and implementation. The jury will consider the submitted deliverables (see Appendix D) and perform an on-site evaluation of the competition prototype (see Appendix B).

The jury shall consider the following specific criteria in its evaluation:

Approach

- To what extent were unique approaches used to solve engineering design challenges?
- To what extent does the design demonstrate research, multidiscipline collaboration, market-leading technologies, and engineering integration?
- To what extent did the team use energy modeling and analysis to guide design decisions integrated into the competition prototype?

Design

- How well will house systems and design details function together?
- How well will the home's envelope and active comfort systems maintain occupant comfort in the permanent site location year-round, including but not limited to: air temperature, humidity, surface temperatures, temperature asymmetries and stratifications?
- How appropriately are energy systems sized for estimated annual performance of the competition prototype house at its target location?

Efficiency

- To what extent is energy efficiency considered as part of the design?
- How effective, efficient, and successful is the design in its engineering approach?

Performance

- How well does the design address maintenance, longevity, lifecycle costs, and owner operation?
- Extent to which a homeowner will be able to operate the house as the team intended?
- How effectively does the prototype's envelope design and material specification manage potential issues from moisture, condensation, and mold?

Documentation

- How accurate, complete, and clear are the competition drawings and specifications?
- To what extent was the energy model created in a professional and accurate manner?
- How effectively did the reviewed deliverables reflect the constructed project and enable the jury to conduct a preliminary evaluation of the design prior to its arrival at the competition site?

Contest 4. Communications

A jury of communications professionals shall assign an overall score for the success of each team's communication strategies, materials, and efforts to educate, inform, and interest the public. The jury will consider the submitted deliverables (see Appendix D) and perform an on-site evaluation of the competition prototype (see Appendix B).

The jury will consider the following specific criteria in its evaluation:

Strategy

- How well did the team's communications materials and activities work together to convey a comprehensive, consistent, and integrated communications strategy?
- How clearly defined are the team's target audiences and communications goals?
- How creative, original, and successful are the team's communications strategies?
- How well do the team's communications strategies align with the team's stated goals and objectives?

Implementation

- How successfully did the team conduct outreach and education in its local market?
- How successfully does the team incorporate digital communications strategies and products to engage online audiences?
- How effective are the team's educational and outreach messages about the Solar Decathlon, the team, and the design?

On-Site Communications

- How informative, interesting, engaging, and audience-appropriate was the team's comprehensive tour?
- How effectively does the team use on-site features, displays, models, or other materials to engage and educate the public?
- How effective is the team's strategy for accommodating large crowds and long lines?
- How well do the onsite communications materials educate and inform the visiting public?

Contest 5. Innovation

A jury of industry professionals shall assign an overall score for the team's innovation in concept, approach, research, design, implementation, and execution. The jury will consider the submitted deliverables (see Appendix D) and perform an on-site evaluation of the competition prototype (see Appendix B).

The jury shall consider the following specific criteria in its evaluation:

Research

- To what extent did the team use research processes to develop or decide on design solutions?
- How successfully did the team utilize discovery, prototyping, analysis, and collaboration in the design process?

Sustainability

- How well does the team integrate sustainable design, detail, product, and performance decisions into the competition prototype house?
- To what extent does the team holistically integrate passive strategies, materials selection, life cycle, and local strategies to maximize sustainability?

Innovation

- To what extent does the design utilize innovations or innovative approaches to satisfy an existing market need or desire?
- To what extent do the innovations have immediate and long-term environmental, social, cultural, and commercial potential?
- To what extent does the team utilize holistic active and passive solutions with regard to the livability of the house?
- To what extent does the design solution utilize new, unique, or atypical technologies that improve upon the status quo?
- To what extent does the team's approach to innovation relate to the team mission, strategies, or goals?

Durability and Safety

- To what extent will the innovations endure relative to the anticipated life cycle of the house?
- To what extent do the innovations improve or maintain the safety of occupants of the house?

Contest 6. Water

A jury of industry professionals shall assign an overall score for the team's approach to water conservation, use, and reuse. The jury will consider the submitted deliverables (see Appendix D) and perform an on-site evaluation of the competition prototype (see Appendix B).

The jury shall consider the following specific criteria in its evaluation:

Conservation

- To what extent is the competition prototype house expected to use less water than a comparable code-built house?
- How successfully does the design encourage a homeowner to use less water than a typical homeowner?
- How well are the consideration of water usage and the strategies employed integrated into other elements of the competition prototype?

Reclamation & Reuse

- To what extent does the competition prototype enable the reclamation and reuse of water utilized by the house?
- How effective and impactful are the strategies of water reclamation and reuse?
- How successfully does the team consider health and safety in the approach to water reclamation and reuse?

Landscaping

- To what extent does the design consider climatology in the landscaping design and execution?
- How appropriate are the selected plant palette and associated construction with regard to functionality and water usage?
- How successful is the landscape design with regard to energy efficiency, maintenance, water runoff, and irrigation methodologies?

Contest 7. Health and Comfort

For all Health and Comfort subcontests, see Appendix A-3 for the schedule of scored periods and for the number of available points per scored period, measurement, or task. Sensors are to be in place for the duration of any measured subcontest period at the location agreed upon between the team and the organizers to accurately represent the temperature in the house. The sensors do not need to be in place when a particular measured subcontest is not active, such as during public exhibit hours.

7-1. Temperature

All available points are earned at the conclusion of each scored period by keeping the time-averaged interior dry-bulb temperature between 68°F (20°C) and 74°F (23.333°C) during the scored period.

a. Reduced points are earned if the time-averaged interior dry-bulb temperature is between 64.0°F (17.778°C) and 68.0°F (20°C) or between 74.0°F (23.333°C) and 78.0°F (25.556°C). Reduced point values are scaled linearly. No points are earned for a time-averaged interior dry-bulb temperature below 64.0°F (17.778°C) or above 78.0°F (25.556°C).

b. The organizers will identify at least two zones in each house and measure the temperature of each zone. The zone temperature deviating farthest from the target temperature range is the zone temperature of record.

7-2. Humidity

All available points are earned at the conclusion of each scored period by keeping the time-averaged interior relative humidity between 35% and 60% during the scored period.

a. Reduced points are earned if the time-averaged interior relative humidity is between 25% and 35% or between 60% and 70%. Reduced point values are scaled linearly. No points are earned for a time-averaged interior relative humidity below 25% or above 70%.

b. The organizers will identify at least two zones of each house and measure the humidity of each zone. The zone humidity deviating farthest from the target humidity range is the zone humidity of record.

7-3. Indoor Air Quality

All available points are earned at the conclusion of each scored period by keeping the time-averaged interior CO_2 level below 1,000 parts per million (PPM).

a. Reduced points are earned for time-averaged interior CO_2 levels between 1,000 PPM and 2,000 PPM. Reduced point values are scaled linearly. No points are earned for time-averaged interior CO_2 levels above 2,000 PPM.

b. The organizers will identify at least two zones of each house and measure the CO_2 level of each zone. The CO_2 level deviating farthest from the target CO_2 level is the CO_2 level of record.

7-4. Air Tightness

All available points will be earned for a measured air tightness of less than or equal to 0.05 CFM 50/ft^2.

a. Reduced points are earned for measurements between 0.05 CFM 50/ft^2 and 0.25 CFM 50/ft^2. Reduced point values are scaled linearly. No points are earned for measurements above 0.25 CFM 50/ft^2.

b. Air tightness may be evaluated in advance of the competition at the university site by a qualified third-party provider approved by the organizers and will be measured by a qualified third-party provided hired by the organizers on the competition site at the time indicated in Appendix 37. The measurement deviating farthest from the target air tightness will be discarded.

Contest 8. Appliances

For all Appliances subcontests, see Appendix A-3 for the schedule and for the number of available points per scored period, measurement, or task.

8-1. Refrigerator

All available points are earned at the conclusion of each scored period by keeping the time-averaged interior temperature of a refrigerator between 34.0°F (1.111°C) and 40.0°F (4.444°C) during the scored period.

a. Reduced points are earned if the time-averaged interior refrigerator temperature is between 32.0°F (0°C) and 34.0°F (1.111°C) or between 40.0°F (4.444°C) and 42.0°F (5.556°C). Reduced point values are scaled linearly. No points are earned for a time-averaged interior refrigerator temperature below 32.0°F (0°C) or above 42.0°F (4.444°C).
b. The refrigerator volume published in the manufacturer's specifications shall be a minimum of 4.5 ft^3 (0.127 m^3)
c. The refrigerator may only be used to store food and beverages.

8-2. Freezer

All available points are earned at the conclusion of each scored period by keeping the time-averaged interior temperature of a freezer between -20.0°F (-28.889°C) and 5.0°F (-15°C) during the scored period.

a. Reduced points are earned if the time-averaged interior freezer temperature is between -30.0°F (-34.444°C) and -20.0°F (-28.889°C) or between 5.0°F (-15°C) and 15.0°F (-9.444°C). Reduced point values are scaled linearly.
b. The freezer volume published in the manufacturer's specifications shall be a minimum of 2.0 ft^3 (0.0566 m^3)
c. The freezer may be used to store food and only enough ice to fill the freezer's ice bin (or equivalent).

8-3. Clothes Washer

All available points are earned for washing laundry by running an automatic clothes washer containing six organizer-supplied bath towels through one or more complete, uninterrupted, "normal" (or equivalent) cycles on the specified days during contest week. The task must both start and finish within the time periods allotted in Appendix A-3 to be eligible for points.

a. The clothes washer shall operate automatically and have at least one wash and rinse cycle.
b. Cycle "interruption" includes the adjustment of supply temperature or flow in a manner not anticipated by the manufacturer or addressed in its operation manual.
c. The organizers will consult the operation manual to identify appropriate cycle settings. "Normal" or "regular" settings shall be selected, if available. Otherwise, settings most closely resembling typical "normal" or "regular" settings shall be selected.

8-4. Clothes Drying

All available points are earned by returning a load of laundry to a total weight less than or equal to the towels' total weight before washing. The task must both start and finish within the time periods allotted in Appendix A-3 to be eligible for points.

a. Reduced points are earned if the "dry" towel weight is between 100% and 110% of the original towel weight. Reduced point values are scaled linearly. No points are earned for a measured weight above 110% of the original towel weight.
b. A load of laundry is eligible for clothes-drying points only if the team previously achieved a complete, uninterrupted clothes washer cycle as described in Contest 8-3 during the same available time period outlined in Appendix A-3.
c. The drying method may include active drying (e.g., machine drying), passive drying, (e.g., on a clothesline), or any combination of active and passive drying. All drying methods that require the towels to be visible (such as on a clothesline) must be demonstrated to the Architecture and Market Potential juries as they visit the houses.

8-5. Cooking

All available points are earned by using a kitchen appliance to vaporize 5.000 lb (2.268 kg) of water.

a. Reduced points are earned if between 1.000 lb (0.454 kg) and 5.000 lb (2.268 kg) are vaporized. Reduced point values are scaled linearly. No points are earned for vaporizing less than 1 lb (0.454 kg) of water.
b. Any kitchen appliance may be used, but it must operate in its normal configuration as it is vaporizing the water.
c. The water shall be vaporized in a single container, and the starting water weight shall be at least 6.000 lb (2.722 kg).

8-6. Hot Water

For each draw, at least 15 gal (56.781 L) of hot water shall be delivered in no more than 10 minutes to be eligible for points. All available points are earned by delivering an average temperature of at least 110°F (43.333°C).

a. Reduced points are earned for temperatures between 100°F (37.778°C) and 110°F (43.333°C). Reduced point values are scaled linearly. An average temperature below 100°F (37.778°C) earns no points.
b. Teams shall replace their showerhead with an organizer-supplied female 0.5 in. National Pipe Thread Tapered (NPT) fitting prior to the start of the contest.

Contest 9. Home Life

9-1. Lighting

All available points are earned at the conclusion of each scored period by keeping the time-averaged interior illumination levels at 300 lux or greater during a minimum number of scored periods each day. Teams may choose when to target earning points within the available hours indicated in Appendix 37 each day.

a. Reduced points are earned if the time-averaged interior illumination level is between 300 lux and 100 lux. Reduced point values are scaled linearly. No points are earned for a time-averaged interior illumination level below 100 lux.
b. The organizers will identify at least 2 zones in each house and measure the illumination level at the approximate center of each zone at an approximate height of 3 ft (0.914 m). Care will be taken to ensure that the measurement reflects the functional illumination of the room. The time-averaged interior illumination level deviating farthest from the target lighting level for a particular scored period is the illumination level of record.

9-2. Home Electronics

All available points are earned at the conclusion of each scored period for operating a television and computer continuously for a minimum number of scored periods each day. Teams may choose when to target earning points within the available hours indicated in Appendix 37 each day.

a. The TV display shall be a minimum of 27 in. (68.58 cm), and the computer display shall be a minimum of 15 in. (38.1 cm), each as according to the manufacturer's stated display size. The TV and computer displays shall be able to be operated simultaneously and controlled independently of each other. Each must remain in the house for the duration of contest week.
b. The organizers will supply content that must be shown during the home electronics tasks. There is no required volume setting, but the brightness of the display shall be set to at least 75% of maximum.
c. The computer and television shall be plugged in to a single organizer-provided power strip.

9-3. Dinner Party

Each team shall host two dinner parties for its neighbors during contest week. See Appendix A-3 for the dinner party schedule and the number of available points per dinner party. Dinner parties will feature a pair of guest decathletes from each of three competing teams for a total of 6 guests from competing teams. To earn full points for the dinner party, teams shall:

a. Host the assigned guest decathletes and up to two VIP guests.[5]
b. Have two decathletes attend each of the assigned houses for the duration of the dinner party.
c. Serve a complete meal with an adequate amount of food for all guests at appropriate serving temperatures, and in a timely manner.
d. Prepare and cook all food and beverages in the house during the period of time indicated in Appendix A-3.[6]
e. Serve and have guests eat the meal in the finished square footage.
f. Comply with the following safety requirements:
    i. Do not use any flames, including candle flames.
    ii. Do not serve or utilize any alcoholic beverages.
    iii. Use only drinking water purchased in sealed containers.
    iv. Wash and rinse all dishes and cookware prior to use.
    v. Store all food and beverages properly while on the competition site.
    vi. Provide a list of ingredients for all items served at each dinner party.
    vii. Do not use coolers to store food, beverages, or ice on the competition site.
    viii. Due to competition conditions, dishes should not be washed on the competition site.

[5] Teams may host up to two VIP guests. VIP guests may include organizers, media, government employees, family members, or other individuals approved by the organizers to attend the dinner parties. If VIP guests do not participate, at least two host team decathletes shall participate in the dinner party.
[6] A file describing eligible and ineligible ingredients will be posted to the project group.

ix. Do not allow any products that will create health risks to enter the gray water tanks.

9-4. Game Night

Each team shall host a game night for its neighbors during contest week. See Appendix A-3 for the game night schedule and the number of available points for game night. The game night will feature a pair of guest decathletes from each of three competing teams. To earn full points for the game night, teams shall:

a. Host the assigned guest decathletes and up to two VIP guests.[7]
b. Have two decathletes attend each assigned house for the duration of the game night period.
c. Supply board or card games to play with the visitors to the house.
d. Meet all safety requirements indicated in the Dinner Party requirements of 15 above, if food or beverages is served.

9-5. Commuting

For each task referenced in Appendix A, all available points are earned by driving at least 25 miles (40.234 km). For driving between 0 miles (0 km) and 25 miles (40.234 km), points for each task are scaled linearly. Teams shall complete each task in no more than 75 minutes to qualify for points. Teams may choose when to begin each task, but each task must begin and end within the times indicated in Appendix A-3.

a. The vehicle must meet the requirements of Rule 4-8.
b. The vehicle must be driven by a decathlete who is licensed to operate a motor vehicle and accompanied by at least one passenger.
c. Both the driver and the passenger must wear a seat belt and follow all applicable driving laws.
d. The electric vehicle may only be charged from the house electrical system and the vehicle batteries must be full at the completion of the competition period.

[7] Teams may host up to two VIP guests. VIP guests may include organizers, media, government employees, family members, or other individuals approved by the organizers to attend the game night. If VIP guests do not participate, at least two host team decathletes shall participate in the game night.

Contest 10. Energy

10-1. Energy Production

All available points are earned at the conclusion of the energy period specified in Appendix 37 for a net electrical energy balance of at least 0 kWh. A positive net electrical energy balance indicates net production; a negative net electrical energy balance indicates net consumption.

a. Reduced points are earned for a net electrical energy balance between -50 kWh and 0 kWh. Reduced points are scaled linearly. No points are earned for a net electrical balance below -50 kWh.

10-2. Energy Value

Throughout the competition period, each team's electrical net energy will be calculated using the table below. All available points are earned at the conclusion of the specified energy period in Appendix 37 for a calculated energy value of $10 or more. No points are earned for a calculated energy cost of $10 or more. Points are scaled linearly between full points for a calculated energy value of $10 or more and a calculated energy cost of $10 or more. Net production is achieved when the total power sent to the grid over a 15-minute period exceeds the total power drawn from the grid. Net consumption is achieved when the total power drawn from the grid over a 15-minute period exceeds the total power sent to the grid.

a. Each team will begin contest week with an energy charge of $5 to represent the fixed costs for a utility to maintain infrastructure and grid stability.

Table 3: Rate Schedule

Rate Name	Off-Peak	Morning-Peak	On-Peak	Afternoon-Peak	Off-Peak
Time Period	12 a.m. – 7 a.m.	7 a.m. – 1 p.m.	1 p.m. – 7 p.m.	7 p.m. – 10 p.m.	10 p.m. – 12 a.m.
Net-consumption cost per kWh	$0.05	$0.12	$0.45	$0.15	$0.05
Net-production value per kWh	$0.00	$0.05	$0.20	$0.08	$0.02

RULES

Rule 1. Authority

1-1. Department of Energy

The U.S. Department of Energy (DOE) is the sponsoring organization, and the Solar Decathlon Director has the final decision-making authority in all aspects of the project.

1-2. Competition Manager

The Competition Manager is the only rules official authorized to write and modify the rules.

1-3. Rules Officials

The rules officials are the only organizers authorized to interpret the rules, revise the project schedule, change a team's score, or enforce the rules as required for the fair and efficient operation or safety of the competition.

a. The official version of the rules shall be the rules on the website. Other printed, electronic, and verbal communications covering the rules shall have the effect of the rules unless such communications are in conflict with the official version on the website. In the case of a conflict the official version shall govern. If there is a dispute, DOE and the Organizers shall resolve the dispute in accordance with the dispute procedures contained in the official version.

b. Printed, electronic, and verbal communications from the rules officials shall be considered part of, and shall have the same validity as, these rules.

Rule 2. Administration

2-1. Precedence

If there is a conflict between two or more rules, the rule having the later date takes precedence. If a conflict exists between two or more rules in this document, the Competition Manager will determine which rule has precedence and will inform all teams of the Decision on the Rules.

2-2. Violations of Intent

The organizers in consultation with DOE have the ultimate authority in interpretation of rules. All decisions made by DOE are final and there is no process for appeal. Attempting to exploit a perceived loophole in the rules that incentivizes behavior that does not align with the goal of the competition will not be viewed favorably. The prize administrator in consultation with DOE reserves the right to change the rules of the competition at any time.

2-3. Official Communications

It is each team's responsibility to stay current with official project communications. Official communications between the teams and the organizers occur through, but are not limited to, one or more of the following:

a. **Project group:** Official communications suitable for viewing by all teams and organizers are posted on the Project Group. The group will host messages and files of use to the teams. The project group is: https://sd2017.groups.io

b. **Organizer email**: For confidential communications, teams may email the organizers. The content of communications sent to this email address remains confidential unless the team grants permission to the competition manager to divulge the content of these communications to the other teams. If a question has general applicability to all teams, organizers, at their sole discretion, will post the answer to the project group. The organizer email is: sdrules@energetics.com

c. **Shared folder**: The organizers and teams will use a shared folder to transfer large files and deliverables. Instructions for using the shared folder are provided via the project group.

d. **Conference calls**: Teams are expected to participate in regularly scheduled conference calls with the organizers. Invitations and instructions for participation in conference calls are provided via the project group.

e. **Meetings**: Before the event, the teams and organizers may have one or more in-person meetings. Notification of the date(s) and agenda(s) for these meetings is made via the project group. A meeting is held the day before

assembly begins. Meetings will also be held on a daily basis throughout the event. Attendance is expected unless prior notice is given to the Competition Manager.

f. **Email**: For expediency and to protect confidentiality, teams and organizers may communicate directly via email. Organizer and team leader email addresses will be listed in the project group.

2-4. Prize Structure

At the conclusion of the competition, each participating team will be earn a score between 0 and 1,000 points, calculated according to the procedures outlined in these rules.

a. The teams will be ranked according to their net score and will earn prizes as follows:
   a. 1st: $300,000
   b. 2nd: $225,000
   c. 3rd: $150,000
   d. 4th: $125,000
   e. 5th+: $100,000 per team

b. Prizes will be distributed by the organizers to a single entity and account, as directed by the team faculty advisor on official university letterhead and signed by university leadership. The official team faculty advisor must be identified prior to the beginning of the contest period. Multiple distributions will not be accommodated.

c. It is the sole responsibility of the team to determine any taxes or associated payments required as a result of this award. Any distribution beyond the initial recipient is the sole responsibility of the team.

d. Through participation in the competition, the team agrees to accept the ranking and scores determined by the organizers. The results are final. Teams may participate in the protest process described in these rules during the times indicated. No right to counsel is authorized.

2-5. Effective Date

The latest released version of the rules posted to the project group[8] represents the rules in effect.

2-6. Decisions on the Rules

The project group will contain a “Decisions on the Rules” that provides interpretations of the rules contained in this document. Should a rules official make a decision that may affect the strategies of all teams, the rules officials will add the decision to the Decisions on the Rules and notify the teams of the addition.

2-7. Self-Reporting

Teams shall self-report obvious or suspected rules infractions that have occurred or may occur.

a. The rules are not expected to address every possible scenario that may arise during the competition. A team considering an action that is not explicitly permitted by the rules should ask the rules officials for a decision before proceeding with the action. If the team does not ask for an official decision, it puts itself at risk of incurring a penalty.

2-8. Penalties

Teams committing rules infractions are subject to one or more of the following penalties, depending on the severity of the infraction: 1) point penalty applied to one or more contests; 2) disqualification from part, or all, of one or more contests; or 3) disqualification from the competition.

a. The rules officials are authorized to apply point penalties and disqualify a team from part, or all, of one or more contests as a consequence of rules infractions.

b. The rules officials shall report to the director any significant rules infractions. The competition manager determines whether a rules infraction is significant. The director is solely authorized to disqualify a team from the competition. Disqualification from the competition requires prior notice to the team and an opportunity for the team to make an oral or written statement on its behalf.

c. The competition manager shall notify all teams via the project group and update the competition scoring when a penalty has been assessed against any team. The notification shall include the identity of the team receiving the

[8] The organizers will establish a project group to host important files and messages related to the project. Members of the public who are interested in receiving the rules and any documents referenced by the rules may email a request to sdrules@energetics.com.

penalty, an indication of the specific rule violated, a brief description of the infraction, and the penalty to be applied.

2-9. Protests

a. Official written protests may be filed by a team for any reason during the contest week. A filing fee of up to 10 points will be assessed to the team filing the protest if the protest is deemed by the protest resolution committee to be frivolous.

b. Teams are expected to communicate with the rules officials to resolve issues and complaints before resorting to the protest process. Protests should be filed only if the team and the rules officials are unable to resolve the dispute themselves; or the team or the rules officials are too busy to engage in discussions that may result in resolution of the dispute without a protest.

c. Protests shall be submitted between 8 a.m. and 6 p.m. Mountain Time, and within 24 hours of the action being protested. The final opportunity to file a protest is 5 p.m. Mountain Time on the final day of contest week.

   Exception: The results of one or more contests will be announced during the final awards ceremony. The results of contests announced during the final awards ceremony may not be protested.

d. The protest shall be submitted to a rules official in a sealed envelope or emailed to the competition manager at sdrules@energetics.com. If submitted electronically, the protest shall be attached as a PDF to the email and the email subject should include, "Solar Decathlon 2017 Protest," and the name of the team submitting the protest. The protest shall include the name of a decathlete, the date of the protest submission, an acknowledgment that a 10-point filing fee may be assessed, and a clear description of the protest.

e. Juried contests are inherently subjective, and the opinions of a jury cannot be protested. Only factual errors or mistakes may be protested.

f. The protest resolution committee will consist of at least three individuals with relevant expertise and knowledge of the Solar Decathlon Rules. At least one member of the protest resolution committee will be an employee of the Department of Energy.

g. Following the receipt of a protest, the protest resolution procedure will occur as follows:

   i. The competition manager convenes the protest resolution committee.

   ii. The competition manager submits the team's protest to the committee. Unless the competition manager is called by the committee to testify, the competition manager is not permitted to read the protest until after the protest resolution committee has submitted its written decision.

   iii. The committee reads the protest in private. No appearance by the competition manager, rules officials, or team members is authorized during the committee's private deliberations. No right to counsel by organizers or team members is authorized.

   iv. The committee shall individually call the decathlete who submitted the protest and the competition manager for testimony to fully understand the protest. The committee may choose to call additional individuals for testimony.

   v. The committee considers the protest and notifies the director and competition manager of its recommendation in writing. The committee shall indicate the reason for the decision, any adjustment to a team's measurement or score, and how many points shall be assessed as a filing fee, if any.

   vi. Following acceptance by DOE, if the recommendation involves changes to a team's measurement or score, the competition manager will ensure that the appropriate changes are applied to the scoring server.

   vii. The competition manager posts a copy of the protest and decision on the project group.

Rule 3. Participation

3-1. Entry

The project is open to colleges, universities, and other post-secondary educational institutions. Entry is determined through a proposal process. All proposals are reviewed, scored, and ranked. Subject to the quantity and quality of proposals, a limited number of teams will be selected for entry.

3-2. Contact Information

Each team shall provide contact information via the project group for the team officers listed in Table 4 and shall keep the contact information current for the duration of the project. In addition, all team members are encouraged to join the official Solar Decathlon LinkedIn group to better enable future engagement and reporting of success by DOE.

a. If a team's internal officer titles do not exactly match those listed in Table 4, each team shall still provide the contact information for the person fulfilling each of the areas of responsibility described in the second column.
b. Teams shall provide the contact information for only one person in each officer position.
c. Faculty members are only eligible to fill the "faculty advisor" team officer position. The position of University Health and Safety Manager position may only be filled by a member of the University's EH&S Department. Decathletes must fill all other team officer positions.
d. For a period of time, extending 5 years from the end of Solar Decathlon competition, each student and faculty member of a university team are encouraged to participate in an evaluation of the downstream impacts of the Decathlon. This evaluation will be performed by a DOE-selected, third party evaluation contractor. Participation in this evaluation will involve answering an annual survey of approximately 30 minutes or less in duration. The evaluator will use the collected survey information to assess the impact of the Solar Decathlon. The evaluator is authorized to use the collected information solely for the purpose of developing a DOE-sponsored and managed evaluation report that presents only results in aggregate. Information collected pertaining to individual students or alumni decathletes or individual faculty will not be reported.

Table 4: Team Officers

Title	Responsibilities
Project manager	Responsible for the overall success of the team's entry to the project. Ensures that official communications from the organizers are routed to the appropriate team member(s).
Construction manager	Responsible for planning and executing the construction, transport, assembly, and disassembly of the house, including providing the necessary oversight on construction activities.
Measured contest captain	Serves as the primary strategist and coordinator of measured contests. Collaborates with the organizers' instrumentation team and the team's construction manager to accommodate the organizers equipment.
Health and safety officer	Responsible for developing the team's Health and Safety Plan, for providing health and safety oversight to the project, and advising the project manager and construction manager, as necessary, on project health and safety issues; responsible for the team's life safety during the event, including the fire watch, public safety within the team's solar envelope, and evacuation procedures.
Faculty advisor	Serves as the lead faculty member and representative of a participating school in the project; also provides guidance to the team throughout the project.
University Health and Safety Manager	Serves in an advisory role as an EHS mentor or consultant, not as project oversight.

In addition to these required roles, teams often assign student team leaders for the following positions:

Table 5: Team Leaders (optional)

Title	Responsibilities
Architecture project manager	Responsible for the architectural design effort; license not required
Project engineer	Responsible for the engineering design effort; license not required
Electrical engineer	Completes the Interconnection Application and works in conjunction with the site operations manager to interconnect the house to the village grid on the competition site; license not required
Sponsorship manager	Responsible for recruiting team sponsors and for team compliance with Rule 10-3
Public relations contact	Works in conjunction with DOE's Public Affairs office to coordinate the team's interactions with the media

3-3. Safety

Each team is responsible for the safety of its operations.

a. Each team member and team crewmember shall work in a safe manner at all times during the project in accordance with the requirements identified in the rules and team Health and Safety Plan.
b. Each team shall supply all necessary personal protective equipment (PPE) and safety equipment for all of the team's workers and visitors during the project.
c. During assembly and disassembly, a minimum level of PPE—hard hat (ANSI Z89.1 or equivalent, Type I, Class G or better), safety glasses with side shields (ANSI Z87.1 or equivalent), shirt with sleeves at least 3 in. (7.6 cm) long, long pants (the bottoms of the pant legs shall, at a minimum, touch the top of the boots when standing), a Class 2 high visibility reflective vest, shirt or jacket, and safety boots (meeting Class 75 impact/crushing standards of ASTM F2413 or equivalent) with ankle support—shall be worn by each team member and team crew member. Additional PPE or safety equipment shall be used if required for the task being performed (e.g. – shock/arc protection, hearing protection, face shields, dust mask, etc).
d. Only team members who have met OSHA 29 CFR Part 1910, Subpart S Electrical 1910.399 requirements will be considered a qualified electrical worker and permitted to work on teams' electrical systems on the competition site.
e. Individuals under the age of 18 are not permitted to be on the competition site during assembly and disassembly.
f. Smoking is not permitted within the competition site at any time during assembly or disassembly.
g. Pets and other animals are not permitted on the competition site during assembly or disassembly with the exception of registered service animals.
h. The operation of Unmanned Aircraft Systems (drones) within the village or laydown yard (bone yard) is prohibited at all times.
i. Organizers may issue a stop work order at any time during the project if a hazardous condition is identified. The duration of the stop work order is at the discretion of the organizers and additional construction time will not be provided.
j. Failure to follow the procedures and requirements outlined in each team's Health and Safety Plan is considered a rule violation subject to Rule 2-8, and violations are subject to penalty points. All electrical work on the competition site shall meet electrical lockout/tagout requirements indicated in each team's approved Health and Safety Plan. Fall protection systems shall be used in a manner to provide protection against fall exposures 100% of the time.

3-4. Conduct

Improper conduct, the use of alcohol or marijuana, and the use of illegal substances are not permitted on the competition site. Improper conduct may include, but is not limited to, improper language, unsportsmanlike conduct, unsafe behavior, distribution of inappropriate media, and cheating.

3-5. Use of Likeness, Content, and Images

Team members agree to the use of their names, likenesses, content, graphics, and photos in any communications materials issued by the organizers and event sponsors.

a. Content and images (graphics and photos), and any publications in which the content and images appear, may be viewable and made available to the general public via DOE's and the event sponsors' websites with unrestricted use.
b. The organizers and event sponsors will make all reasonable efforts to credit the sources of content and images, although they may be published without credit.

> **Exception**: Some deliverables will remain confidential through the completion of the project, as indicated in 46.

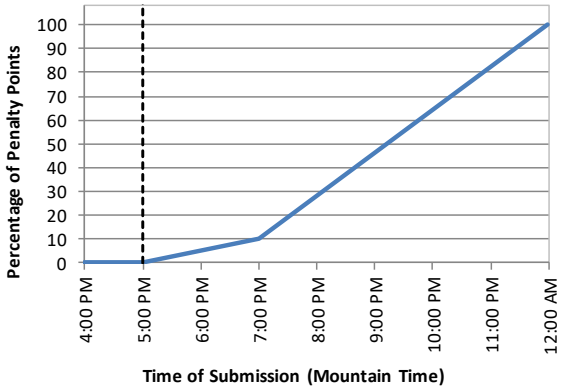
3-6. Competition Withdrawals

Any team wishing to withdraw from the project must notify the director and competition manager in writing. Teams considering withdrawal are encouraged to communicate early and frequently with the competition manager. All written withdrawals signed by the listed faculty advisor are final.

3-7. Deliverables

Teams are required to submit all deliverables associated with the project as described in Appendix D. All deliverables are due by 5 p.m. Mountain Time on the dates indicated in 46. Late or incomplete submission of deliverables may be subject to penalty points or a reduction in prize values. Following receipt, organizers will review the deliverables and provide comments to teams. Teams shall correct all issues noted to be eligible for participation in the competition.

Penalty points for late submissions still received on the due date are scaled linearly, as shown in Figure 1. The penalty associated with same-day late submission of each deliverable is indicated below; however, additional penalty points may be assigned for failure to meet submission requirements beyond the scenarios indicated in Figure 1, including incomplete but on-time deliverables and deliverables received after the due date.



Additional penalty points:		Time of Receipt ≥	11:59:00 PM
Reduced (steep):	11:59:00 PM >	Time of Receipt ≥	7:00:00 PM
Reduced (shallow):	7:00:00 PM >	Time of Receipt ≥	5:00:00 PM
No Penalty points:		Time of Receipt ≤	5:00:00 PM

* Time of Receipt relates only to date of required submission.
* Submission after 11:59 PM on the due date will result in additional penalty points of a severity to be deterimed by competition management.
* All times indicated are Mountain Time (standard or daylight savings, depending on time of year).

Deliverable Name	Maximum Penalty Points if Received on Due Date	Due Date
D1: Team Short Description & Project Management Plan	0	March 31, 2016
D2: Schematic Design Summary	0	April 29, 2016
D3: Team Overview	1	September 15, 2016
D4: Design Development Documentation Submission	2	November 17, 2016
D5: Digital Project Representation	1	December 16, 2016
D6: Final Construction Documentation Submission	3	February 23, 2017
D7: Project Summary & Public Exhibit Materials	1	April 27, 2017
D8: Jury Deliverables	2	August 10, 2017
D9: Final Report	0	November 16, 2017

Figure 1: Scoring Function for Deliverables

Rule 4. Site Operations

4-1. Damage Liability

Each team is financially responsible for any damage it causes to the competition site, except as allowed under Rule 4-3. All liability is subject to language contained in 15 USC 3719.

4-2. Construction Equipment

a. Truck-mounted cranes, trailers, semi-trailer trucks, etc., are limited to the approved surfaces of the competition site.

b. Track-mounted equipment, such as vehicles, cranes, and forklifts, are prohibited at all times.

c. Teams shall not permit the use of any equipment or tools on the competition site that are not safe and/or do not comply with applicable requirements of the Occupational Safety and Health Administration (OSHA) and/or other related regulatory standards.

4-3. Ground Penetration

Ground penetration is permitted only for the approved method for tie-downs needed to meet Solar Decathlon building code requirements. Ground penetrations should be minimized and must be approved by the organizers. All other ground penetrations shall not be permitted. Grounding means shall be installed in accordance with the Solar Decathlon Building Code.

4-4. Impact on the Competition Site

Low-impact footings shall be used to support all house and site components. All footings shall comply with the bearing pressure criteria specified in the Solar Decathlon Building Code.

4-5. Generators

Generators are permitted to power tools and construction lights during stand-alone assembly and stand-alone disassembly only.

a. Engine generators shall not exceed 60 dB (A) at 50 ft (15.24 m) under full load per the manufacturer's listed sound rating. Operation and refueling of generators are limited to times approved by the organizers.
b. Generators must be equipped with secondary containment systems that can accommodate all of the oil, fuel, and coolant that the generator contains at maximum capacities.

4-6. Spill Containment

The release of water or other liquids onto the competition site or into nearby storm drains is prohibited.

4-7. Lot Conditions

A vertical elevation change of up to 18 in. (45.72 cm) may exist across a lot. Organizers will provide topographical maps of the site including an indication of team lot location. Exact placement of team lots may vary by up to 5 ft (1.524 m). Teams must design adjustable foundations and plan accordingly to meet the specific conditions of the site.

4-8. Electric Vehicles

Teams are expected to provide an electric vehicle within their solar envelopes during contest week.

a. The vehicle must be electric. Hybrid vehicles and non-electric vehicles are not permitted.
b. Movement of the vehicle on and off the competition site is prohibited one half hour prior to, one half hour after, and throughout all public exhibit periods.
c. The competition prototype house must include the infrastructure required to charge the vehicle.
d. Any vehicle used must be commercially available to all teams at the beginning of contest week.
e. The vehicle must have four wheels and, at a minimum, seat two individuals side by side.
f. The vehicle must be licensed, registered, and insured as required for operation on Colorado roadways.

Rule 5. The Solar Envelope

5-1. Solar Envelope Dimensions

The solar envelope shall be 78ft (23.774 m) east to west by 60 ft (18.288 m) north to south with a height of 18 ft (5.486 m). The competition prototype and all site components on a team's lot must stay within the solar envelope.

a. The official height of a site component or set of contiguous site components is the vertical distance from the point of highest grade along the outside perimeter of the site component(s) to the highest point of the site component(s).
b. Small weather stations, antennas, air vents, and other similar components may be specifically exempted from Rule 5-1 if all of the following conditions are met:
    i. The team makes a request to the competition manager for an exemption prior to the start of assembly.

ii. The team can prove to the competition manager's satisfaction that the component is not significantly restricting a neighbor's right to the sun.

iii. The competition manager determines that the component is sufficiently unique in function and small in size to warrant an exemption.

c. Moveable or convertible house or site components shall not extend beyond the solar envelope during live demonstrations or in printed or electronic media presented by the team during jury visits, public exhibit hours, or contests.

d. Any vehicle on the competition site shall not extend beyond the solar envelope.

Rule 6. The House

6-1. Structural Design Approval

Each team shall submit structural drawings and calculations that have been stamped by a qualified, licensed design professional. The professional must be registered in the State of Colorado or have a comparable license in another jurisdiction.

a. By stamping the structural drawings and calculations, the licensed professional certifies that the structural provisions of the Solar Decathlon Building Code have been met by the design, and that the structure is safe for the public to enter if it has been built as designed.

b. The licensed professional shall stamp the structural drawings and calculations of the house and all site components that might pose a threat to public safety if they fail.

6-2. Finished Square Footage

The finished square footage, as defined by ANSI Z765-2003, "Square Footage—Method for Calculating," shall be at least 600 ft^2 (55.742 m^2), but shall not exceed 1000 ft^2 (92.903 m^2).

a. If the building has convertible or moveable components, the maximum and minimum square footages observed during live demonstrations or shown in printed or electronic media presented by the team during jury visits, public exhibit hours, or contests count as the maximum and minimum square footages of record, respectively.

b. For the purposes of the Solar Decathlon, all finished square footage is included in the finished square footage calculation, regardless of whether or not the finished square footage is contiguous (i.e., attached to the main dwelling unit). Both maximum and minimum square footages must be within the limits set above.

6-3. Constructed Footprint

The projected ground coverage area of all site components, including but not limited to: the competition prototype house, decking, pergolas, overhangs, railings, ramps, seating, solar thermal, and solar photovoltaic panels shall not exceed 2,700 ft^2 (250.84 m^2). Freestanding potted vegetation, the team's electric vehicle, and signage shall not be included in this measurement.

6-4. Entrance and Exit Routes

a. The main house entrance may be placed on any side of the house. However, an accessible route leading from the main street of the solar village to the main entrance of the competition prototype shall be provided.

b. The house exit route shall be accessible to the public and lead from the main house exit to one of the publically accessible streets of the solar village adjacent to the solar envelope.

6-5. Competition Prototype Alternates

The juries shall not consider alternates to the competition prototype. Only the competition prototype house with its included components and functionality, as presented on the competition site, may be evaluated. It is permissible to show the competition prototype house in context in renderings, photographs, or other media. Competition prototype alternates cannot be shown in any materials considered by the Architecture, Engineering, Innovation, Market Potential, or Water juries.

a. Juries shall not consider alternates to address local building code provisions and site restrictions at the target client's site. The juries will be instructed to assume that the Solar Decathlon Rules and Building Code also apply at the target client's site.

b. Public exhibit communications materials are not considered part of the competition prototype and do not need to be shown in renderings, drawings, or other materials.

Rule 7. Vegetation

The use of potted vegetation is permitted. All potted vegetation shall comply with Rules 4-4 and 4-6.

7-1. Placement

Vegetation may be moved around the solar envelope until the beginning of contest week, after which, it shall remain stationary until the conclusion of contest week, unless the drawings clearly show how some or all vegetation is designed to be moved as part of an integrated system.

Rule 8. Energy

8-1. PV Technology Limitations

a. Bare photovoltaic cells and encapsulated photovoltaic modules must be commercially available by the beginning of the event or approved by the organizers prior to arrival at the competition site.

b. Substantial modification of the crystal structure, junction, or metallization constitutes the manufacture of a new cell and is not allowed unless approved by the organizers prior to arrival at the competition site.

8-2. PV System Size Limitation

a. Photovoltaic installation size is limited to a maximum 10 kW rated DC capacity.

8-3. Energy Monitoring

a. Teams shall install full branch-circuit level monitoring equipment within their competition prototype. While the data will not be utilized for competition purposes, teams shall consider and utilize this technology. Teams will be asked to provide the collected data at the conclusion of the competition and the data may be shared amongst teams.

8-4. Energy Sources

After the conclusion of stand-alone assembly and until the conclusion of the Energy Contest, global solar radiation incident upon the lot is the only source of energy that may be consumed in the operation of the house without the requirement of subsequent energy offsets.

Exception: Teams may use organizer-supplied village grid power that is exempt from the Energy Contest during grid-tie assembly for construction equipment, site lighting, and task lighting located outside the finished square footage only.

a. All other energy sources, such as AC grid energy, consumed in the operation of the house must be offset by an equal or greater amount of energy produced, or “regenerated,” by the house.

b. Fireplaces, fire pits, candles, and other devices using non-solar fuels are not permitted in the designs.

   Exception: The use of batteries is permitted by Rule 8-3.

8-5. Batteries

Batteries include most commercially available energy storage devices, such as electrochemical batteries and capacitors.

a. The use of batteries as part of the competition prototype design is permitted. The batteries must begin and end the competition fully charged. The batteries, and associated enclosure(s), must be compliant with the Solar Decathlon Building Code. The team’s electric vehicle shall end the contest week with a fully charged battery. Failure to end the contest week with a fully charged battery will be considered a rules violation and be subject to penalty points and/or energy adjustments as deemed appropriate by the Competition Manager.

b. The use of primary (non-rechargeable) batteries (no larger than “9V” size) is limited to smoke detectors, remote controls, thermostats, alarm clock backups, and other small devices that typically use small primary batteries. These batteries do not need to end the competition with a full charge.

c. The use of the factory-installed battery within the team’s electric vehicle is permitted. Vehicle-to-grid power flow is only permitted, if vehicle-to-grid power flow and associated equipment are approved by the vehicle’s manufacturer.

d. “Plug-in” (non-hardwired) devices with small secondary (rechargeable) batteries that are designed to be recharged by the house’s electrical system (e.g., a laptop computer), shall be connected, or “plugged into,” the house’s electrical system whenever the devices are located in the house or within the solar envelope.

> **Exception:** If not used in the operation of the house at any time during contest week, portable electronic devices used for mobile communications, such as cell phones and tablets, are permitted within the solar envelope without having to be plugged into the house’s electrical system.

e. Stand-alone, PV-powered devices with small secondary batteries are permitted, but the aggregate battery capacity of these devices may not exceed 100 Wh and shall be based on the most-costly impact of charging the vehicle during as described in Contest 10, Energy.

8-6. Desiccant Systems

If a desiccant system is used, it must be regenerative.

a. To ensure that the desiccant has been fully regenerated by the conclusion of the Energy Balance Contest, the desiccant material or device must be easily measurable.

b. In most cases, the material or device will be measured prior to and at the conclusion of the Energy Balance Contest. In some cases, a measurement at the conclusion of the Energy Balance Contest may not be necessary.

c. At the conclusion of the Energy Balance Contest, the weight of the desiccant material or device shall be less than or equal to its initial weight.

d. Some desiccant systems with very low moisture storage capacities may be exempt from this requirement. Exemptions will be granted on a case-by-case basis by the competition manager.

8-7. Village Grid

The organizers shall provide the village with an electric power grid that provides AC power to and accepts AC power from the houses.

a. The organizers shall provide the necessary service conductors and connect the conductors at the utility interconnection point.

b. All houses shall operate with an AC service of 60 Hz, 120/240V split-phase with neutral. Any alternatives to this approach must be discussed and approved by organizers prior to arrival on the competition site. Acceptance of any alternatives will depend on acceptance and support provided by the local utility. Alternatives are not guaranteed.

c. At the date and time specified in Appendix A, teams have the option to switch from stand-alone assembly to grid-tie assembly, if all relevant inspections have been passed and the village grid is available. Teams shall not switch back to stand-alone assembly after switching to grid-tie assembly. At a later date and time specified in Appendix A, all teams shall have switched to grid-tie assembly.

8-8. Net Metering Rules

a. When the competition starts, each team’s bidirectional meter resets to zero.

Rule 9. Liquids

9-1. Container Locations

a. Primary supply water and greywater containers shall be located outside of the finished square footage. These containers may not be located beneath the finished square footage.

> **Exception**: Teams may utilize one or more small tanks up to a maximum aggregate volume of 20 gal (75.708 L) to accept wastewater discharge in preparation for delivery to the main wastewater tank(s).

b. Solar storage, hot water, or other thermal storage containers may be located within the finished square footage.

c. The primary supply water tank(s) shall be fully shaded from direct solar radiation between 9 a.m. and 5 p.m. Mountain Time during contest week.

9-2. Team-Provided Liquids

A team may provide its own liquids for the following purposes:

a. Personal hydration

b. Irrigation [one-time delivery before water delivery day, 50 gal (189.271 L) limit, water only]
c. Thermal mass (quantity limited by bearing pressure limit and Rule 4-4; see Rule 9-6 for restrictions)
d. Food preparation
e. Hydronic system pressure testing[9]
f. Assembly (e.g., hydraulic fluid), finishing (e.g., paint), and cleaning (e.g., mineral spirits).
g. Teams may provide glycol, deionized water, or other working fluids for thermodynamic systems using working fluids other than non-potable water if approved by the organizers prior to arrival at the competition site.

9-3. Greywater Reuse

A team may reuse greywater as permitted in the Solar Decathlon Building Code or approved by the Solar Decathlon Building Official on a case-by-case basis. Any greywater reuse must be approved by the Solar Decathlon Building Official before the start of assembly on the competition site.

9-4. Rainwater Collection

A team may collect rainwater that falls on its site and use it in, or as, any of the following:

a. Irrigation source
b. Water feature
c. Heat sink or heat source.
d. Other purposes as approved by the Solar Decathlon Building Official on a case-by-case basis. Alternative uses must be approved by the Solar Decathlon Building Official before the start of assembly on the competition site.

9-5. Evaporation

Water may be used for evaporation purposes.

9-6. Thermal Mass

Teams may use liquids as thermal mass.

a. The thermal storage containers shall be isolated, i.e., the contained liquid shall not circulate to other containers or systems.

9-7. Greywater Heat Recovery

Heat may be recovered from greywater as it flows from the drain to the waste tank.

a. “Batch”-type greywater heat recovery is prohibited.

9-8. Water Delivery

A team may request up to 1500 gal (5678.118 L) of water from the organizers.[10]

The procedure and associated requirements for water delivery follow:

a. On water delivery day, two water trucks will service each house. Each truck will be equipped with a pump to aid in water delivery.
b. Teams shall provide a minimum of six people, on command, to help move the water hose to their house from the previously serviced house.
c. After the two trucks have serviced all houses once, they will visit the village again to service any house needing additional water.
d. Teams that delay the water supply process or request additional water after the trucks complete their second circle around the village are subject to a penalty and a delay in receiving their water. Instead of, or in addition to, a penalty, these teams may be required to purchase water from a company approved by the organizers.
e. Team design deliverables shall clearly indicate the fill location(s), quantity of water requested at each fill location, container dimensions, diameter of the opening(s) (minimum 4 in. [10.16 cm]), and clearance above the container(s) fill location(s) (minimum 12 in. [30.48 cm]). All openings shall be easily accessible.

[9] The water may only fill isolated loops; it shall not enter tanks.
[10] The teams shall include a detailed water budget in the Project Manual.

f. Teams are responsible for distributing water within their houses. This includes all necessary pumps, containers, lines, valves, etc.

9-9. Water Removal

The procedure and associated requirements for water removal follow:

a. On water removal day, two water trucks will service each house. Each truck will be equipped with a pump to aid in water removal.
b. Teams shall supply a minimum of six people, on command, to help move the water hose to their house from the previously serviced house.
c. After the two trucks have serviced all houses once, they will visit the village again to service any house needing remaining water removed.
d. Teams that delay the water removal process may be required to pay for their own water removal. Teams required to pay for their own water removal shall use a company approved by the organizers.
e. Team design deliverables shall clearly indicate the removal location(s), quantity of water to be removed from each removal location, container dimensions, diameter of the opening(s) (minimum 4 in. [10.16 cm]), and clearance above the container(s) fill location(s) (minimum 12 in. [30.48 cm]). All openings shall be easily accessible.
f. Teams are responsible for either removing remaining water from the site or moving remaining water to the designated removal locations.

Rule 10. The Event

10-1. Registration

All Solar Decathlon event participants must register.

a. The following rules apply to **all participants**:
    i. Each event participant must register individually. Group registrations are not allowed.
    ii. When registering, event participants must complete all required information and forms before access to the competition site is allowed.
b. **Organizers, team members, and staff** are required to provide a photo. Participants should use the online registration site to submit completed forms, information, and photos prior to the event. Once all information, forms, and photos are received, the organizers will issue an event security ID that must be visible at all times while on the competition site.

    Exception: team crewmembers are not required to provide a photo.
c. **Visiting media** are not considered participants and will not be required to register but must check in at registration headquarters. Due to safety concerns, site access for visiting media may be restricted.

10-2. Event Sponsor Recognition

All communications materials produced by the teams concerning or referring to the project (including team websites) shall refer prominently to the project as the "U.S. Department of Energy Solar Decathlon."

a. Teams are required to use the Solar Decathlon logo, the DOE wordmark, and the Energetics logo on all communications materials used on the competition site. The Solar Decathlon logo must be at least three times the size of all other logos, as outlined in the Solar Decathlon identity guidelines[11].
b. The Solar Decathlon logo, the DOE wordmark, and Energetics logo are the only required graphic elements teams must use.
c. Team uniforms are exempt from Rule 10-2. See Rule 11-5 for specifics.

10-3. Team Sponsor Recognition

Team sponsors may be recognized with text, logos, or both, but the text and logos must appear in conjunction with the Solar Decathlon text and logo.

a. Rule 10-3 applies but is not limited to all communications materials that will be on display or distributed on the competition site.

[11] Solar Decathlon identity guidelines are expected to be made available by Fall, 2016.

b. Communications materials or other products that exist largely for the recognition of sponsors are limited to 20 ft^2 (1.858 m^2), in aggregate within the solar envelope. “Other products” include, but are not limited to, signs, exhibits, posters, plaques, photos, wall art, and furnishings.

c. For multimedia or audio presentations shown on the competition site, no more than 20% of the total time, 1 minute, or whichever is less may be dedicated to recognition of team sponsors.

d. Off-the-shelf components that feature a built-in manufacturer’s logo are acceptable and do not need to be accompanied by the Solar Decathlon text and logo.

e. Team uniforms are exempt from Rule 10-3. See Rule 11-5 for specifics.

10-4. Logistics

a. Each team is responsible for the transport of its house, the house’s contents, and all necessary tools and equipment, and shall be responsible for any damage to or loss of such items.

b. Each team is responsible for procuring all necessary equipment, tools, and supplies.

c. Each team is responsible for transportation, accommodations, lodging, food, and beverages.

   i. The organizers will make drinking water available on the competition site to all team members for the duration of the event.

d. Each team is responsible for making its own reservations and arrangements and for covering all necessary costs.

10-5. Inspections

Each project will be inspected for compliance with the Solar Decathlon Rules and the Solar Decathlon Building Code.

a. Inspections are expected to occur only between the hours of 7 a.m. and 7 p.m. during the assembly period but may be restricted further due to environmental or personnel constraints.

b. A team shall notify the appropriate inspector when it is ready for an inspection.

c. Additional random inspections for compliance shall take place throughout contest week.

d. The competition manager shall check each team’s inspection status, as indicated on the team’s official inspection card, to determine which houses are eligible to participate in the contests. All final inspections shall be passed by the deadline indicated in 37. Failure to pass inspections by the required deadline may disqualify a team for participation in the event and will be considered a rules violation subject to Rule 2-8. A team must have passed inspections by the conclusion of the inspector’s work day for a team to be eligible to participate in the following day’s contests, which officially start at midnight.

   Exception: Jury visits will proceed as scheduled regardless of a team’s inspection status. However, jurors will be made aware of the team’s inspection status and may consider it in their evaluations.

e. Because open, partially functioning houses are preferable to closed, fully functioning houses, the organizers may direct the inspectors to require that an unsafe condition be corrected so that public visits can occur—even if, as a consequence, the house is ineligible for participation in one or more contests.

Rule 11. Contest Week

11-1. House Occupancy

Under normal circumstances, no more than six people may be located in the finished square footage of the house at any one time.

a. Rule 11-1 is automatically suspended whenever the temperature and humidity measurements are suspended. See Appendix A-3 for the temperature and humidity measurements schedule.

b. Jurors, observers, official organizer-provided competition photographers, media, writers, visiting decathletes during the dinner party, and others with authority to enter a house as an organizer are not counted toward the number of house occupants.

11-2. House Operators

Only decathletes are permitted to operate the house and participate in the contests during contest week.

a. All competition-related communications on the competition site shall be between the organizers and decathletes. Non-decathlete team members and team crew, including faculty, are not permitted to participate in or listen to competition-related communications.

b. Non-decathlete team members are permitted to give tours to the public and be present on the competition site.

11-3. Late Design Changes

The final project assembled on the competition site shall be consistent with the design and specifications presented in the as-built deliverable.

a. If there are known inconsistencies between the final project and the as-built drawings and project manual, the team shall document these inconsistencies and submit the documentation to the competition manager and Decathlon Safety Officer as soon as possible after the inconsistency is known. The Safety Officer will review the changes against the team's final EHS Plan to assess whether the changes warrant additional or different safety controls The competition manager will compile a summary of all known inconsistencies discovered during the inspections process and submit the summary to the respective juries.

11-4. Public Exhibit

a. Teams are required to provide an accessible route to all areas of the house and site that is available to the public during exhibit hours.
b. Teams are permitted to produce and distribute up to one informational brochure or handout on the competition site.
c. Teams shall develop signage that complements public exhibit tours by informing visitors about the team project and engaging visitors waiting in line.
d. Teams are prohibited from selling items to the general public on the competition site.
e. Only organizer-approved vendors may provide food and beverage to the general public on the competition site.

11-5. Team Uniforms

a. During contest week and special events specified by the organizers, all team members present on the competition site or the site of a special event shall wear uniforms representing their team.
b. Team uniforms are exempt from Rules 10-2 and 10-3.
c. Team sponsor logos are approved to be visible only on the back of the team uniform (jacket, shirt, hat, or other wearable item).
d. The only information or graphics that are approved to be visible from the front of the team uniform (jacket, shirt, hat, or other wearable item) shall be the institution(s) and its logo(s), the team name and logo, and the Solar Decathlon logo.
e. A built-in clothing manufacturer logo may be visible on the front or back of the team uniform, or both.

11-6. Impound

Each house shall be impounded on specified nights as indicated in Appendix A under the direct supervision of the organizers or staff. Team members shall not occupy the competition site during impound hours. There is a 15-minute impound grace period for teams to leave the competition site.

DEFINITIONS

Assembly
The period of time between the allowed arrival of trucks on site and the beginning of the contests on the competition site

Communications manager
The organizer responsible for the project's public outreach and communications activities

Communications materials
All printed or electronic publications designed to convey information to the public

Competition
All aspects of the Solar Decathlon related to the contests and the scoring of those contests

Competition manager
The head rules official responsible for writing and enforcing the rules and conducting the competition

Competition prototype
The complete assembly of physical components installed within the solar envelope

Competition site
The area provided by the organizers containing all solar envelopes, pedestrian walkways, and associated organizer equipment, structures, and infrastructure

Contest
The Solar Decathlon competition consists of 10 separately scored contests

Contest week
The period on the competition site when some or all contests are in progress

Decathlete
A team member who meets the decathlete eligibility rules provided on the project group

Decision on the Solar Decathlon Rules
The competition manager's interpretation or clarification of the Solar Decathlon Rules

Director
The organizer representing the U.S. Department of Energy who has final decision-making authority regarding all aspects of the project

Disassembly
The period of time between the closing of the public exhibit and the completion of competition site cleanup

Event
The activities that take place on the competition site including, but not limited to, registration, assembly, inspections, contests, special events, public exhibits, and disassembly

Event production manager
The organizer responsible for the project's special events and volunteer activities

Event sponsor
An entity selected by Solar Decathlon Organizers to help ensure the success of the project

Faculty advisor
A team member who is a faculty member and representative of a participating school in the project

Grid-tie assembly
The period of time during assembly after the house has been connected to the village grid

Juried contest
A contest based on a jury evaluation

Juror
An organizer selected by the Competition Manager to participate as a member of a specific jury

Jury
A group of jurors evaluating a specific juried contest

Measured subcontest
A subcontest based on task completion or monitored performance

Observer
An organizer, assigned by the competition manager, to observe team performance and records the results of specific contest activities but does not provide interpretations of the rules

Organizer
A DOE or Energetics employee, subcontractor, juror, or observer working on the project

Project
All activities related to the U.S. Department of Energy Solar Decathlon

Project Group
A community forum that includes official communications suitable for viewing by all teams and organizers

Protest resolution committee
A group of three organizers selected by the competition manager to resolve team protests

Public exhibit
Areas of the competition site open to the public during designated hours

Qualified Electrical Worker
A team member who has the requirements for qualified electrical work on the competition site

Rules
All principles or regulations governing conduct, action, procedure, arrangement, etc., for the duration of the project, represented in aggregate by this Solar Decathlon rules document

Rules official
An organizer authorized to interpret the rules and officiate one or more of the contests

Scored period
Any 15-minute period beginning at 0, 15, 30, or 45 minutes after the hour during contest week

Scoring server
A server that collects data and calculates composite scores

Site operations manager
The organizer responsible for all event site operations

Solar Decathlon Building Code
A set of design and construction standards set forth for the protection of public health and safety during the event

Solar Decathlon building official
The rules official responsible for writing, interpreting, and enforcing the Solar Decathlon Building Code

Solar envelope
The area, as defined by Rule 5, containing the competition prototype

Stand-alone assembly
The period of time during assembly before the house has been interconnected to the village grid

Staff
An individual working for the organizers whose role is not described elsewhere in these definitions

Subcontest

An individually scored element within a contest

Team

The combination of team members representing a single entry to the competition

Team crew

A team member who is involved with a team's project who may be unaffiliated with a participating school

Team member

An enrolled student, recent graduate, faculty member, or other person who is affiliated with one of the participating schools and is integrally involved with a team's project activities; decathletes, faculty advisors, and team crew members are all considered team members

Village grid

The bi-directional, 60-hz AC electrical network on the competition site to which each house has an individually metered connection

Volunteer

An individual selected by the volunteer coordinator to support activities on the competition site and whose role is not described elsewhere in these definitions

Volunteer coordinator

An organizer selected by the event production manager to manage volunteer activities on the competition site

Appendix A Event Schedules

A-1. Overview Event Calendar

This calendar provides an overview of daily activities. Refer to the Detailed Event Schedule (Appendix A-3) for a complete list and schedule of daily activities.

On-site registration will be available from 7 a.m. - 3 p.m. daily. For team member arrivals after 3 p.m. each day, temporary badges will be issued. Full registration will be required the following morning.

*Significant precipitation or the occurance of an unforseen circumstance that equally affects all teams' progress during the assembly phase may result in the postponement of the stop work for last chance final inspections. The remainder of the schedule will remain unchanged.

Thursday, September 21, 17	Friday, September 22, 17	Saturday, September 23, 17
DAY -2	DAY -1	DAY 0
INITIAL VEHICLE STAGING 8 a.m. - 5 p.m.	**INITIAL VEHICLE STAGING** 8 a.m. - 5 p.m.	**REGISTRATION** 7 a.m. - 8 a.m. and 10 a.m. - 3 p.m. **ALL-TEAM MEETING** 8 a.m. - 10 a.m. **STAND-ALONE ASSEMBLY** (Begins immediately after all-team meeting)

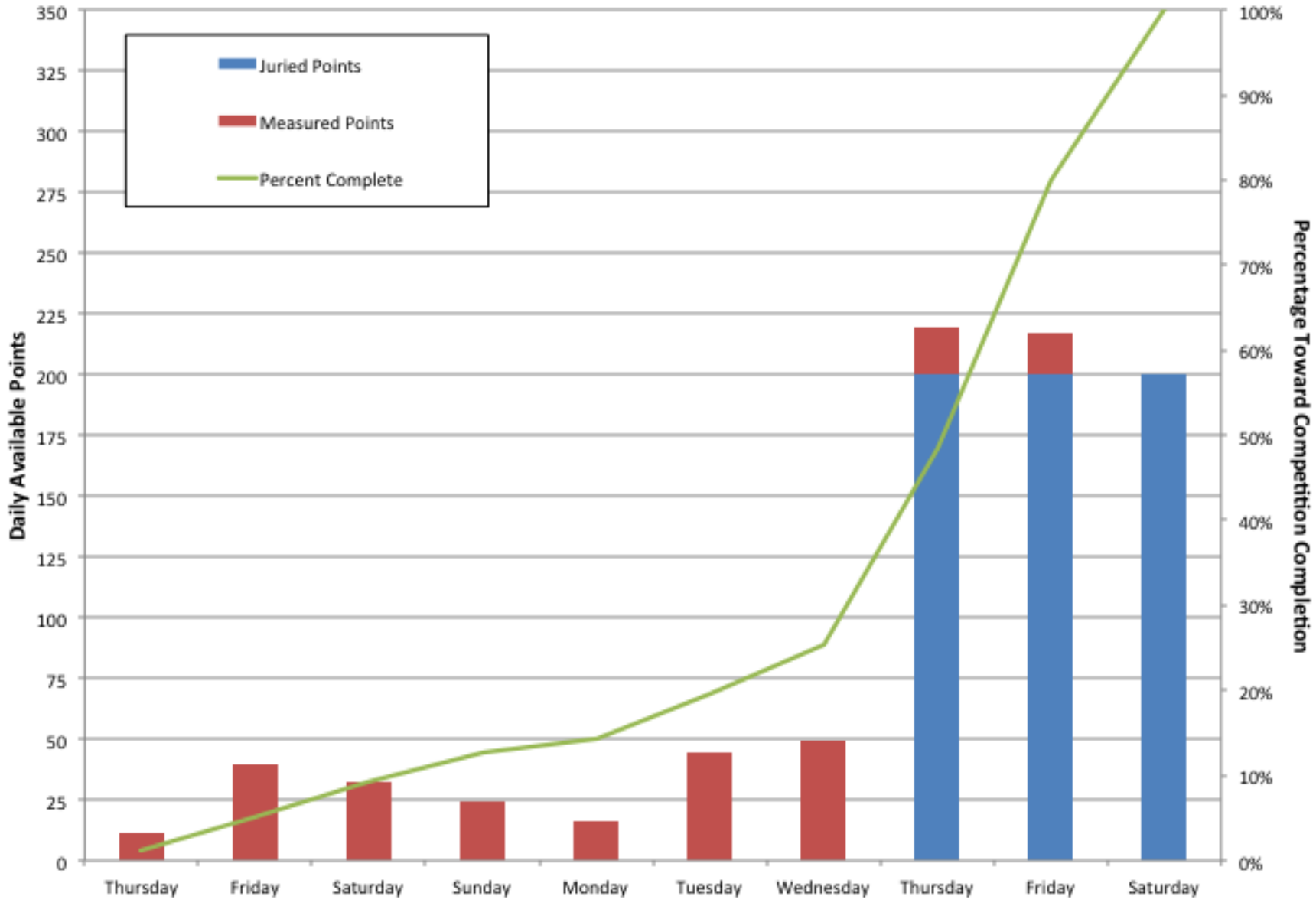
Sunday, September 24, 17	Monday, September 25, 17	Tuesday, September 26, 17	Wednesday, September 27, 17	Thursday, September 28, 17	Friday, September 29, 17	Saturday, September 30, 17
DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
IMPOUND (12 a.m. - 7 a.m.)	IMPOUND (12 a.m. - 7 a.m.)	IMPOUND (12 a.m. - 7 a.m.)	IMPOUND (12 a.m. - 7 a.m.)	IMPOUND (12 a.m. - 7 a.m.)	IMPOUND (12 a.m. - 7 a.m.)	IMPOUND (12 a.m. - 7 a.m.)
STAND-ALONE ASSEMBLY	**STAND-ALONE ASSEMBLY**	**STAND-ALONE ASSEMBLY**	**STAND-ALONE ASSEMBLY**	**STAND-ALONE ASSEMBLY**	**STAND-ALONE or GRID-TIE ASSEMBLY** **WATER DELIVERY** (9 a.m. - 5 p.m.)	**STAND-ALONE or GRID-TIE ASSEMBLY** FINAL INSPECTIONS BEGIN

Sunday, October 1, 17	Monday, October 2, 17	Tuesday, October 3, 17	Wednesday, October 4, 17	Thursday, October 5, 17	Friday, October 6, 17	Saturday, October 7, 17
DAY 8	DAY 9	DAY 10	DAY 11	DAY 12	DAY 13	DAY 14
IMPOUND (12 a.m. - 7 a.m.)	IMPOUND (12 a.m. - 7 a.m.)	IMPOUND (12 a.m. - 12 p.m. & 8 p.m. - 12 a.m.)	IMPOUND (12 a.m. - 7 a.m. & 7 p.m. - 12 a.m.)	IMPOUND (12 a.m. - 7 a.m. & 11 p.m. - 12 a.m.)	IMPOUND (12 a.m. - 7 a.m. & 11 p.m. - 12 a.m.)	IMPOUND (12 a.m. - 7 a.m. & 11 p.m. - 12 a.m.)
STAND-ALONE or GRID-TIE ASSEMBLY (Until 12 p.m.)	**FINAL SITE CLEANUP, STAGING AND SIGNAGE** (7 a.m. - 12 p.m.)	**REST DAY** VILLAGE CLOSED TO TEAMS UNTIL NOON FOR CITY INSPECTIONS	**MEASURED CONTEST TRAINING** (10 a.m. - 12 p.m.)	**CONTESTS** (11:00 a.m. - Midnight) **ALL TEAM PHOTO** (8:30 a.m. - 9 a.m.)	**CONTESTS** (24 hours)	**CONTESTS** (24 hours) **PUBLIC EXHIBIT** (11 a.m. - 7 p.m.)
GRID-TIE ASSEMBLY (After 12 p.m.)	**STOP WORK FOR LAST-CHANCE FINAL INSPECTIONS*** (No work to take place while teams wait for final inspections) (12 p.m - about 5 p.m. or later as needed.)		**OPENING REHEARSAL** (1 p.m. - 1:30 p.m.) **MEDIA & VIP PREVIEW** (2 P.M. - 5 p.m.) **OPENING RECEPTION** (5:00 p.m. - 7 p.m.)	**OPENING CEREMONY** (9:30 a.m. - 11 a.m.)		
FINAL INSPECTIONS CONTINUE	**AIR TIGHTNESS TESTS** (9 a.m. - 5 p.m.)	**TEAM OPEN HOUSE** (5:00 p.m. - 8 p.m.)		**PUBLIC EXHIBIT** (11 a.m. - 7 p.m.)	**PUBLIC EXHIBIT** (11 a.m. - 7 p.m.)	

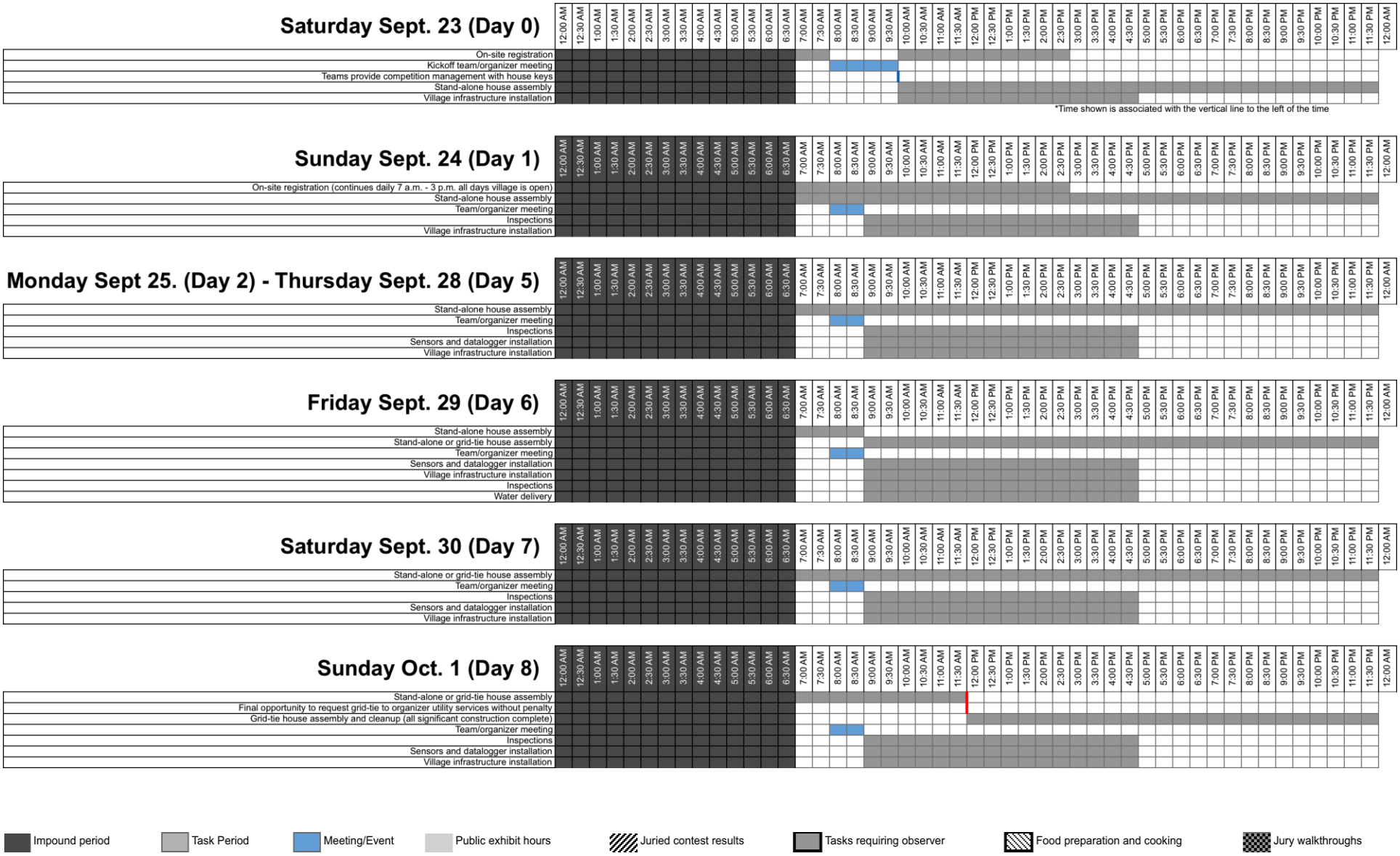
Sunday, October 8, 17	Monday, October 9, 17	Tuesday, October 10, 17	Wednesday, October 11, 17	Thursday, October 12, 17	Friday, October 13, 17	Saturday, October 14, 17
DAY 15	DAY 16	DAY 17	DAY 18	DAY 19	DAY 20	DAY 21
IMPOUND (12 a.m. - 7 a.m. & 11 p.m. - 12 a.m.)	IMPOUND (12 a.m. - 7 a.m. & 11 p.m. - 12 a.m.)	IMPOUND (12 a.m. - 7 a.m. & 11 p.m. - 12 a.m.)	IMPOUND (12 a.m. - 7 a.m. & 11 p.m. - 12 a.m.)	IMPOUND (12 a.m. - 7 a.m. & 11 p.m. - 12 a.m.)	IMPOUND (12 a.m. - 7 a.m. & 11 p.m. - 12 a.m.)	IMPOUND (12 a.m. - 7 a.m. & 11 p.m. - 12 a.m.)
CONTESTS (24 hours)	**CONTESTS** (24 hours)	**CONTESTS** (24 hours)	**CONTESTS** (24 hours)	**CONTESTS** (24 hours)	**CONTESTS** (Midnight - 11a.m.)	**PUBLIC EXHIBIT** (11 a.m. - 7 p.m.)
PUBLIC EXHIBIT (11 a.m. - 7 p.m.)	**JURY WALKTHROUGHS** (morning and evening)	**JURY WALKTHROUGHS** (morning and evening)	**WATER RESULTS** (3 p.m.)	**MARKET POTENTIAL & COMMUNICATIONS RESULTS** (10:30 a.m.)	**INNOVATION & ARCHITECTURE RESULTS** (10:30 a.m.)	**ENGINEERING RESULTS & AWARDS CEREMONY** (10 a.m. - 12 p.m.) **EVENT CELEBRATION** (7 p.m. - 11 p.m.)
	PUBLIC EXHIBIT (1 p.m. - 7 p.m.)			**PUBLIC EXHIBIT** (11 a.m. - 7 p.m.)	**PUBLIC EXHIBIT** (11 a.m. - 7 p.m.)	
					TEAM OPEN HOUSE (7:30 p.m. - 11 p.m.)	

Sunday, October 15, 17	Monday, October 16, 17	Tuesday, October 17, 17	Wednesday, October 18, 17	Thursday, October 19, 17	Friday, October 20, 17
DAY 22	DAY 23	DAY 24	DAY 25	DAY 26	DAY 27
IMPOUND (12 a.m. - 7 a.m.)	IMPOUND (12 a.m. - 7 a.m.)	IMPOUND (12 a.m. - 7 a.m.)	IMPOUND (12 a.m. - 7 a.m.)	IMPOUND (12 a.m. - 7 a.m.)	IMPOUND (12 a.m. - 7 a.m.)
PUBLIC EXHIBIT (11 a.m. - 7 p.m.)	**DISASSEMBLY** (Begins at 7 a.m.)	**DISASSEMBLY**	**DISASSEMBLY**	**DISASSEMBLY**	**FINAL DISASSEMBLY INSPECTIONS** (7 p.m. - 9 p.m.)

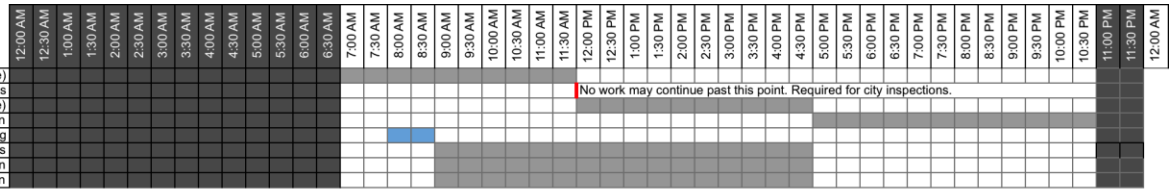
A-2. Scoring Chronology



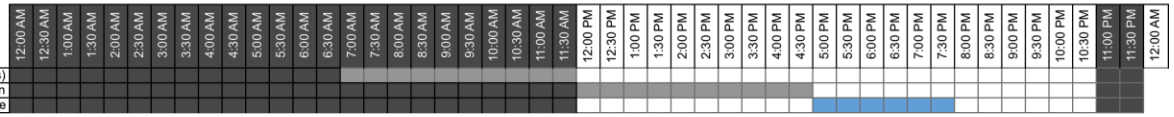
A-3. Detailed Event Schedule



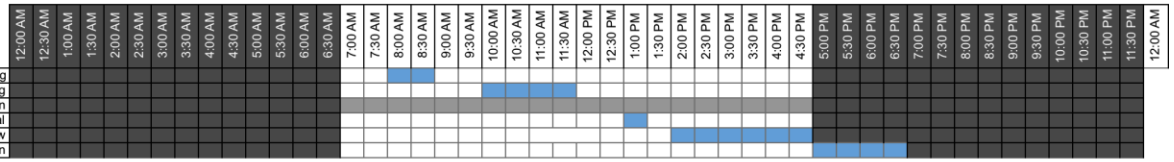
Monday Oct. 2 (Day 9)



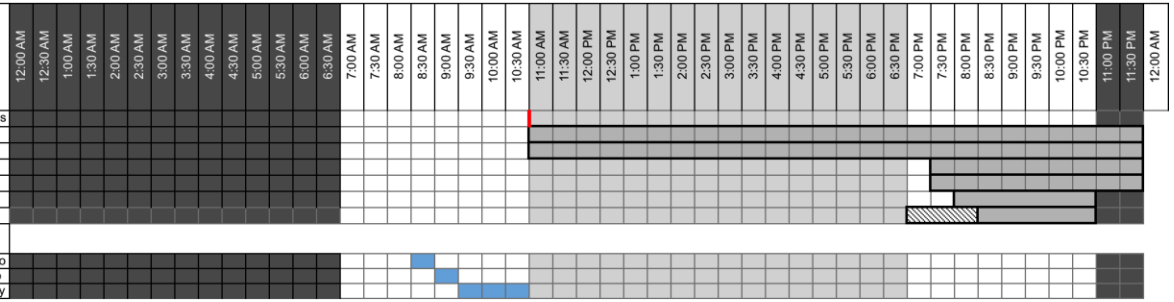
Tuesday Oct. 3: Rest Day (Day 10)



Wednesday Oct. 4 (Day 11)

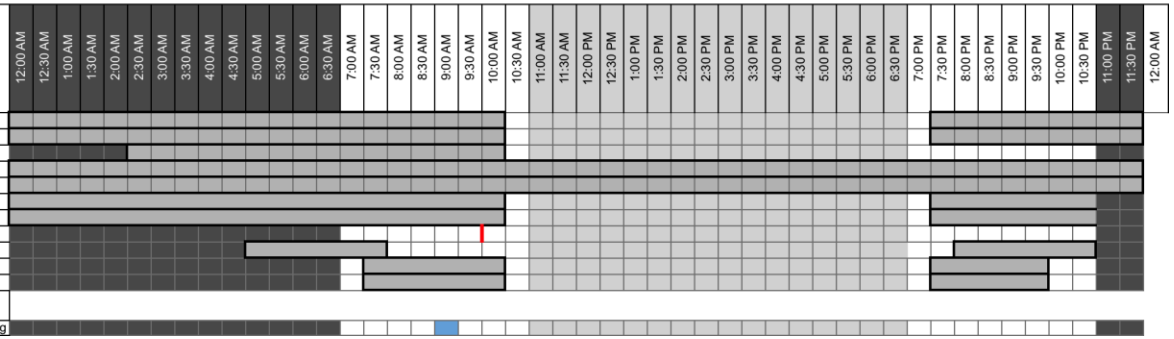


Thur Oct. 5 (Day 12)



	Rules Section	Contest Type	Total Pts Available	Total # of tasks or periods	Daily # of tasks or periods		Daily Points Available
Energy Balance Contest begins							
Refrigerator	C8-1	MEAS	8.000	766	52	15-min periods	0.543
Freezer	C8-2	MEAS	8.000	766	52	15-min periods	0.543
Temperature	C7-1	MEAS	55.000	558	18	15-min periods	1.774
Humidity	C7-2	MEAS	25.000	558	18	15-min periods	0.806
Lighting	C9-1	TASK	30.000	30	3	Hours	3.000
Game night	C9-4	SUBJ	5.000	1	1	Event	5.000
DAILY AVAILABLE POINTS							**11.667**
CUMULATIVE AVAILABLE POINTS							**11.667**
All Team Photo							
Opening ceremony line-up							
Opening ceremony							

Fri Oct. 6 (Day 13)



	Rules Section	Contest Type	Total Pts Available	Total # of tasks or periods	Daily # of tasks or periods		Daily Points Available
Temperature	C7-1	MEAS	55.000	558	60	15-min periods	5.914
Humidity	C7-2	MEAS	25.000	558	60	15-min periods	2.688
Indoor Air Quality	C7-3	MEAS	10.000	320	32	8-hour period	1.000
Refrigerator	C8-1	MEAS	8.000	766	96	15-min periods	1.003
Freezer	C8-2	MEAS	8.000	766	96	15-min periods	1.003
Clothes Washer	C8-3	TASK	10.000	5	1	Load	2.000
Clothes Drying	C8-4	TASK	20.000	5	1	Load	4.000
Air Tightness Score Released	C7-4	MEAS	10.000	1	1	Measurement	10.000
Lighting	C9-1	TASK	30.000	30	5	Hours	5.000
Home Electronics	C9-2	TASK	10.000	25	3	Hours	1.200
Hot Water	C8-6	TASK	42.000	14	2	Draw	6.000
DAILY AVAILABLE POINTS							**39.807**
CUMULATIVE AVAILABLE POINTS							**51.474**
Team/organizer meeting							

Impound period | Task Period | Meeting/Event | Public exhibit hours | Juried contest results | Tasks requiring observer | Food preparation and cooking | Jury walkthroughs

Sat Oct. 7 (Day 14)

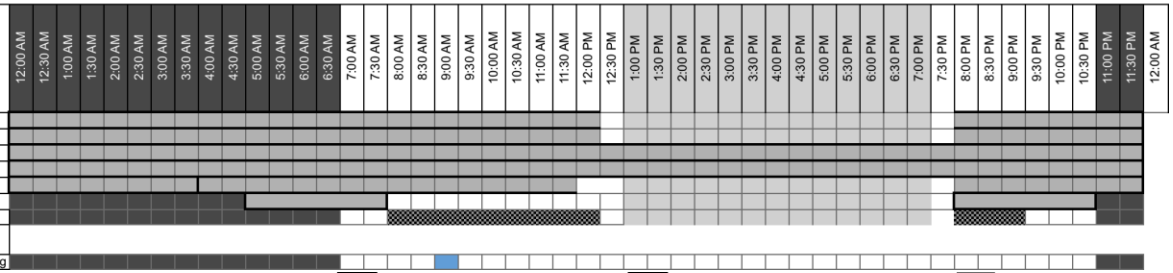
	Rules Section	Contest Type	Total Pts Available	Total # of tasks or periods	Daily # of tasks or periods		Daily Points Available
Temperature	C7-1	MEAS	55.000	558	60	15-min periods	5.914
Humidity	C7-2	MEAS	25.000	558	60	15-min periods	2.688
Indoor Air Quality	C7-3	MEAS	10.000	320	48	15-min periods	1.500
Refrigerator	C8-1	MEAS	8.000	766	96	15-min periods	1.003
Freezer	C8-2	MEAS	8.000	766	96	15-min periods	1.003
Clothes Washer	C8-3	TASK	10.000	5	1	Load	2.000
Clothes Drying	C8-4	TASK	20.000	5	1	Load	4.000
Lighting	C9-1	TASK	30.000	30	5	Hours	5.000
Home Electronics	C9-2	TASK	10.000	25	3	Hours	1.200
Hot Water	C8-6	TASK	42.000	14	2	Draws	6.000
Cooking	C8-5	TASK	12.000	6	1	Task	2.000
Commuting	C9-5	TASK	45.000	5	1	Trip	9.000
DAILY AVAILABLE POINTS							**41.307**
CUMULATIVE AVAILABLE POINTS							**92.782**
						Team/organizer meeting	

Sun Oct. 8 (Day 15)

	Rules Section	Contest Type	Total Pts Available	Total # of tasks or periods	Daily # of tasks or periods		Daily Points Available
Refrigerator	C8-1	MEAS	8.000	766	96	15-min periods	1.003
Freezer	C8-2	MEAS	8.000	766	96	15-min periods	1.003
Temperature	C7-1	MEAS	55.000	558	60	15-min periods	5.914
Humidity	C7-2	MEAS	25.000	558	60	15-min periods	2.688
Indoor Air Quality	C7-3	MEAS	10.000	320	16	15-min periods	0.500
Clothes Washer	C8-3	TASK	10.000	5	1	Load	2.000
Clothes Drying	C8-4	TASK	20.000	5	1	Load	4.000
Lighting	C9-1	TASK	30.000	30	4	Hours	4.000
Home Electronics	C9-2	TASK	10.000	25	3	Hours	1.200
Cooking	C8-5	TASK	12.000	6	1	Task	2.000
Commuting	C9-5	TASK	45.000	5	1	Trip	9.000
DAILY AVAILABLE POINTS							**33.307**
CUMULATIVE AVAILABLE POINTS							**126.089**
						Team/organizer meeting	

Mon Oct. 9 (Day 16)

	Rules Section	Contest Type	Total Pts Available	Total # of tasks or periods	Daily # of tasks or periods		Daily Points Available
Temperature	C7-1	MEAS	55.000	558	66	15-min periods	6.505
Humidity	C7-2	MEAS	25.000	558	66	15-min periods	2.957
Refrigerator	C8-1	MEAS	8.000	766	96	15-min periods	1.003
Freezer	C8-2	MEAS	8.000	766	96	15-min periods	1.003
Indoor Air Quality	C7-3	MEAS	10.000	320	64	15-min periods	2.000
Lighting	C9-1	TASK	30.000	30	3	Hours	3.000
Jury Walkthroughs	C1 to C6	JURIED	-	-	-		-
DAILY AVAILABLE POINTS							**16.468**
CUMULATIVE AVAILABLE POINTS							**142.557**
						Team/organizer meeting	



Impound period | Task Period | Meeting/Event | Public exhibit hours | Juried contest results | Tasks requiring observer | Food preparation and cooking | Jury walkthroughs

Tues Oct. 10 (Day 17)

	Rules Section	Contest Type	Total Pts Available	Total # of tasks or periods	Daily # of tasks or periods		Daily Points Available
Temperature	C7-1	MEAS	55.000	558	96	15-min periods	9.462
Humidity	C7-2	MEAS	25.000	558	96	15-min periods	4.301
Indoor Air Quality	C7-3	MEAS	10.000	320	64	15-min periods	2.000
Refrigerator	C8-1	MEAS	8.000	766	96	15-min periods	1.003
Freezer	C8-2	MEAS	8.000	766	96	15-min periods	1.003
Lighting	C9-1	TASK	30.000	30	3	Hours	3.000
Jury Walkthroughs	C1 to C6	JURIED	-	-	-		-
Home Electronics	C9-2	TASK	10.000	25	5	Hours	2.000
Clothes Washer	C8-3	TASK	10.000	5	1	Load	2.000
Clothes Drying	C8-4	TASK	20.000	5	1	Load	4.000
Commuting	C9-5	TASK	45.000	5	1	Trip	9.000
Hot Water	C8-6	TASK	42.000	14	3	Draws	9.000
Cooking	C8-5	TASK	12.000	6	1	Task	2.000
Dinner Parties	C9-3	SUBJ	10.000	2	1	Event	5.000
DAILY AVAILABLE POINTS							**53.769**
CUMULATIVE AVAILABLE POINTS							**196.325**
						Team/organizer meeting	

Weds Oct. 11 (Day 18)

	Rules Section	Contest Type	Total Pts Available	Total # of tasks or periods	Daily # of tasks or periods		Daily Points Available
Temperature	C7-1	MEAS	55.000	558	96	15-min periods	9.462
Humidity	C7-2	MEAS	25.000	558	96	15-min periods	4.301
Indoor Air Quality	C7-3	MEAS	10.000	320	64	15-min periods	2.000
Refrigerator	C8-1	MEAS	8.000	766	96	15-min periods	1.003
Freezer	C8-2	MEAS	8.000	766	96	15-min periods	1.003
Lighting	C9-1	TASK	30.000	30	5	Hours	5.000
Clothes Washer	C8-3	TASK	10.000	5	1	Load	2.000
Clothes Drying	C8-4	TASK	20.000	5	1	Load	4.000
Home Electronics	C9-2	TASK	10.000	25	6	Hours	2.400
Cooking	C8-5	TASK	12.000	6	2	Tasks	4.000
Hot Water	C8-6	TASK	42.000	14	3	Draws	9.000
Commuting	C9-5	TASK	45.000	5	1	Trip	9.000
Dinner Parties	C9-3	SUBJ	10.000	2	1	Event	5.000
DAILY AVAILABLE POINTS							**58.169**
CUMULATIVE AVAILABLE POINTS							**254.494**
						Team/organizer meeting	
						Water contest awards	

Thur Oct. 12 (Day 19)

	Rules Section	Contest Type	Total Pts Available	Total # of tasks or periods	Daily # of tasks or periods		Daily Points Available
Temperature	C7-1	MEAS	55.000	558	60	15-min periods	5.914
Humidity	C7-2	MEAS	25.000	558	60	15-min periods	2.688
Refrigerator	C8-1	MEAS	8.000	766	96	15-min periods	1.003
Freezer	C8-2	MEAS	8.000	766	96	15-min periods	1.003
Lighting	C9-1	TASK	30.000	30	2	Hours	2.000
Home Electronics	C9-2	TASK	10.000	25	3	Hours	1.200
Hot Water	C8-6	TASK	42.000	14	2	Draws	6.000
Commuting	C9-5	TASK	45.000	5	1	Trip	9.000
Architecture	C1	SUBJ	100.000	n/a	n/a		100.000
Water	C6	SUBJ	100.000	n/a	n/a		100.000
DAILY AVAILABLE POINTS							**228.807**
CUMULATIVE AVAILABLE POINTS							**483.301**
						Team/organizer meeting	
						Market Potentiall contest awards	
						Communications contest awards	

Impound period | Task Period | Meeting/Event | Public exhibit hours | Juried contest results | Tasks requiring observer | Food preparation and cooking | Jury walkthroughs

Fri Oct. 13 (Day 20)

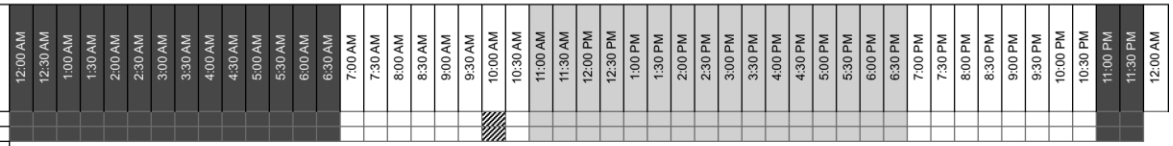
	Rules Section	Contest Type	Total Pts Available	Total # of tasks or periods	Daily # of tasks or periods		Daily Points Available
Temperature	C7-1	MEAS	55.000	558	42	15-min periods	4.140
Humidity	C7-2	MEAS	25.000	558	42	15-min periods	1.882
Indoor Air Quality	C7-3	MEAS	10.000	320	32	15-min periods	1.000
Refrigerator	C8-1	MEAS	8.000	766	42	15-min periods	0.439
Freezer	C8-2	MEAS	8.000	766	42	15-min periods	0.439
Home Electronics	C9-2	TASK	10.000	25	2	Hours	0.800
Cooking	C8-5	TASK	12.000	6	1	Tasks	2.000
Hot Water	C8-6	TASK	42.000	14	2	Draws	6.000
Innovation	C4	SUBJ	100.000	n/a	n/a		100.000
Communications	C5	SUBJ	100.000	n/a	n/a		100.000
Energy Production	C10-1	MEAS	60.000	n/a	n/a		60.000
Energy Value	C10-2	MEAS	40.000	n/a	n/a		40.000
DAILY AVAILABLE POINTS							**316.699**
CUMULATIVE AVAILABLE POINTS							**800.000**

Team/organizer meeting
Architecture contest awards
Innovation contest awards
Final Protest Submission Deadline
Team Open House

Sat Oct. 14 (Day 21)

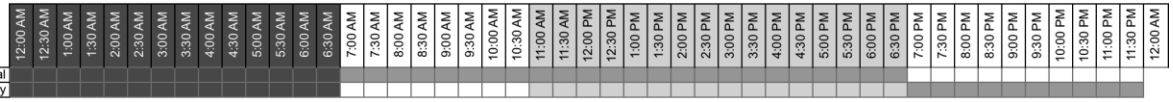
	Rules Section	Contest Type	Total Pts Available	Total # of tasks or periods	Daily # of tasks or periods		Daily Points Available
Market Potential	C2	SUBJ	100.000	n/a	n/a		100.000
Engineering	C3	SUBJ	100.000	n/a	n/a		100.000
DAILY AVAILABLE POINTS							**100.000**
CUMULATIVE AVAILABLE POINTS							**900.000**

Contest instrumentation removal
Engineering contest and overall competition awards ceremony
Team/organizer meeting
Victory Celebration



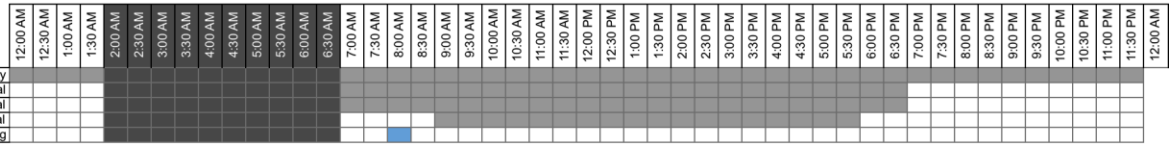
Sunday Oct. 15 (Day 22)

Sensors and datalogger removal
Stand-alone house disassembly



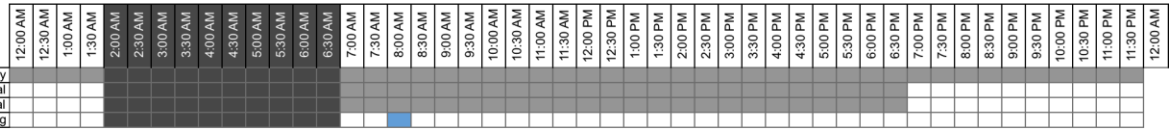
Monday Oct. 16 (Day 23)

Stand-alone house disassembly
Sensors and datalogger removal
Microgrid, network, and village infrastructure removal
Water removal
Team/organizer meeting



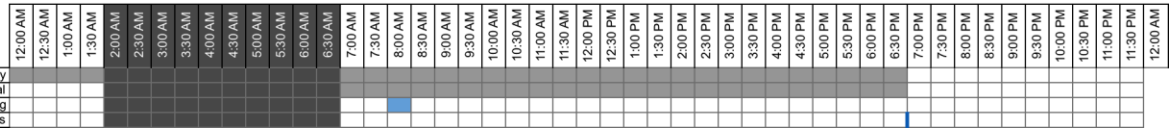
Tues Oct. 17 (Day 24) - Thur Oct. 19 (Day 26)

Stand-alone house disassembly
Sensors and datalogger removal
Microgrid, network, and village infrastructure removal
Team/organizer meeting



Friday Oct. 20 (Day 27)

Stand-alone house disassembly
Microgrid, network, and village infrastructure removal
Team/organizer meeting
Final disassembly inspections



Impound period | Task Period | Meeting/Event | Public exhibit hours | Juried contest results | Tasks requiring observer | Food preparation and cooking | Jury walkthroughs

Appendix B Juried Contest Guidelines

B-1. Juror Guidelines

A jury's evaluation of each team's project consists of the following three phases:

1. Deliverables review
2. On-site walkthroughs
3. Deliberation

Phase 1: Deliverables Review

Each juror will spend approximately one hour reviewing the submitted deliverables to explore the relevant details of each team's project. If questions arise during the deliverables review phase, jurors may address those questions to the appropriate contest official before or during the event. All juries will be provided with the estimated construction cost of each team's competition prototype and the associated cost estimator report.

Table 6: Jury Reviews

Jury	Time Commitment for Deliverables Review (per team)	Relevant Deliverables for Review	Time Commitment for On-Site Walkthrough (per team)
Architecture	1 to 2 hours	Architecture Narrative Architectural Photography As-Built Drawings As-Built Specifications Audiovisual Presentation	30 minutes 10 minutes (nighttime)
Market Potential	1 to 2 hours	Market Potential Narrative Team Cost Estimate As-Built Drawings As-Built Specifications Audiovisual Presentation	30 minutes
Engineering	1 to 2 hours	Engineering Narrative Energy Model Analysis and Results As-Built Drawings As-Built Specifications Audiovisual Presentation	30 minutes
Communications	1 to 2 hours	Communications Narrative Team website and/or social media accounts Public exhibit materials Audiovisual Presentation	30 minutes
Innovation	1 to 2 hours	Innovation Narrative As-Built Drawings As-Built Specifications Audiovisual Presentation	30 minutes
Water	1 to 2 hours	Water Narrative As-Built Drawings As-Built Specification Audiovisual Presentation	30 minutes

Phase 2: On-Site Walkthroughs

The on-site walkthroughs take place on the competition site and offer the jurors an opportunity to make visual verifications of information presented in the deliverables and to ask the decathletes for clarification of questions that may have arisen

during the deliverables review. The logistical details of the on-site walkthroughs will be provided to each juror by the contest official prior to the juror's arrival on the competition site.

Phase 3: Deliberation

STEP #1

During the deliberation phase, which takes place after the completion of on-site walkthroughs, the jury is encouraged, but not required, to place each team into one of four classes based on each team's performance relative to the contest criteria. The four classes are:

Class #1: ECLIPSES contest criteria 91% – 100% of available points

Class #2: EXCEEDS contest criteria 81% – 90% of available points

Class #3: EQUALS contest criteria 61% – 80% of available points

Class #4: APPROACHES contest criteria 0% – 60% of available points

Juries are not required to place a uniform number of teams in all classes or to place at least one team in every class. For example, if a jury determines that no teams are worthy of Class #1, there would be no teams with scores greater than 90%. After reviewing the teams in each class, the jury shall assign each team a percentage integer from 0% to 100%.

STEP #2

After assigning each team a percentage integer from 0% to 100%, the jury shall submit its percentage integers to the contest official. The contest official will then submit the percentages to the competition manager, who will convert them into a score based on the total number of available points for the contest being judged. The competition manager will round off any non-integer percentage scores to the nearest integer. Prior to posting scores in the scoring server, the competition manager will apply any applicable penalties that may have been incurred.

STEP #3

The three highest scoring teams (plus ties) will be given awards during a scheduled announcement during contest week (see Appendix A for announcement schedule). Pending the jurors' availability, the organizers will invite the jurors to make the announcement. The scores for all of the teams will be posted immediately following the announcement.

STEP #4

The jury may submit written or recorded scoring justifications for each team to the contest official. The jury's scoring justifications may be provided as feedback to each team so it might better understand the jury's evaluation. The justifications may be posted on the Solar Decathlon website.

B-2. Team Guidelines

a. It is ultimately the team's responsibility to be ready for the arrival of juries at the times indicated in the jury walkthrough schedule.

b. Teams shall show all possible configurations of the house during the walkthroughs of the Architecture, Market Potential, Water, Innovation, and Engineering juries. House configurations that could affect the outcome of contests and that were not demonstrated to the juries are prohibited during contest week. Some examples of reconfigurable features include:

   - A significant moveable component, such as a room, wall, or bed
   - Significant shading devices, such as retractable awnings or operable shutters
   - Towel-drying locations
   - Window coverings that may obstruct views or significantly reduce light levels.

   If a team does not have time to do a live reconfiguration during the jury walkthroughs, the team must use some other method, such as photographs or video, to show all reconfigurable features in their various configurations. If a team is not planning to actually reconfigure qualifying features at any time during contest week and has not shown or described the reconfiguration in the drawings, project manual, audiovisual presentation, or video walkthrough, that team does not have to show the reconfiguration to the juries.

   All plug-in or portable appliances that may be used during contest week must be in their fully deployed locations and configurations during the Architecture, Engineering, Water, Innovation, and Market Potential jury walkthroughs. Also be aware that the Architecture, Engineering, Water, Innovation, and Market Potential juries may request plug-in, portable, or hardwired appliances to be turned on so they can evaluate noise levels or other characteristics of the appliances that may not be apparent when the appliances are off.

c. Rule 11-1, “House Occupancy,” applies during jury walkthroughs. Only decathletes may be present during the walkthroughs.

d. The jury walkthroughs will be held to a very strict schedule for each of the houses. The importance of following this schedule is twofold: 1) To ensure each team receives equal visitation time by the juries; and 2) Any deviation from the schedule will have an immediate effect on other scheduled activities. A small deviation in the defined schedule for the juries could result in a very difficult situation to resolve in another component of the competition. If a team is not ready for a jury to begin its evaluation at the scheduled time, then the total time the jury spends in that team’s house will be reduced.

e. During daytime jury walkthroughs, the jury will have 30 minutes to visit each house, followed by a 5-minute period to travel to the next house. During the 30-minute walkthrough, 20 minutes will be allocated for team members to lead the jury through the house and answer any questions the jury may have. After 25 minutes, all team members shall leave the house so that the jury can hold a private, 5-minute discussion about the house it has just visited.

    a. For the Communications jury, the team shall present its “Personalized Tour” defined in Appendix B-3 to the communications jury. Each team is expected to spend up to 10 minutes to present the personalized tour to the Communications Jury as it would be presented to the public. The version of the personalized tour given to the Communications Jury must represent the personalized tour presented to the public throughout the competition week. The team should briefly describe how it would modify the “Personalized Tour” to accommodate large crowds or long lines. The remaining time shall be used to present the team communications strategy, including brand management and outreach off the competition site and to answer questions.

f. The Architecture Jury will visit each house a second time at night. During the nighttime walkthrough, the Architecture Jury will have 10 minutes to visit each house. After 10 minutes, the team shall leave the house so that the jury can hold a private 3-minute discussion about the house it has just visited. Teams are permitted to adjust the house lighting during the Architecture Jury visit.

g. Presentation boards or other visual media are permitted to be on display during jury walkthroughs.

h. Teams may not record the jury walkthrough or the private jury discussion period.

i. Areas of the house excluded from the accessible exhibit route may be accessed by the juries and considered in their evaluations.

j. The organizers are expected to provide all juries with summaries of important rule and code violations for each team so that juries are aware of violations before giving credit for aspects of the project that are not in compliance.

B-3. Public Exhibit Requirements

The team shall prepare two versions of its public tour.

Version #1: Personalized Tour

- The personalized tour is a comprehensive tour and is appropriate for times when wait lines are short or nonexistent.

Version #2: Fast Tour

- The fast tour is a fast-yet-informative tour that accommodates large crowds and long lines.

Common Requirements

- Both versions of the public tours shall be informative, interesting, and accessible by people of all abilities.
- Teams are encouraged to employ effective and creative methods to control wait times and engage visitors waiting in line during public hours.
- Any power-consuming devices used during the personalized tour must be plugged into the house at all times when not in use.

Appendix C Measured Subcontest Guidelines

C-1. Monitored Performance Subcontests

Points for monitored performance subcontests are expected to be automatically awarded based on measurements made by sensors communicating with a datalogger. Prior to the competition, the organizers will provide a list of sensors expected to be used in the monitored performance contests to enable teams to purchase the necessary products to practice the contests before the competition using the same equipment that will be used by the organizers.

The organizers will also provide details for the central data acquisition equipment and associated accessories that collect sensor readings and transmit the data to the scoring server. Detailed policies and procedures for accommodating competition instruments will be distributed on the project group.

C-2. Task Completion Subcontests

Within the measured contests, teams earn points in several subcontests by successfully completing a task, the result of which is recorded and consequently entered into the scoring engine. Detailed task completion subcontest policies and procedures will be provided on the project group.

Appendix D Competition Deliverables

Throughout the project, the organizers will require teams to submit deliverables necessary for ensuring safety and for generating sufficient interest in the event. These design deliverables serve the following important functions:

- In the **schematic design summary**, the team shall disclose to the organizers all non-standard design features, communications strategies, site operations plans, and health and safety considerations that require further review prior to the continuation of the project into the design development phase.
- The **drawings and project manual** shall demonstrate compliance with the Solar Decathlon Building Code and the Solar Decathlon Rules so that the inspectors will be able to grant final on-site approval by verifying that the constructed project on the competition site was accurately represented by the approved drawings and project manual.
- The **drawings and project manual** shall clearly describe a team's proposed assembly and disassembly procedures. The site operations manager will review the teams' procedures to identify and address potential conflicts among the teams.
- The **drawings and project manual** are expected to provide sufficient detail to enable a residential contractor to generate an accurate, detailed cost estimate and to efficiently construct the building as the design team intended it to be built.
- Because the juries have a very limited opportunity to evaluate the constructed projects on the competition site, the **submitted jury deliverables** will provide the only means for a team to provide a detailed presentation of its project to the juries. In the weeks leading up to contest week, each juror shall evaluate the submitted jury deliverables. The primary purpose of the juries' walkthroughs on the competition site is to verify that the project, as assembled on the competition site, was accurately represented in the jury deliverables; and to ask the decathletes any clarifying questions that arose during the evaluation of the design via the jury deliverables.

D-1. Team Short Description & Project Management Plan

100-word description

The team shall provide a 100-word description of the team and its goals. This is expected to be used by the organizers for outreach and for placement on the Solar Decathlon website.

Project Management Plan

The team shall provide a project management plan that outlines the team's structure, approach to the competition, general work schedule, course integration, and fundraising schedules. The project plan is limited to five (5) pages.

D-2. Schematic Design Summary

The schematic design proposal will be reviewed by the organizers, and feedback will be provided. It will not be reviewed by any juries and will not be made publicly available until after the completion of the competition, with the exception of the renderings, which may be shared on the Solar Decathlon website.

Format Requirements

☐	Packaged into a single PDF file. Renderings may be submitted separately, if desired.
☐	Up to 30 pages

Content Requirements

☐	Team mission statement (1 paragraph)
☐	Detailed strategy for winning the competition including a contest-by-contest breakdown (3–5 pages)
☐	Design drawings and/or written description of the following systems and components, with identification of any unique systems and components that are being considered (12–17 pages): • Temporary foundations and anchors • Site Plan, including the competition prototype, tour route, decks, and additional site elements • Landscaping Plan • Interior, dimensioned floor plans, including the tour route • Building sections • Typical wall, floor, and roof sections • Structural system details • Interior finishes • Plumbing plan and isometric, including on-site water storage tanks • DC electrical plan and one-line diagram • AC electrical plan and one-line diagram • Mechanical (including HVAC and solar mechanical, if any) • Transportation and on-site assembly approach (modules, cranes, integrated trailers, etc.)
☐	Summary of potential innovations and non-standard elements being pursued (1–2 pages)
☐	Description of public exhibit, communications, and outreach strategy (1–2 pages)
☐	Computer-generated renderings of competition prototype design (5–6 images)
☐	Health and Safety Plan outline including approach to meeting OSHA training requirement (1–2 pages)
☐	Identification of the licensed design professional expected to stamp structural documentation (1 page)

D-3. Team Overview

Teams shall provide updated information on their team strategy, makeup, project design, etc., for use on the Solar Decathlon website and for organizer outreach. Teams are encouraged to have developed an online presence (website, social media, blog, guest postings, etc.) by this time.

Format Requirements

☐	Packaged into a single PDF file. Renderings and/or audiovisuals may be submitted separately, if desired.
☐	Up to 20 pages

Content Requirements

☐	Updated 100-word description of team and its goals
☐	Digital representation (renderings, graphic floor plan, photography of scale model, animation, etc.) of competition prototype design (8–10 images, minimum 1080 pixels in shortest dimension)
☐	Team photograph including as many members of the team as possible and associated file identifying the name of each individual shown and the photographer (1 image, minimum 1080 pixels in shortest dimension)
☐	Summary of unique project elements, considerations, innovations, research, or technology being considered (1–4 pages)
☐	Summary of team's current online presence, including social media accounts and website address, as utilized (1–2 pages)
☐	Summary of public outreach conducted and press coverage achieved to-date (1–2 pages)

D-4. Design Development Documentation Submission

The design development submission shall represent 90% complete construction documentation. The documentation shall clearly indicate all design details, house systems, and methodologies expected to be present in the competition prototype on the competition site. While some details may not be fully complete or finalized, the design development submission shall provide sufficient information for the organizers to conduct a thorough rules and building code compliance review. The submission must address the team's approach to safety, including identification of team-specific concerns and constraints. All major decisions with regard to the project design is expected to be complete. The design development submission will not be reviewed by any juries, however, it may be made publicly available following each submission.

Design Development Drawings

Format Requirements

☐	Packaged into a single, bookmarked PDF document
☐	Up to 150 pages
☐	ANSI "D" (22 in. x 34 in. [55.88 x 86.36 cm]) sheet size

Content Requirements

☐	Design drawings, including at a minimum: • General, including solar envelope compliance, accessible tour route, finished square footage, water delivery and removal compliance information, and constructed footprint calculations • Site, including temporary footing locations, ground penetrations, and adjustable footings • Landscape, including plantings, containers, and watering methodology • Structural, including building, decking, and associated structures • Architectural, including dimensioned floorplans, building sections, detailed sections, reflected ceiling plans, roof plans, elevations, window and door schedules, and exterior structures • Interiors, including finishes, furniture layout, and cabinetry • Fire Protection, including sprinklers and required detection systems • Plumbing, including layout, schedules, diagrams, and solar thermal (if applicable) • Mechanical, including layout, schedules, diagrams, and installation requirements

• Electrical, including AC and DC layout, 1-line diagrams, 3-line diagrams, and sizing calculations • Telecommunications, including instrumentation, wiring, and associated elements • Operations, including house transportation, assembly methodology, and staging

Design Development Project Manual

Format Requirements

☐	Packaged into a single, bookmarked PDF document

Content Requirements

☐	Project Overview
☐	Detailed Water Budget
☐	Interconnection Information Form, including summary of any unlisted electrical components
☐	Summary of reconfigurable features
☐	Health and Safety Approach[12]
☐	Energy Analysis and Model
☐	Structural Professional Acknowledgement Letter, signed by licensed professional indicating acceptance of the Construction Documentation deliverable deadline and support of team
☐	Structural Calculations
☐	Construction Specifications

D-5. Digital Project Representation

The teams shall submit renderings, photographs, graphics, and/or animations representing the competition prototype design and competition entry for use on the Solar Decathlon website and in outreach materials generated by the organizers. High quality and varied submissions are expected to lead to greater visibility for the team. This submission can include renderings, photography of scale models or mock-ups, refined graphics, computer-generated walkthroughs, 360-degree virtual tours, or other representations as determined by the team. The organizers will select a subset of submitted documentation for public distribution.

Format Requirements

☐	Packaged into a single, zipped file. If elements are hosted online, a link shall be included in the submission.
☐	Photographs shall have be at least 1080 pixels in their shortest dimension and shall be accompanied by a file containing the name and affiliation of the photographer or graphic creator and identification of any individuals visible.
☐	Videos, if submitted, shall be widescreen format and accompanied by a verbatim transcript of the audio narrative to meet Section 508 Accessibility standards and identification of the creator and any individuals visible in the video. Closed captioning does not need to be included within the video file. Permission must be provided for any copyrighted content or audio used as part of the video.

Content Requirements

☐	Minimum of five images, with at least one exterior, one interior, and one birds-eye view
☐	Photographs shall have be at least 1080 pixels in their shortest dimension and shall be accompanied by a file containing the name and affiliation of the photographer or graphic creator and identification of any individuals visible.
☐	Videos, if submitted, shall be widescreen format and accompanied by a verbatim transcript of the audio narrative to meet Section 508 Accessibility standards and identification of the creator and any individuals visible in the video. Closed captioning does not need to be included within the video file. Permission must be provided for any copyrighted content or audio used as part of the video.

[12] The team must indicate its approach to meeting the requirements for Health and Safety outlined in Appendix F.

D-6. Final Construction Documentation Submission

The final construction documentation submission shall represent 100% complete construction documentation, with sufficient detail for a contractor to build the competition prototype house as it is expected to appear on the competition site. The documentation shall include complete and final design details, house system specifications, and construction. While it is recognized that a few minor details may change during construction, the construction documentation submission shall provide sufficient information for the organizers to conduct a final rules and building code compliance verification. The submission must address the team's approach to safety, including identification of team-specific concerns and constraints. The construction documentation submission will not be reviewed by any juries, however, it may be made publicly available following each submission.

Construction Drawings

Format Requirements

☐	Packaged into a single, bookmarked PDF document
☐	Up to 150 pages
☐	ANSI "D" (22 in. x 34 in. [55.88 x 86.36 cm]) sheet size

Content Requirements

☐	Complete construction drawings, including at a minimum: • General, including solar envelope compliance, accessible tour route, finished square footage, water delivery and removal compliance information, and constructed footprint calculations • Site, including temporary footing locations, ground penetrations, and adjustable footings • Landscape, including plantings, containers, and watering methodology • Structural, including building, decking, and associated structures • Architectural, including dimensioned floorplans, building sections, detailed sections, reflected ceiling plans, roof plans, elevations, window and door schedules, and exterior structures • Interiors, including finishes, furniture layout, and cabinetry • Fire Protection, including sprinklers and required detection systems • Plumbing, including layout, schedules, diagrams, and solar thermal (if applicable) • Mechanical, including layout, schedules, diagrams, and installation requirements • Electrical, including AC and DC layout, 1-line diagrams, 3-line diagrams, and sizing calculations • Telecommunications, including instrumentation, wiring, and associated elements • Operations, including house transportation, assembly methodology, and staging

Project Manual

Format Requirements

☐	Packaged into a single, bookmarked PDF document

Content Requirements

☐	Project Overview
☐	Detailed Water Budget
☐	Interconnection Application Form, including summary of any unlisted electrical components
☐	Summary of reconfigurable features
☐	Complete Energy Analysis and Model
☐	Construction Specifications
☐	Draft Cost Estimate

Stamped Structural Submission

The structural submission shall represent a complete structural design, including structural calculations and specifications. The entire submission shall be stamped by a licensed design professional, such as a structural engineer or architect, licensed to stamp residential structural drawings and calculations in the team's authority having jurisdiction and with educational and professional qualifications comparable to those required for licensure in the state of Colorado.

Format Requirements

☐	Packaged into a single, bookmarked PDF document

Content Requirements

☐	Stamped structural calculations and specifications demonstrating compliance with the Solar Decathlon Building Code

Health and Safety Plan

Format Requirements

☐	Packaged into a single, bookmarked PDF document

Content Requirements

☐	Health and Safety Plan meeting the requirements outlined in 57
☐	Proof of OSHA 30-hour training for the required team members outlined in 57

D-7. Project Summary & Public Exhibit Materials

The team shall submit an updated description of the project team and design approach, renderings, graphic floor plans, logos, and other relevant information for use on the Solar Decathlon website and for organizer outreach about the event. The team shall submit all public exhibit materials the team plans to employ on the competition site, for organizer review of proper use of Solar Decathlon branding, sponsor recognition, content, etc.

Project Summary

Format Requirements

☐	Packaged into a single, bookmarked PDF file
☐	10 pages maximum

Content Requirements

☐	A 100-word or less description of your team house. (1 paragraph)
☐	Design philosophy and house design, indicating goals, architectural style, target market, etc. (1 page)
☐	Unique house features. What makes the house unlike any other? (1 page)
☐	Technological innovations incorporated into your house. (1–2 pages)
☐	Define the target client for the team house and how the design responds to this market's needs. (1 paragraph)
☐	Team organization, number of members, and permanent (non-university) email addresses for all team members. (1 page, or attachment)
☐	Future plans for the house. Where will it go after the competition? (1 paragraph).

Team Photograph

Format Requirements

☐	Photographs shall have be at least 1080 pixels in their shortest dimension and shall be accompanied by a file containing the name and affiliation of the photographer or graphic creator and identification of any individuals visible

Content Requirements

☐	Include all team members (if possible), and strive for creativity.

Construction Photography

Format Requirements

☐	Photographs shall have be at least 1080 pixels in their shortest dimension and shall be accompanied by a file containing the name and affiliation of the photographer(s) and identification of any individuals visible.

Content Requirements

☐	At least 10 photographs showing construction to-date of the competition prototype

Team Logo

Format Requirements

☐	Vector or high-resolution format appropriate for print; EPS preferred

Content Requirements

☐	Graphic logo
☐	Associated text file containing name, phone number, and email of person submitting logo

Digital Project Representation

The teams shall submit updated renderings, photographs, graphics, and/or animations representing the competition prototype design and competition entry for use on the Solar Decathlon website and in outreach materials generated by the organizers. High quality and varied submissions are expected to lead to greater visibility for the team. This submission can include renderings, photography of scale models or mock-ups, refined graphics, computer-generated walkthroughs, 360-degree virtual tours, or other representations as determined by the team. The organizers will select a subset of submitted documentation for public distribution.

Format Requirements

☐	Packaged into a single, zipped file. If elements are hosted online, a link shall be included in the submission.
☐	Photographs shall have be at least 1080 pixels in their shortest dimension and shall be accompanied by a file containing the name and affiliation of the photographer or graphic creator and identification of any individuals visible
☐	Videos, if submitted, shall be widescreen format and accompanied by a document including a verbatim transcript of the audio narrative to meet Section 508 Accessibility standards and identification of the creator and any individuals visible in the video. Closed captioning does not need to be included within the video file. Permission must be provided for any copyrighted content or audio used as part of the video.

Content Requirements

☐	Minimum of five images, with at least one exterior, one interior, and one birds-eye view
☐	Photographs shall have be at least 1080 pixels in their shortest dimension and shall be accompanied by a file containing the name and affiliation of the photographer or graphic creator and identification of any individuals visible.
☐	Videos, if submitted, shall be widescreen format and accompanied by document including a verbatim transcript of the audio narrative to meet Section 508 Accessibility standards and identification of the creator

	and any individuals visible in the video. Closed captioning does not need to be included within the video file. Permission must be provided for any copyrighted content or audio used as part of the video.

Competition Prototype Graphic Floor Plan

The graphic floor plan is expected to be posted to the Solar Decathlon website and used in various communications materials to introduce the public to each competition prototype. The floor plan should be presented in a way to demonstrate the layout of the house, interior furnishings, and all site elements.

Format Requirements

☐	Natively-generated vector PDF file

Content Requirements

☐	Complete floor plan showing all exterior elements, including landscaping, ramps, decks, and solar envelope and interior elements, including furniture and fixtures

Dinner Party Menus and Recipes

Format Requirements

☐	Packaged into a single, bookmarked PDF file

Content Requirements

☐	Restaurant-style dinner party menu for each dinner party
☐	Comprehensive ingredient list for each dinner party.

Public Exhibit Materials

Format Requirements

☐	Packaged into a single, bookmarked PDF file (see Appendix F for PDF formatting and file-naming requirements)
☐	Each public exhibit material shall be represented at its full scale within the PDF; therefore, it is expected that the PDF may contain sheets at several different scales.

Content Requirements

☐	Design of onsite signage, team handout, digital displays, or other products intended to convey information to the public
☐	Plan depicting location of all public exhibit materials
☐	Team uniform design
☐	Links to team website and/or social media properties

D-8. Jury Deliverables

The jury deliverables provide an opportunity for teams to present their projects to each jury prior to arrival on the competition site. The jury deliverables are expected to provide a summary of each team's approach to meeting the contest requirements for each of the juried contests. The jury deliverables will be reviewed by the respective jury prior to the competition. The narratives may include any combination of text and graphics. The narratives may link to multimedia hosted online, which will be reviewed by jurors as time permits. The narratives will not be made public prior to the release of the respective contest results.

Jury Narratives

Format Requirements

☐	Packaged into a single, bookmarked PDF file for each jury

Content Requirements

☐	Architecture Narrative, including architectural photography (10 pages, maximum + up to 10 photographs)
☐	Market Potential Narrative, including complete cost estimate[13] (10 pages, maximum + cost estimate)
☐	Engineering Narrative, including energy analysis (10 pages, maximum + energy model analysis and results)
☐	Communications Narrative, including links to team website and/or social media accounts (10 pages, maximum + onsite public exhibit materials)
☐	Innovation Narrative (10 pages, maximum + appendices)
☐	Water Narrative (10 pages, maximum)

As-Built Drawings

Format Requirements

☐	Packaged into a single, bookmarked PDF document
☐	Up to 150 pages
☐	ANSI "D" (22 in. x 34 in. [55.88 x 86.36 cm]) sheet size

Content Requirements

☐	Complete construction drawings representing the as-built competition prototype house and with sufficient detail for a residential general contractor to build the house without additional input from the team.

As-Built Specifications

Format Requirements

☐	Packaged into a single, bookmarked PDF document, of sufficient detail for a residential general contractor to build the house without additional input from the team.

Content Requirements

☐	Construction Specifications

Audiovisual Presentation

Format Requirements

☐	Widescreen, high-definition video file (such as .mov, .mp4, etc.)
☐	3-minute maximum length

[13] The construction estimate shall be created in accordance with Appendix G.

☐	Accompanied by a document including a verbatim transcript of the audio narrative to meet Section 508 Accessibility standards and identification of the creator and any individuals visible in the video. Closed captioning does not need to be included within the video file. Permission must be provided for any copyrighted content or audio used as part of the video.

Content Requirements

☐	Must include video footage of the complete constructed house as built prior to the competition
☐	May contain still photos and graphics
☐	Gives the jurors a realistic preview of what they will experience during the on-site walkthroughs
☐	Includes an audio narrative that explains to viewers what they're seeing and describes the underlying philosophy behind the design and team approach to the competition.

D-9. Final Report

The Final Report shall reflect the results of the team's Solar Decathlon project. It will be used by the organizers to improve future events and provide lessons-learned opportunities.

Format Requirements

☐	Packaged into a single, bookmarked PDF file
☐	20 pages maximum

Content Requirements

☐	Summary of fundraising activities—final project budget and lessons learned
☐	Results of media-outreach activities—include statistics
☐	Results of on-site exhibition activities—estimates of the number of visitors; assessment of visitor experiences; and lessons learned—what went well, what didn't, and what you would do differently
☐	Evaluation of the team's online presence, including statistics; lessons learned—what went well, what didn't, and what you would do differently
☐	Team perspective on the effectiveness of the organizers' communications efforts with both the teams and the public
☐	Description of future plans for the house
☐	Short description of each team officer's future plans for employment, continued study, or other endeavors
☐	Suggested competition improvements
☐	Any other information you feel would be helpful to the organizers or future teams
☐	Contact list of all team members who worked on the project, including permanent (non-university) email addresses

Appendix E Health and Safety Plan Requirements

The overall success of the Solar Decathlon competition is dependent on the health and safety of all team members, volunteers, organizers, and the public. To achieve this objective, each team is required to submit a Health and Safety Plan that identifies the following elements:

- How you will be minimizing risk
- How you will address major hazards that may be encountered during assembly and disassembly activities on the competition site
- How you will control these hazards to prevent injury to team and crew members, volunteers, subcontractors, organizers, and the public
- Areas of high risk—such as electrical safety, working at elevated heights/fall protection, hoisting and rigging activities, and safe equipment operations—shall include the necessary level of detail to ensure the health and safety of all site personnel
- How you will ensure that you are in compliance with applicable regulations
- The roles and responsibilities for the Team's core supervisory personnel (Project Manager, Construction Manager and Health and Safety Officer(s)) throughout the event.

E-1. Plan Development

A Health and Safety Plan template will be provided on the project group. The template will identify major topics to address the level of detail required, performance expectations, and requirements such as minimum levels of training needed for various team positions. The format of each team's submitted plan can deviate slightly from the recommended template as long as the information and level of detail are equivalent, and the Decathlon-specific requirements are met. Each plan shall be developed in consideration of the unique needs and requirements of each team's competition prototype alternate and construction methodologies on the competition site.

Teams are to work or consult with their school's environment, safety, and health department during the development process. They can be an excellent resource when developing your Health and Safety Plans, while also ensuring that school-specific requirements are addressed.

E-2. Required Training

To ensure a minimum knowledge base regarding health and safety issues during construction activities, the team's project manager, construction manager, and health and safety officer are required to complete the OSHA 30-hour Construction Safety Training course. Teams are strongly encouraged to have their Faculty Advisor also complete the OSHA 30-hour course. Proof of course completion for the OSHA 30-hour Construction Safety Training shall be included with the Health and Safety plan. Teams are also encouraged to have each team member who will be participating in construction activities to complete an OSHA 10-hour Construction Safety Training class (not mandatory) prior to participating in construction.

E-3. Submission and Approval

Teams are required to submit their Health and Safety Plan to the organizers for acceptance. Teams are responsible for updating the Health and Safety Plan, both before and after acceptance, to reflect changes in construction parameters. For example, if a team did not plan to use a crane to place its house when the plan was submitted but later decided that a crane would be necessary, then the team is required to update the plan accordingly.

During the event, a current copy of each team's Health and Safety Plan shall always be made available on their site in a prominent location. Individuals working on your site shall be briefed on the final, approved plan and should know the expectations regarding safety, hazards, and controls.

Appendix F Cost Estimate Requirements

The teams shall provide a complete construction cost estimate as part of their Market Potential jury narrative, as described in 54. The estimate's appropriateness, professionalism, and level of completion is expected to be validated by a professional cost estimator, with a report provided to the juries. While the exact estimated construction cost of each competition prototype house is not scored, juries will consider the cost-effectiveness with regard to meeting team and design goals.

F-1. Basis for Estimates

a. Each estimate shall be based on the as-built construction documentation. The as-built documentation is expected to closely represent the house as it appears on the competition site.

b. Cost estimates must include all necessary labor, material, and equipment costs necessary to construct the competition prototype. Teams must add professional labor in addition to material costs.

c. The estimate such that if a contractor is responsible for an element in typical U.S. residential construction or the item is integral to the operation of the house, it is to be included.

d. Labor costs shall include the typical installation time for each factor, based on a labor norm (production factor) applied to the contractor installing each item. These costs shall be included as labor costs for a specific item or as a separate line item in the estimate.

e. All labor rates and estimates shall be for typical residential construction sites and schedules. The unique circumstances of the competition site shall not influence the estimate.

f. Material prices for items considered unique, or sole sourced, shall include approximate transportation costs from a supplier 1,000 miles (1609.34 km) distant, regardless of actual distances. Unless available nationally, reclaimed or recycled materials shall be considered sole-sourced materials. Generic materials and those supplied locally do not require transportation costs to be added.

g. Custom and/or shop fabricated items shall be estimated as to the cost to the general contractor, plus any labor required for installation.

h. Heavy equipment and scaffolding necessary for construction on the competition site shall be included. Costs for crane rental and operation time necessary for assembly shall also be included. Small tools do not need to be separately added, as they would be included within the General Conditions allowance.

F-2. Estimate Exclusions

a. The construction cost estimate shall exclude the general contractor's "General Conditions," including but not limited to site supervision, permitting, inspections, overhead, and profit.

b. The estimate is to represent construction costs and shall exclude other project costs including but not limited to land acquisition costs, realty fees, professional design and consulting fees, furniture, fixtures, and financing costs.

c. The estimate shall exclude all water containers and associated equipment, such as pressure pumps, that would be unnecessary if city water and sewer services were available on the competition site. These elements shall be noted as "temporary for competition purposes" in drawings and other graphical representations. Structures and surfaces that surround the containers shall be included in the cost estimate.

d. Any element included in a competition prototype house that is not used during the competition, does not impact the performance of the house, and is not presented or visible to the juries in any way shall not be included.

e. All required charging equipment and vehicle-associated structures shall be included.

f. Site work and improvements that are not on the competition site are not to be included.

g. Signage relating to the communications contest shall not be included.

F-3. Estimate Formats

a. The construction cost estimate shall be submitted utilizing the UniFormat convention.

b. Example estimates will be provided by the organizers.

F-4. Pricing Notes

a. The foundation system that will be built on the competition site shall be included.

b. Built-in fixtures such as counter tops, murphy beds, window coverings, casework, and built-in cabinetry shall be included in the cost estimate. Furniture that is freestanding is excluded.
c. Mechanical, electrical, security, and communications systems present on the competition site shall be included.
d. Built-in kitchen appliances, ovens, refrigerators, washers, dryers, and other similar elements shall be included.
e. Landscaping (plants, arbors, soil, etc.) is included. Built-in hardscaping (mounted planters, paving, outdoor lighting, decking, railings, and trellises) shall be included in the construction cost estimate.

F-5. Pricing Hierarchy

a. Pricing shall be based on the following hierarchy of sources:
    a. RS Means Cost Guides for the current year
    b. Distributor pricing, with labor added
    c. Web-based materials search, with labor added
    d. Estimator's experience
b. RS Means cost guides shall be for the current year and adjusted to the national average location factor, wage rate, and average material index.
c. The estimator shall utilize exact or close materials and methods indicated by the design documents. When necessary, the estimator may assign a price based on cost information found for similar work items that perform similar functions.
d. When information necessary for completing a thorough, accurate estimate is not available, the cost estimate shall error on the high-side to accommodate for uncertainty and risk.

F-6. Estimate Verification

a. Teams will be provided an opportunity to submit their completed estimate for review by a professional cost estimator in advance of the jury deliverables deadline. The professional estimator will provide written feedback on the estimate.
b. Teams will be permitted to provide a dispute and clarification narrative to the estimator following this review up to five pages in length. The estimator shall review this response in advance of the competition. As appropriate, the team and estimator may schedule a phone call to discuss.
c. The estimator will conduct an on-site walkthrough of each competition prototype house prior to providing a report on the construction cost estimate to the juries, as indicated above. The on-site walkthroughs will offer the estimator an opportunity to make visual verifications of information presented in the construction cost estimate and associated deliverables. The walkthrough will provide an opportunity for the estimator to ask the decathletes for clarifications or questions that may have arisen during the deliverables review.

Appendix G Deliverable Submission Instructions

Deliverables are considered to be on time if they are received by the competition manager by 11:59:59 p.m. Mountain Time on the respective due date as indicated in the project group.

G-1. PDF Requirements

a. Files submitted as a PDF shall meet the following criteria:
    i. Embed all fonts.
    ii. Maintain a minimum resolution of 300 dpi.
    iii. Submit as vector-based documents, not raster images for every page.
    iv. Generate natively, if at all possible. Scans shall be avoided if at all possible.

G-2. Electronic File-Naming Instructions

The required file-naming convention for all electronic files follows:

[TEAM ABBREVIATION]_[DELIVERABLE NUMBER]_[FILE NAME]_[SUBMISSION DATE (YYYY-MM-DD)].[EXTENSION]

See the following table for a list of team name and deliverable file name abbreviations to use. For submissions with multiple files of a particular type, a number may be added.

Examples:

a. UC Davis logo file submitted as part of Deliverable 7
    a. UCDAV_D7_LOGO_2016-05-05.ai
b. Team Florida construction photograph number 3 submitted as part of Deliverable 7
    a. FL_D7_CONST_3_2016-05-05.jpg
c. Las Vegas architecture jury narrative submitted as part of Deliverable 8
    a. UNLV_D8_ARCH_2017-08-08.pdf

G-3. Electronic File Submission Options

All electronic files shall be uploaded to the appropriate Solar Decathlon shared folder. Teams wishing to reduce file upload times may submit electronic files as ZIP files. Details for accessing the shared folder is provided in the project group.

Table 7: Team and Deliverable Abbreviations

Team Name	TEAM ABBREVIATION	Deliverable Name	DELIVERABLE ABBREVIATION[14]
Las Vegas	UNLV	100 Word Description	100WORD
Maryland	UMD	Project Management Plan	PMP
Missouri S&T	MST	Schematic Design Summary	SCHEMATIC
Netherlands	NLD	Team Overview	OVERVIEW
Northwestern	NWU	Design Development Drawings	DD
Swiss Team	SUI	Design Development Project Manual	DDMANUAL
Team Alabama	AL	Construction Drawings	CD
Team Daytona Beach	FL	Construction Project Manual	CDMANUAL
UC Berkeley	UCB	Stamped Structural Documentation	STRUCT
UC Davis	UCDAV	Health and Safety Plan	HASP
Washington State	WSU	Project Summary	SUMMARY
Washington U St. Louis	WU	Team Photograph	PHOTO
West Virginia	WVU	Construction Photography	CONST
		Logo	LOGO
		Digital Project Representation	DIGITAL
		Competition Prototype Graphic Floorplan	PLAN
		Dinner Party Menus and Recipes	DINNER
		Public Exhibit Materials	PUBLIC
		Jury Narratives	ARCH MARKET ENG COMM INNOV WATER
		As-Built Drawings	AB
		As-Built Specifications	SPEC
		Audiovisual Presentation	AV
		Final Report	REPORT

[14] Accompanying files, such as text transcripts for videos and metadata files for photos and logos, should also use the appropriate abbreviation from this list.