

**SBE TRAINING CENTER  
Presents the**



**2008 Team Design / Build Competition**

**Purpose:** The Design/Build Competition promotes career awareness of the construction industry among High School students and the general public. Through this competition High School woodshop/building trades students have an opportunity to demonstrate the knowledge and skills that they have acquired. It is an attempt to recognize student achievements and affords the construction industry an opportunity to support schools, students, and industrial technology educational programs. The event provides an opportunity for High School students to gain firsthand knowledge of the construction industry and have hands on experience in the construction process.

**Project:** Participating student teams will be judged on the completion of design, plan review, safety and construction phases of a structure. Each team will be challenged to build their structure at the competition site showcasing their ability to follow directions, use the tools and equipment necessary in a safe manner, and produce a product of quality and integrity. .

**Materials:** All materials will be provided by the SBETC. Construction materials will be located at the competition site and will be separated into team piles. Teams cannot bring additional materials, which includes any prefab materials to the completion site except as outlined on attachment 'A'. Any leftover materials must remain within the designated work area until the judging of the completion is complete.

**Timeline:** The team must meet the following deadlines:

**Wednesday, April 2<sup>nd</sup>** – Team Preliminary Meeting 4:00 – 5:30PM

**Wednesday, April 16<sup>th</sup>** – Drop off Materials to School for Pre-Fab  
(Time to be arranged with Class Instructors))

**Saturday, April 26<sup>th</sup> - Design/Build Build Day!!** Begins 7am with Safety Meeting. Building Ends at 2:45pm.

*\*\*It is up to team members to meet before hand to break up assignments and make team decisions\*\**

## Design:

1. Criteria required for build:
  - a. Maximum width in one direction: 8'6" (including roof overhang, if applicable). Structures cannot exceed this width because of transportation limitations on local roads.
  - b. Maximum enclosed square footage: 96
  - c. Maximum overall height 13' 6".
  - d. Floor: Floor platform must be constructed to allow structure to be picked up, loaded, and unloaded for truck with a forklift. (Allow 6" in height for 4" x 6" pressure treated skids.)
  - e. Roof: Must have a minimum slope of 3" vertical in 12" horizontal in order to use composition shingle roof covering. Minimum 8" eaves.
  - f. One 2'0" x 2'0" window (teams may frame for more, but only one window will be provided). Teams must install window provided by the SBETC. Teams may not install any other window, even though they can be framed for.
  - g. One 3'0" x 6'8" door (teams may frame for more, but only one door will be provided). Teams must install pre-hung door provided by the SBETC, but may alter given door as they see fit; that is, alter the size and dimensions of the door.
2. Construction documents will be provided on 24' x 36' drawing sheet(s), and will include the following items:
  - a. A statement of intended use for structure and how the design reflects that use.
  - b. Floor plan at  $\frac{1}{4}" = 1'0"$  scale.
  - c. Appropriate section(s), details and framing plans to fully describe structure.

**Teams:** No more than seven (7) students are allowed on a team. No more than (1) Expert Advisor per team. Advisor is only for reference and consulting, and is not allowed to participate in the physical building of project. Each team's work area will be clearly marked, and all team construction activity must take place within the designated area. No materials are allowed outside the work area, and no additional materials may be brought into the site unless noted by SBETC staff. No communication with others outside the marked work areas will be allowed. Only team members, Expert Advisor, and SBETC staff may be inside the designated work area.

**Clean-Up:** Individual teams will be responsible for the clean-up of their respective work areas. Clean-up is also a judging consideration under the category of safety.

**Judging:** Teams will be judged by members of the local construction industry.

The judge's evaluations will correspond to three phases of the team's construction project.

|                     |   |           |
|---------------------|---|-----------|
| <b>Building</b>     | 1. Code compliance  | 7 Points  |
|                     | 2. Inspection   | 7 Points  |
|                     | 3. Quality  | 3 Points  |
| <b>Construction</b> | 1. Percentage of Completion   | 10 Points |
|                     | 2. Utilization of Manpower  | 10 Points |
|                     | 3. Safety   | 10 Points |
|                     | 4. Workmanship  | 10 Points |
|                     | 5. Completed Structure<br>(Stability; Functionality; Effective use of<br>Materials; Appearance) | 10 Points |

**Safety:**

1. Safety must, of course, be the most important items of consideration during the entire event.
2. Previous instruction and proficiency in the use of power tools is required of all construction teams' members. Documented safety instruction outside of the competition garners an additional 10 points. (Safety Meeting)
3. Safety is a category on all the judge's evaluation forms.
4. Safety requirements during the construction phase of the competition include: Team members must wear safety glasses, hard hats (SBETC will provide) and appropriate shoes / clothing.

**Competition Day Schedule: SATURDAY, APRIL 26<sup>TH</sup>**

7:00AM – 7:15AM Mandatory Safety Meeting

7:30AM – 2:45PM Team Build

2:45PM Judging

3PM Awards Presentation

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## Attachment 'A'

Teams are allowed to pre-build their truss and floor systems for this project. This will aid in the precision of truss design and allow ample time for team to build project in time allotted.

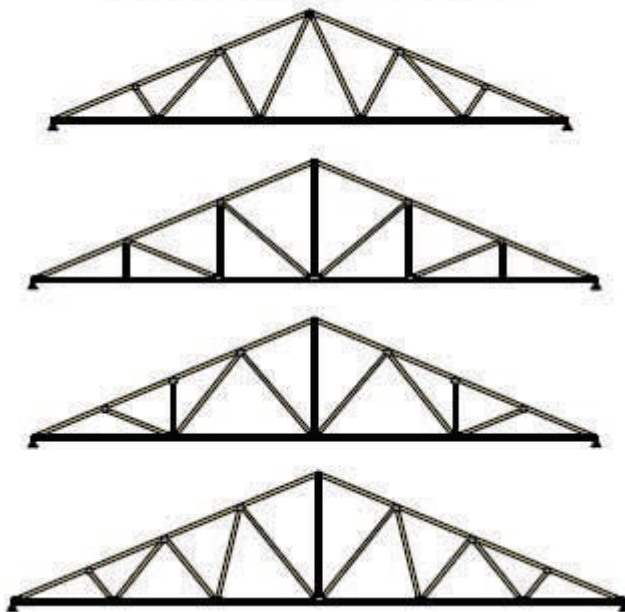
Details are as follows:

### Trusses

1. SBE Training Center will provide to schools materials and fasteners for trusses ahead of time. You must communicate with Phil at TC (530.222.1917) if you need materials and fasteners. You must specify quantity needed.
2. Do not build trusses until structure design is agreed upon.
3. Trusses are to be made out of 2"x4" materials and will either be fastened by Simpson Mending Plate fasteners or custom made wood truss plates.
4. Trusses must have a minimum of 8" eave overhang to accommodate fascia trim.

### Examples of Truss Designs and Fasteners

#### STANDARD ROOF TRUSS CONFIGURATIONS

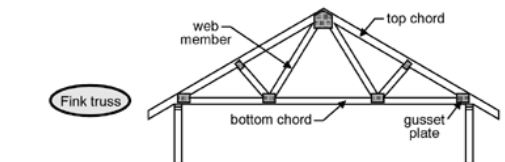


### Floor System

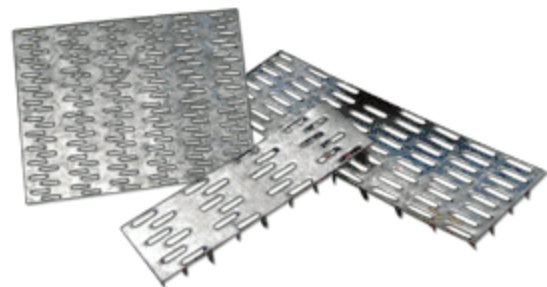
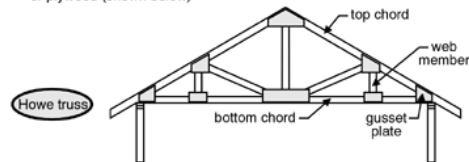
Standard Raised wood floor built out of 2"x6" joist construction. Platform will sit on 2 4"x6" Pressure Treated runners along bottom running lengthwise. These will be attached with Simpson Hurricane H1 ties. Floor sheathing will be 5/8" or equivalent tongue and groove. Floor joist will run perpendicular to Pressure Treated Skids.

**See attached drawing.**

#### Roof trusses - overview



gusset plates can be metal (shown above)  
or plywood (shown below)



### Simpson Mending Plate Fasteners

