Student Steel Bridge Competition

Regional Competition Host Guide

Smarter. Stronger. Steel.

ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS

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Part One
Overview

Thank you for hosting a regional competition for the Student Steel Bridge Competition (SSBC). While not exhaustive, this guide can assist you in the effective planning, organization, and administration of a safe, quality, and fun competition.

Our Vision

Empower students to acquire, demonstrate, and value the knowledge and skills that they will use, as the future generation of design professionals, to contribute to the structural steel design community and construction industry in the United States.

Our Mission

Challenge students to extend their classroom knowledge to a practical and hands-on steel-design project that grows their interpersonal and professional skills, encourages innovation, and fosters impactful relationships between students and industry professionals.

History

The American Institute of Steel Construction (AISC) and the American Society of Civil Engineers (ASCE) are the organizing sponsors of the Student Steel Bridge Competition (SBBC). The SSBC began in the 1980s as an AISC competition between three universities in Michigan. Over the years, it has expanded to include over 140 participating schools. There are 20 regional competitions in North America, with the top finishers of the regional competitions advancing to the national finals.

1.1 Support from AISC

This host guide supports the planning of SSBC events, and it provides information about elements of the competition, including venue requirements, details about the standardized equipment, and preparation checklists for the hosts.

The regional competitions are held during ASCE student symposia, and the host school should work directly with ASCE to coordinate and plan the events.

Any specific questions about this guide or the support from AISC can be directed to AISC University Programs at universityprograms@aisc.org.

Host Stipend

As an organizing sponsor of the SSBC, AISC provides each host school with a $2,000 stipend check to help offset the costs of the competition. Hosts can expect to receive this check in the fall prior to the competition. (Note that only hosts of the regional competitions in North America are eligible to receive this stipend from AISC.)

Call for Volunteers and Sponsors

The host school is primarily responsible for recruiting volunteers and event sponsors for their regional competition.

AISC will provide assistance by contacting their membership base with a call for volunteers. They will forward the information for any interested volunteers to the host school. All volunteer assignments, scheduling, and communication should be coordinated by the host school. Refer to the Judges and Volunteers section for more information.

Similarly, AISC solicits their membership base for sponsorships for the overall SSBC program. If someone is interested in sponsoring a specific regional competition, their contact information will be shared with the respective host school, who will work directly with the sponsors to communicate sponsor benefits and event information.

1.2 General Competition Structure

The regional competitions are organized independently by host schools under the guidance of ASCE and are held during ASCE student symposia. The top finishers of the North American regional competitions, with the exception of guest competitors, qualify to compete at the national finals.

The Rules Document

All of the regional competitions as well as the national finals are based on the *Student Steel Bridge Competition Rules* that describe the competition and state the official rules. The *Rules* are developed by the SSBC Rules Committee and are changed every year. The current *Rules* must be used without modification for every regional competition and the national finals, so that bridges from all regions may compete nationally without disadvantage.

AISC maintains a website, aisc.org/ssbc, where the *Rules* can be downloaded and questions about the *Rules* are addressed. Rules questions may be submitted only through the official online forms. Rules questions are reviewed by the SSBC Rules Committee, and the Rules Committee issues and posts the official clarifications online for all competitors to access.

Host School

The host school is responsible for all aspects of planning and setup of the event. This includes making venue arrangements, communicating with participants, recruiting volunteers, fundraising, setup and cleanup, and coordinating with ASCE. The host school invests a great deal of time and resources into preparation for the event in addition to participating in the event with a competing team of students.

Well in advance of the competition, the host school should alert participants of any local conditions that may affect the competition. The host school should also provide each competitor with a schedule of events, a map to the contest site, and travel recommendations.

Competition Participants

Student teams consist of undergraduate and/or graduate students from colleges and universities with an ASCE student chapter located in North America that is in good standing with ASCE. Teams should refer to the *Rules* for the full eligibility requirements. Each team should designate a team captain.

Composition of the regions are based on the ASCE Student Conference divisions with rare exceptions. Host schools organize the regional competitions under the guidance of ASCE, and the competitions are held during ASCE Student Symposia. The top finishers of the North American regional competitions, with the exception of guest competitors, qualify to compete at the national finals. See the *Rules* for more information.

Guest Competitors

Schools that do not meet the full eligibility requirements may participate as guest competitors in the regional competitions at the discretion of the host school and ASCE.

If a team requests to participate as a guest in your regional competition, ASCE will contact you to verify that you can accommodate them. Guest teams will be scored and may qualify for the awards.

1.3 Judges & Volunteers

Head Judge

The head judge has full authority over the conduct of the competition, safety, and interpretation of the *Rules*. Each regional competition has a head judge, and the national head judge serves as the head judge for the national finals.

Recruiting a Head Judge

The host school is responsible for recruiting and confirming the head judge. Often head judges return year after year within a region, so check with the previous year's host to obtain the contact information.

The head judge should be confirmed by December 10, and their information should be submitted to ASCE using the *Student Symposium Head Judge and Safety Officer Information Form*. The link will be provided by ASCE.

If you encounter difficulty recruiting a head judge, reach out to AISC for assistance at universityprograms@aisc.org.

Head Judge Responsibilities

The host school should work with the head judge to determine competition setup and judge assignments prior to the competition. Head judges typically have several years of experience with judging and can serve as a great resource in the planning process.

The head judge will direct the other judges during the competition. AISC will provide an online training session for all regional head judges in the February preceding the regional competitions. This training is led by the national head judge.

Judges

Judges assist the head judge with the conduct of the competition, safety, and interpretation of the rules. Judges moderate each aspect of the competition: aesthetics, construction, lateral loading, vertical loading, and weighing. They have complete and final authority for enforcing the rules of the contest. Judges are directed and empowered to halt any activities they deem hazardous.

Number of Judges Required

The host school recruits volunteers that serve as judges. In many regions, there is a regular group of people who volunteer to serve as judges year after year. Additional judges will likely need to be recruited by the host school. The regional competition head judge will direct the host school on the exact number of judges needed, but the host school may use the table below as a guide:

Station	Minimum # of Judges per Station
Construction	3-5 Judges
Lateral Load Test	1-2 Judge
Vertical Load Test	1-2 Judges
Weight	1 Judge
Data Entry	1 Judge

Judges' Meeting

The head judge will manage, train, and lead the work of the other judges. A training meeting with all judges should be held prior to the competition, and this may be an in-person meeting at the regional competition or an online meeting before the event. You should work with the head judge to determine the format, time of the meeting, and what support or facilities you may need to provide.

At the judges' meeting, questions regarding the *Rules* and procedures will be discussed, and the duties of each judge will be assigned.

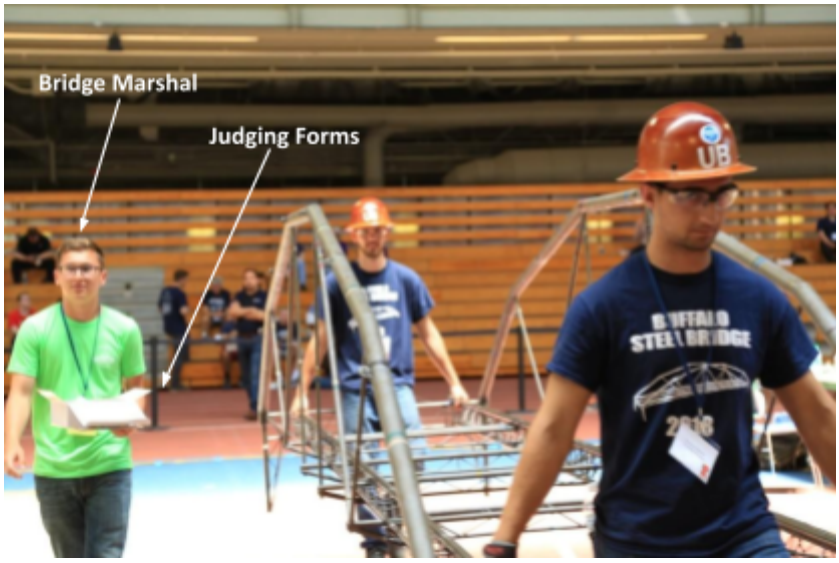
Judge giving instructions at load station

Judges at work during bridge construction

Marshals

At the national finals and some regional competitions, marshals are used to escort bridges through the complete construction and testing sequence. The marshals carry the judging forms from station to station. They also ensure that the bridge is not altered or enhanced after the construction phase, note damage to the bridge as it is moved, and assist those entering scoring data with resolving any questions regarding the completed judging forms.

Depending on the size of your regional competition, you may or may not decide to use marshals.



Other Volunteers

Other volunteers may be required at the competition for tasks such as team registration, equipment preparation, and venue setup and cleanup. The table below shows the estimated minimum number of volunteers needed based on the size of the regional competition.

Please keep in mind these are only estimates and could differ based on unique conditions and overlap with other ASCE student symposium events. You will need to determine the specific volunteer needs for your regional competition.

	2-7 teams	8-15 teams	16+ teams
Main competition floor taping & setup (allow for 4+ hours)	3	4-5	5-6
Equipment preparation	1-2	2	2-3
Registration/check-in	1	2	2-3
During event (runners, meals, etc)	1	2	3
Clean up	3	3	4

Recruiting Judges

The host school should recruit judges who will be fair, unbiased, and competent. No previous engineering or competition experience is required. Steel fabrication companies are good sources of judges. Structural engineers, erectors, architects, previous SSBC participants, and others associated with the steel construction industry also make good judges.

AISC Call for Volunteers

AISC will provide additional support by contacting their membership base with a call for volunteers in January. AISC's members will express their interest through an online form, and the responses will be distributed to the respective hosts. You will need to work directly with those volunteers on any scheduling and assignments.

1.4 Equipment

AISC has standardized and provided the necessary equipment for every SSBC regional competition, including steel angels, grating, measuring devices, and safety supports. The equipment belongs to the region, and it is the responsibility of the host schools to transfer, inventory, and store the equipment each year.

Visit the host resources page at aisc.org/ssbc to access the inventory list and other resources for using the equipment.

Equipment Inventory

Upon receiving the equipment, you should conduct an inventory to verify that all items are available and in working order.

Inventory List and Photo Guide

Visit the Host Resources page to find the inventory list for your region. Refer to the *SSBC Equipment Photo Guide* (also on the host resources page) for photos and descriptions of all items included in the inventory.

Replacement Items

AISC will provide replacements for certain missing or damaged items. Notify AISC of any missing or damaged equipment by December 1 using the *SSBC Inventory Form*. The host school is responsible for replacing other miscellaneous items, such as batteries and tape.

Equipment Lead

It is recommended that you designate one person as the equipment lead who will become familiar with the inventory. They would be the point of contact for receiving any replacement items, coordinating the setup for the main competition, and coordinating the transfer process to the next school.

How to Set Up and Use the Equipment

The *SSBC Equipment Guide* (available on the host resources page) contains photos and instructions for setting up and operating the items in the inventory. It is strongly recommended that you practice setting up all of the equipment in advance of the competition in order to become familiar with the items and to verify that everything is functioning properly. Your head judge can also be a great resource when it comes to using the equipment.

Equipment Storage

The host school is responsible for storing the region's equipment for the current competition year until the next host school takes possession (often immediately following the regional competition but you'll need to coordinate).

The equipment is typically stored on pallets. Approximately 200 square feet of space is needed to store the equipment. A forklift or pallet jack may be required to move pallets carrying the loading angles. The host school is responsible for unloading, maintaining, and reloading the equipment to be handed off to the next host school.

The steel angles typically come on 3 ft. x 3 ft. pallets holding approximately 1,250 lbs each. The angle pallets can be stacked, but it depends on the resources available and how hosts load them into the storage location. For example, stacking the pallets often requires access to a forklift.

The other equipment (safety supports, lateral loading stand, deflection measuring devices, scales, etc.) will typically be stored on 4 ft. x 4 ft. pallets and should not be stacked.

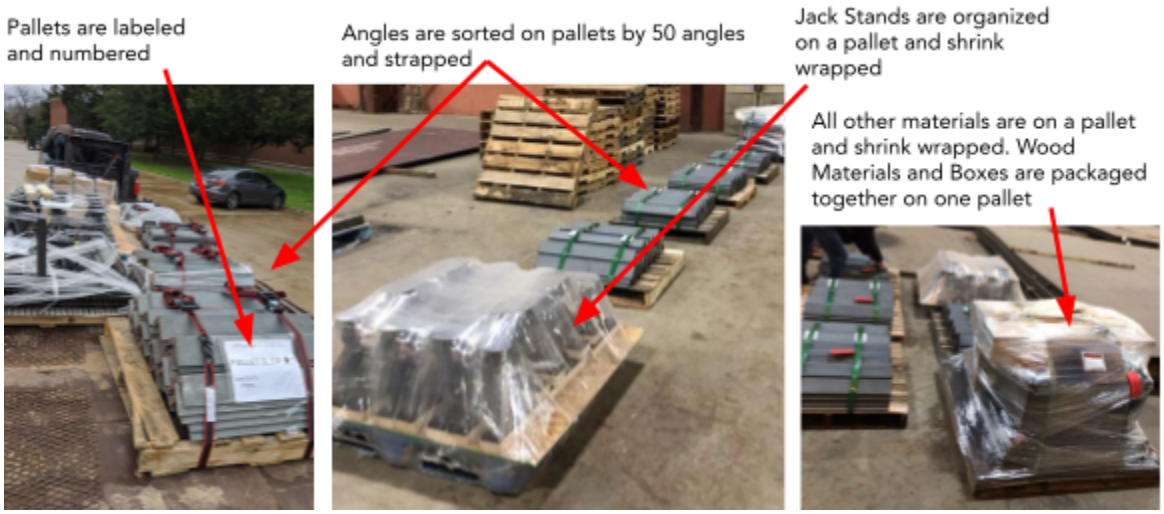
Packaging Equipment

The equipment should be packaged so that it will not be damaged or lost when transporting to the next host school

Recommendations for Packing Equipment

- Place all small materials such as clipboards, tape measures, stop watches, small wood blocks, magnets, etc. in boxes. Clearly label the contents of each box on two sides of the box and tape it closed.
- Organize the pallets of angle to include (50) angles per pallet. Tie the angles down to the pallets with straps or rope.
- Organize other large items such as the lateral load device, steel plates, jack stands and wood templates on pallets. Tie the materials down to the pallets with straps or rope and shrink wrap the pallet.

The most common method for packaging the pallets is to use shrink wrap. Start at the bottom and wrap around all sides by circling around the pallet, covering as much area and space as possible; there shouldn't be any openings where the wrapping could potentially tear.



Example of equipment pallets

Preparation for Professional Delivery

If you are using a professional shipping company, the pallets will often be transported on open-air flatbed trucks. All equipment should be safely secured and packaged for transit prior to the driver's arrival.

Alternate Equipment

Some regions have an alternate (non-AISC provided) set of equipment. This equipment may be used in lieu of the AISC equipment at the discretion of the head judge. Any requests for substitution should be coordinated with and approved by the head judge in advance of the competition.

Assistance from AISC

If you are struggling to find a storage location or the means to transport the equipment, AISC can introduce you to local fabricators who may be able to help. Contact University Programs at universityprograms@aisc.org if you need assistance.

1.5 Scoresheet

AISC provides the official SSBC scoresheet that will be posted on the host resources page at aisc.org/ssbc in the spring.

You should designate at least one person to become familiar with the overall functionality of the spreadsheet. That person should download the scoresheet, review the user's guide, print the judging data forms, and learn how to input the data prior to the event.

At each station of the main competition, the judges will record data on the printed data forms, and those forms can be printed directly from the scoresheet file. Follow the instructions in the user's guide to print the forms before the competition.

At the end of the regional competition, the data from the judging data forms will need to be entered into the scoresheet, as detailed in the Data Entry Station section of this guide.

1.6 Host Planning Timeline & Checklist

Below is an example planning timeline and checklist to help get you started on the planning process. Note that this list is not exhaustive, and each host may have specific and unique needs.

March - September

- ❑ Review this host guide
- ❑ Select competition date(s) and venue(s). Make reservations and sign any necessary contracts.
- ❑ Determine the storage location for competition equipment

October - November

- ❑ Receive and inventory equipment
- ❑ Determine number of judges and volunteers that will be needed
- ❑ Develop a plan to recruit judges and volunteers
- ❑ Determine head judge
- ❑ Submit *Student Symposium Host Information Form* to ASCE by October 30 (the link will be provided by ASCE)
- ❑ Receive host stipend check from AISC

December - January

- ❑ Submit inventory to AISC by December 1 using the *SSBC Inventory Form*
- ❑ Submit *Student Symposium Head Judge and Safety Officer Information Form* to ASCE by December 10 (the link will be provided by ASCE)
- ❑ Continue planning activities for venue logistics
- ❑ Coordinate with head judge to plan judges meeting and event logistics
- ❑ Recruit judges and competition volunteers

6-8 Weeks Before Event

- ❑ Finalize competition schedule and venue logistics
- ❑ Develop main competition and aesthetics layouts
- ❑ Finalize recruitment of judges and volunteers
- ❑ Send event details to judges, volunteers, and any sponsors who plan to attend the event
- ❑ Start developing event program

3-4 Weeks Before Event

- ❑ Finalize main competition layout
- ❑ Finalize aesthetics layout
- ❑ Finalize any instructions for competitors, such as unloading and loading
- ❑ Confirm all judges and volunteers, as well as any sponsors who plan to attend the event. Ensure that they have received event details and instructions.
- ❑ Finalize event program
- ❑ Develop plan for transporting all equipment to the venue
- ❑ Develop a plan for inventorying and packing equipment after competition. Order any necessary materials.

2-3 Weeks Before Event

- ❑ Inventory and test equipment at least two weeks before the regional competition. Review the equipment for a final time to ensure that no items have been damaged or gone missing while in storage.
- ❑ Receive awards plaques from AISC
- ❑ Check awards plaques for any damage during shipping
- ❑ Collect cost estimate from teams
- ❑ Download the scoresheet from aisc.org/ssbc and review the user's guide
- ❑ Print judging data forms from the scoresheet

After the Event

- ❑ Submit competition scoresheet to AISC
- ❑ Thank judges, volunteers, and sponsors
- ❑ Transfer equipment to next year's host. Assist with inventory and packaging as needed.

1.7 Insurance Coverage

AISC maintains general liability insurance for the North American regional competitions, and a certificate of insurance (COI) is available upon request. In order to obtain a COI, please download the request form and follow the instructions.

Safety is paramount in all initiatives at AISC and ASCE. Hosts are expected to follow this practice and take every precaution to ensure their committee and all participants are safe while engaging in SSBC activities. However, accidental instances of property damage, personal injury or loss may occur during official SSBC activities and events. If a situation arises, any losses or injuries should be reported to AISC immediately.

Report an Incident

If an incident occurs during the SSBC regional competition, the host school must take the following steps immediately:

1. Secure the personal safety of all involved. If someone is seriously hurt, call 911.
2. Document the incident:
    a. Gather the contact information for all persons involved.
    b. Take photos of any damage to personal or private property as well as any injuries.
    c. Write up a brief description of the events that occurred, including the date and time of the incident.
3. Send the documentation as detailed above to the following parties:
    a. Mike Mospan, AISC Vice President - Finance & Human Resources (mospan@aisc.org)
    b. Wendy Jimenez, AISC Accounting Manager (jimenez@aisc.org)
    c. Kristi Sattler, AISC University Education Manager (sattler@aisc.org)
    d. cc: Melissa Prelewicz, ASCE Director, Member Communities (mprelewicz@asce.org)
    e. cc: Jennifer Upmeyer, ASCE Administrator, Student Conferences and Competitions (jupmeyer@asce.org)

Part Two
Events and Venues

The SSBC regional competition can be a one or two day event at the discretion of the host school, depending on the number of participating teams and available facilities. For regions with more schools or regions where the pace of competition may be slow, it may be more reasonable to spread the competition events over two days.

Required events include the following:

- Registration/Check in
- Captains' meeting
- Judges' meeting
- Aesthetics
- Main competition
- Awards presentation (banquet optional)

Sample Regional Competition Schedule

Below is a sample schedule for the typical regional competition.

Typical Schedule	
7:00 a.m. - 8:00 a.m.	Judges' Meeting
7:00 a.m. - 8:00 a.m.	Check in and aesthetics setup
8:00 a.m. - 9:00 a.m.	Captains' meeting
9:00 a.m. - 9:30 a.m.	Aesthetics judging
9:30 a.m. - 5:00 p.m.	Main competition*
Noon - 2:00 p.m.	Lunch
Part of symposium awards	Awards ceremony

* During the main competition, multiple lanes (i.e. construction, loading, weighing) run simultaneously. Approximate times per team are provided in the Main Competition section to help you make estimates for your region.

2.1 Registration / Check-in

Before the competition begins, participating students and volunteers should check in with the host school. The registration table should be located at an easily accessible location that is advertised to the participants prior to the competition. At registration, guests should receive any information they will need for the competition.

Registration table

It is recommended that an event program be distributed to all attendees with more details about the competition, including the order for the main competition, instructions for dropping off the bridge at the competition site, and layouts for aesthetics and the main competition. This could be a printed-out program that is distributed at check in or it could be an electronic version that is distributed to teams in advance of the competition.

To do

- ❑ Confirm that all teams and judges know the check-in location and time in advance of the competition.
- ❑ Prepare event program.
- ❑ Gather check-in items for volunteers, sponsors, judges, and other attendees

2.2 Cost Estimation

The cost estimation award category challenges teams to estimate their overall performance rating prior to the competition. The host will need to collect the information from each team prior to the selection of the load case (i.e. the die roll).

Each team must submit their estimate for the six possible load cases. This information could be collected in advance of the competition using an online format, at event registration, or at the start of the captains' meeting. You should coordinate with the head judge to determine the best time and method to collect the information.

After receiving the data, you will input the values into the scoresheet.

To do

- ❑ Coordinate with the head judge about when and how to collect cost estimates from the teams.
- ❑ Collect cost estimates from all teams prior to the die roll.
- ❑ Input cost estimates data into the scoresheet.

2.3 Team Captains' Meeting

At the beginning of each regional competition, team captains gather with the head judge to review the *Rules* and official clarifications. This is also a final opportunity for participants to ask the head judge any questions. These meetings usually also detail the flow of the competition, competition order, competition floor layout, and local site conditions.

All captains must attend this meeting, and they will be responsible for conveying any pertinent information to the rest of their teams. The head judge typically conducts this meeting, and the other judges may be invited to attend. Room size limitations may restrict the number of participants to only the team captains and judges.

Head Judge listens to a question

Student asks a question

Suitable venues may include classrooms and lecture halls with an audio/visual system and a white/black board or flip chart. There should be enough seating for team captains, other team representatives, and any judges who wish to attend. The captains meeting typically lasts between one to two hours.

To do

- ❑ Coordinate with the head judge to determine the venue and any special equipment needs.
- ❑ Notify all teams and judges of the location and time of the meeting.
- ❑ Alert all teams if the meeting is restricted to only team captains.
- ❑ Provide a team sign-in sheet.

2.4 Judges' Meeting

The head judge should hold a meeting for the judges before the competition. This can be an in-person meeting on the day before the competition or an online meeting held in advance of the competition. This meeting typically consists of an overview of the *Rules*, anticipated violations, and techniques for determining compliance with the *Rules*. You will need to work with your head judge to determine what support or facilities are needed.

A variety of spaces may be suitable for an in-person meeting, so please discuss the venue needs with the head judge. If the head judge is unable to provide venue specifications, AISC suggests reserving a room on campus, such as a classroom.

To do

- ❑ Coordinate the judges' meeting venue with the head judge.
- ❑ Reserve the on-campus venue.
- ❑ Notify the judges of the location and time for the judges' meeting.

2.5 Aesthetics

General Information

Aesthetics judging typically takes place before the main competition. During aesthetics judging, all of the bridges will be erected and on display at the same time in the same location.

Aesthetics consists of three parts: appearance, name, and poster board. The *Rules* do not give any specific guidance on how to combine these three components to arrive at a final ranking of the participating bridges. The head judge at each regional competition will determine the process by which judges will rank participating bridges; because there are more than 40 bridges to rank and score at the national finals, judges will use the official score sheet.

You should coordinate with the head judge about who will judge aesthetics. The head judge will let you know if additional volunteer judges are needed.

Bridge with school name clearly labeled and poster

Aesthetics Venue Requirements

Each team requires an area of approximately 8 ft. x 25 ft. for their bridge and poster board (this includes aisle space between bridges). A variety of venues may be suitable, including plazas, baseball fields, and gyms. Locations for bridge unloading and

loading at the venue should also be determined, and instructions should be provided to teams in advance.

An aesthetics layout should be provided that indicates where each team should set up their bridge. Sample layouts can be found in Appendix 1.

It may be helpful to provide a volunteer who can help direct teams as needed.

Scoresheet

Following aesthetics judging, the results should be input in the scoresheet. The results must be entered while the judges are all present and with the bridges still on display so that they can break any ties if necessary.

To do

- ❏ Develop aesthetics layout.
- ❏ Provide instructions and a venue layout to inform teams where to set up their bridges.
- ❏ Assign a volunteer who can provide setup instructions upon a team's arrival.
- ❏ Input aesthetics judging results into the scoresheet while all judges are present.
- ❏ Provide the following items at aesthetics:
  - ❏ (1) Copy of the *Rules* and official clarifications.
  - ❏ A set of aesthetics judging forms for each aesthetic judge, as needed.
  - ❏ Pencils and clipboards for each judge.
  - ❏ Computer with the scoresheet.

2.6 Main Competition

General Overview

The main competition includes five stages. Each stage is explained in further detail in a separate section of this guide, along with setup instructions. Below are the approximate times per team for each stage:

1. Construction
    a. Pre-Construction Check [15 minutes]
    b. Construction [20 minutes on average; will vary from 5 to 45 minutes]
    c. Post-Construction Check [20 minutes]
2. Lateral Load Test [20 minutes]
3. Vertical Load Test [45 minutes]
4. Bridge Weight [5 minutes]
5. Data Entry [10 minutes]

Main Competition Venue

Approximately 10,000 square feet (includes space for spectators) of level floor space is required for the main competition. The actual venue size will depend on the number of participating teams.

Typically, two construction lanes, one lateral loading station, two vertical loading stations, one weigh station, and a scoring station will operate simultaneously at a regional competition. For smaller regions (typically with fewer than seven teams), one construction lane and one vertical loading station is sufficient. Appendix 1 includes sample layouts for both formats.

The ideal venue is indoors or weather resistant with a concrete floor surface. Some indoor facilities, such as athletic facilities with sensitive floors, may require installation of a protective layer of plywood. For outdoor venues, paved areas, such as parking lots, work well.

Hosts should follow these guidelines when reserving a main competition space:

- A smooth and level ground surface is needed where bridges are constructed and dimensions are checked since clearances are measured from the ground. Load testing requires rigid (i.e. Portland cement concrete) pavement that is level and smooth. If rigid pavement is not accessible, provision must be made to prevent bridges from sinking during load testing. AISC provides steel plates in the standardized equipment to assist with this.

- If any competition event is located outside, a rain alternate must be booked in the event of inclement weather.
- Ample parking should be available near the competition venue for judges and competitor loading and unloading. Restrooms should be available near the competition venue as well.
- The host is responsible for setting up the competition space prior to the event. This includes taping and protecting the floors, as well as setting up the equipment. The setup must be completed at least four hours prior to the competition start. AISC recommends that the venue reservation includes at least 24 hours prior to the competition start time for setup.
- There must be a power source for the computer with the score sheet.

Competition Space Layout

Hosts should create a dimensioned layout of the competition space that shows each station to assist with planning the event and to direct teams on the day of the competition. Refer to the sample layouts in Appendix 1. You may need to customize the layout and orientation of the stations to meet the needs for your specific venue. The competition layout should be coordinated with and reviewed by the head judge.

Station Equipment Checklists

The host resources page contains equipment checklists for each station at the main competition. Refer to these lists as you set up the equipment to determine which items and quantities should be provided.

Competition Order

The host school may create the competition order by means of their choosing (alphabetical, random, etc.) Due to your extra demands as the host school, you may wish to position your team first or at another convenient time (if applicable).

The competition order should be publicized in advance of the competition (in the final mailer, in the event program, and at registration). Teams will need to be ready and available as soon as they are called to the competition floor.

Lunch

If the competition will extend through lunch time, a meal should be provided for the judges, other volunteers, and competitors. Judges and volunteers may not have time to leave the competition floor, so it is recommended that the host school provides lunch to these people.

To do

- ❏ Reserve venue for the main competition.
- ❏ Develop the competition layout and review it with the head judge.
- ❏ Determine the competition order and provide it to the participating teams.
- ❏ Test all competition equipment at least two weeks in advance to ensure that everything is functioning properly.
- ❏ Protect the floor if required by the venue.
- ❏ Set up the competition space at least four hours prior to the event. All competition lanes and stations should be ready prior to the start of the competition.
- ❏ Make a plan for delivering lunch to judges during the competition, if needed.

2.7 Construction Area Setup

General Information

Construction is the first stage of the main competition. Teams will construct their bridges within the construction site plan designated by tape on the floor. The construction site plan includes the construction zone as well as staging yards. Each team should be directed to a construction lane when it is their turn to begin staging their materials for construction.

Pre-Construction Check

Prior to starting timed construction, the team will move their equipment and materials into the designated staging yards, and the judges will check the pieces and tools for compliance with the *Rules*.

Construction

When the team and judges are ready, the lead construction lane judge will direct the team to start the timed construction.

Post-Construction Check

Upon completion of construction, the judges will inspect the bridge for compliance with the *Rules.* The team will then move its bridge to the next station.

Taping the Floor

The *Rules* specify the construction site plan. AISC provides a taping plan on the Host Resources page of aisc.org/ssbc to assist hosts in the process of laying out the tape. The plan shows which dimensions are critical during setup and which side of the tape dimensions should be taken.

You may need to purchase additional tape for the construction lanes. A variety of masking tape, duct tape, and other types can be used to tape the floor. The selected tape should be tested to ensure that it adheres to the competition floor surface but does not damage the floor. Colored tape that contrasts with the floor surface is recommended so that it is easily seen by judges. Clear tape can be used over the masking tape in the footing and river bank areas for protection. Additionally, it can be helpful to use a unique tape color for the river to make it stand out for the competitors.

It is recommended that the floor layout be taped at least four hours prior to the competition, and the layout should be reviewed by the head judge.

Equipment

In addition to taping the floor, you will need to set out other equipment at each construction station. Refer to the construction area checklist for equipment needed (available on the host resources page).

Pre-Staging Area (Optional)

To make the flow of competition more efficient, you may opt to include a pre-stage area outside of the construction site plan. While one team is constructing their bridge, the next team in the competition order can be directed to this area to wait with their parts and tools.

Refer to the sample competition layouts in Appendix 1 to see how a pre-stage could be incorporated.

To do

- ❏ Tape the floor for each construction area. Refer to the taping plan on the Host Resources page.
- ❏ Set out all construction lane equipment according to the construction area checklist.
- ❏ Ask the head judge to review the taping layout prior to the start of the competition.

2.8 Transportation from Station to Station

Teams must move their bridge to the various judging stations after construction.

As you design the layout for the main competition, consider how the bridges will move from station to station. Coordinate with the head judge to review the layout and flow of competition.

To do

- ❑ Consider the flow of competition and review the final layout with the head judge.

2.9 Lateral Load Station Setup

At the lateral load station, teams use a pulley system to apply lateral load to the bridge.

Equipment

The standardized equipment from AISC includes all of the equipment for the lateral load station, including the stand with the pulley system, steel grating, loading angles, and laser plumb-bobs for monitoring sway. You may need to supplement some smaller items, such as batteries, tape, and pencils.

Refer to the lateral load station checklist for the items that will need to be set up at each station (available on the host resources page).

Safety

All volunteers working in the loading areas should wear sturdy, closed-toe shoes. Competitors are required to wear the personal protective equipment as outlined in the *Rules.*

To do

- ❑ Set up the equipment at each lateral load station prior to the start of the competition.
- ❑ Test the equipment in advance to ensure that everything is functioning properly.
- ❑ Notify the lateral load station volunteers to wear sturdy, closed-toe shoes.

2.10 Vertical Load Station Setup

At the vertical load station, teams will position steel angles on steel grating at designated locations on their bridge, and the vertical deflection will be measured. Safety supports will be positioned such that the grating will not fall more than a few inches in the event of a failure.

Equipment

The standardized equipment from AISC includes all of the equipment for the vertical load station, including the loading angles, steel grating, safety supports, and vertical deflection measuring devices. Equipment also includes PPE for volunteers in vertical loading such as safety toe caps, protective eyewear, and hard hats. You may need to supplement some smaller items, such as replacement batteries, tape, pencils, and disinfecting wipes for PPE.

Refer to the vertical load station checklist for the items that will need to be set up at each station (available on the Host Resources page).

You may also need to provide something to elevate the safety supports. Depending on the bridge geometry allowed by the *Rules*, there may be a large gap between the bottom of the steel grating and the top of the jack stand (at its maximum extended height). Wood pieces or concrete blocks can be positioned below the jack stands to reduce this distance. Specific suggestions for the current *Rules* are provided in the vertical load station checklist.

Safety

All volunteers working next to bridges under vertical load should wear sturdy, closed-toe shoes that offer toe protection or safety toe caps over their shoes, protective eyewear, and hard hats. Competitors are required to wear the personal protective equipment as outlined in the *Rules.*

To do

- ❑ Set up the equipment at each vertical load station prior to the start of the competition.
- ❑ Test the vertical deflection measurement devices in advance to ensure that everything is functioning properly. Replace batteries as needed.
- ❑ Protect the floor if required by the venue.

- ❑ Notify the vertical load station volunteers to wear sturdy, closed-toe shoes with toe protection. If they do not have shoes with toe protection, inform them that safety toe caps, protective eyewear, and hard hats will be provided.

2.11 Weight Station Setup

At the weight station, the team will position their bridge atop four scales to determine the total weight.

Equipment

The standardized equipment from AISC includes equipment for the weight station, including the scales and clipboards. The inventory also includes a spare scale in the event that you encounter issues.

You may need to provide new plywood pieces to protect the tops of the scales. It is recommended that each piece be at least 1-in thick and have plan dimensions of 11 in. by 11 in.

Refer to the weight station checklist for the full list of required items (available on the Host Resources page).

To do

- ❑ Set up the equipment at the weight station prior to the start of the competition.
- ❑ Test the equipment in advance to ensure that everything is functioning properly.

2.12 Data Entry Station

General Information

After judges evaluate a bridge at all stations, the team captain (and the marshal, if assigned) will proceed to the data entry station with the official data form. This is where information from the data forms gets transferred to the official scoresheet.

A judge will be assigned to either oversee or actually do the data entry. It is often best for the team captain to read off the data as the computer operator inputs the values. Together, they should verify that all data is entered correctly. The marshal may help resolve any issues with interpreting judges' handwriting.

Data from score sheets is entered to the computer spreadsheet

After the data is entered, the data entry person will print the results for the team captain to review and verify. The team captain will sign the printout and return it to the data entry person, who will staple the printout to the data forms. The marshal is free to go at this point. An additional copy of the team's results can be printed so that the team captain has something to share with the team. An electronic version may also be shared.

The results are not final until the national scorekeeper makes a second check after the competition.

At the end of the competition, the head judge (or someone designated by the head judge) will review the data forms and score sheet to double-check that all data was entered properly. If a discrepancy is found during this later check, judges will contact the relevant team captain before the awards ceremony.

Submit Scoresheet to AISC

The host school must submit the completed score sheet to ssbcscorekeeper@aisc.org by following the instructions in the document. The judging data forms should be scanned and submitted with the score sheet.

The Rules Committee must have the scoresheet as soon as possible after the competition so that they have a basis for evaluating appeals. Also, AISC cannot send invitations to the national finals until the scoresheet is received. AISC will post the scores to aisc.org/ssbc after all regional competitions are complete.

Once the host school receives an email confirming that the scoresheet and data forms have been received, they may dispose of any paper copies.

To do

- ❏ Assign a trusted volunteer to lead the data entry station.
- ❏ Locate the data entry station away from prying eyes.
- ❏ Submit the scoresheet and scanned physical judging data forms to ssbcscorekeeper@aisc.org immediately following the competition.
- ❏ Provide internet connection (if necessary).

2.13 Awards Presentation

Overall winners of the competition and the top finishers in each of the judging categories will receive awards. The awards ceremony can be a simple awards presentation on the main competition floor, or it can be part of a larger awards ceremony or banquet for ASCE student symposium. The ceremony should also include an acknowledgement of the sponsors and volunteers.

Plaques

AISC will provide all awards plaques for the competition. These will be shipped directly to the host schools so that they arrive two weeks ahead of the regional competition. There will be a total of 24 plaques:

- 1st, 2nd, and 3rd Place Overall
- 1st, 2nd, and 3rd Place Construction Speed
- 1st, 2nd, and 3rd Place Lightness
- 1st, 2nd, and 3rd Place Aesthetics
- 1st, 2nd, and 3rd Place Stiffness
- 1st, 2nd, and 3rd Place Economy
- 1st, 2nd, and 3rd Place Efficiency
- 1st, 2nd, and 3rd Place Cost Estimation

You should immediately review the plaques when you receive them to confirm that you have a complete set and that no damage occurred during shipping. If you notice any issues, alert AISC (universityprograms@aisc.org), and they will arrange for replacements.

Venue

Possible venues for the awards presentation may include auditoriums, large lecture rooms, and banquet facilities. Seating should be provided for all participants and any sponsors, judges, and volunteers who wish to attend. Depending on the size of the venue, a microphone and A/V equipment may also be helpful.

To do

- ❑ Review the plaques when they arrive. Notify AISC of any damaged or missing plaques (at universityprograms@aisc.org).
- ❑ Set up the plaques for the awards ceremony. (It is suggested that you organize the plaques in the order that they will be announced).

Part Three
Appendix

Appendix 1: Sample Competition Layouts

Two example competition space layouts are provided. The number of stations will vary from region to region. You may need to customize the layout and orientation of the stations to meet the needs for your specific venue.

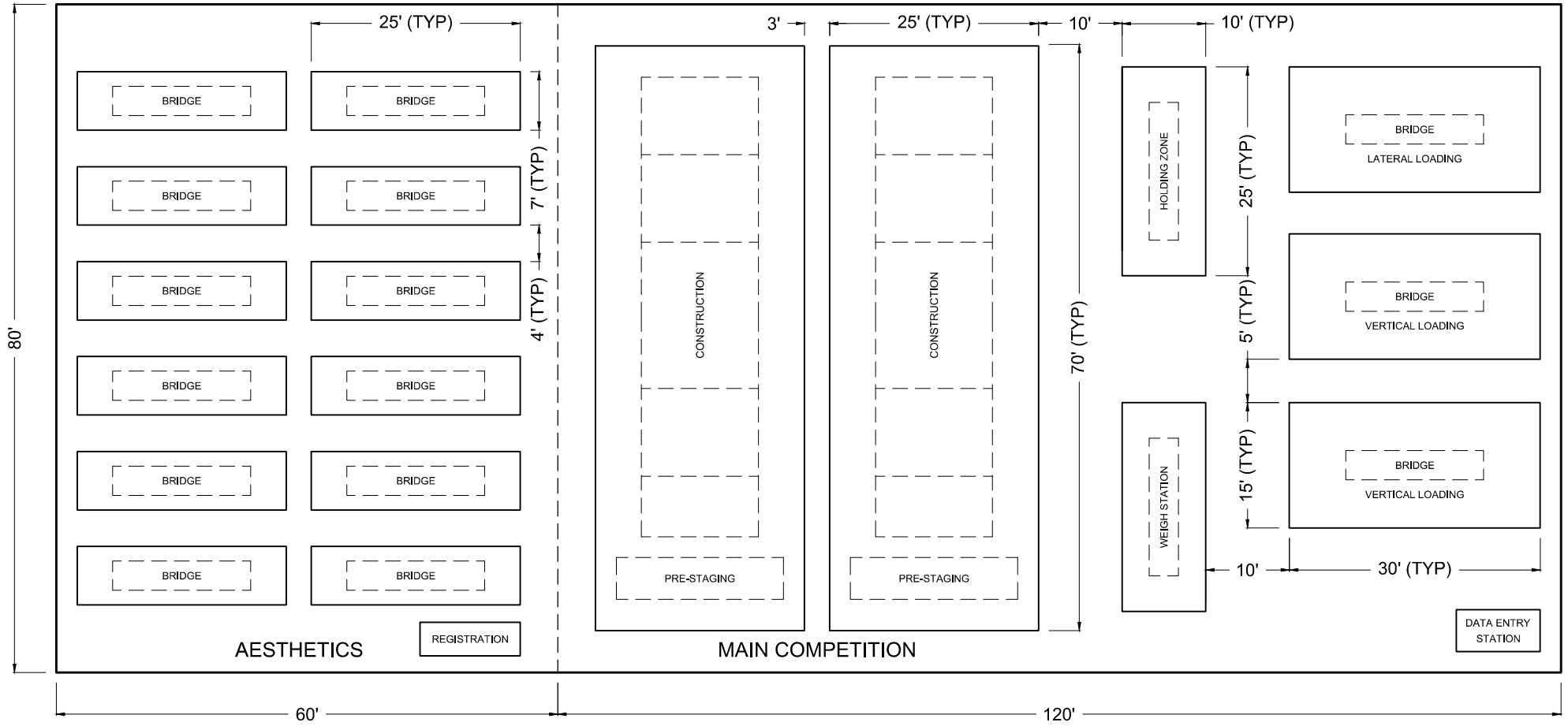
- Sample #1 is for a typical region and includes 2 construction lanes, 1 lateral load station, 2 vertical load stations, and 1 weight station.

- Sample #2 is for a smaller region (with six or fewer teams) and includes 1 construction lane, 1 lateral load station, 1 vertical load station, and 1 weight station.

Both sample layouts also include an area for aesthetics to show approximate overall dimensions. Aesthetics does not have to be located within the same venue as the main competition.

The aesthetics and main competition layout should be coordinated with and reviewed by the head judge.

Appendix 1
Sample Competition Layout #1



Appendix 1
Sample Competition Layout #2