

CONSTRUCTION
INDUSTRY EDUCATION FOUNDATION

DESIGNBUILD

www.DesignBuildCompetition.com

INSTRUCTOR GUIDE

resources.designbuildcompetition.com

JAN 1 - MAY 6, 2021
COMPETE FROM YOUR CAMPUS

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TIMELINE & OVERVIEW

2021 MILESTONES

February 22	Online Commitment Form Due for Schools
February 22	Preliminary Plans & Safety Program Due for Design & Open Competitions
April 1	Student Roster and Release Forms Due (Appendix: Forms)
April 1	Online Student Registration Due
Prior to Start of Construction	Safety Training, IIPP, CSWP, Worksite Video Due
March 8-12	Delivery of Materials to Schools
April 23	Team Photos and Video Submissions Due
April 26-30	Online Judging
May 6	Awards Ceremony and Industry Lunch

PURPOSE

The Construction Industry Education Foundation (CIEF) Design Build Program promotes career awareness of the construction industry among high school students. It is an effort to recognize student achievements and affords the construction industry an opportunity to support schools, students, and career technical educational programs. The competition 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

Each team in the Design and Open Competitions will be challenged to design and prepare construction documents according to criteria outlined by CIEF and build their structure at their school site or other designated location. Plans will be provided for schools in the Build Competition. Participating student teams will be judged on the completion of design, plan review (if applicable), health and safety adherence, and construction phases of a structure.

CIEF will provide all construction materials listed on the materials list (**please note this does not include nails, screws, and caulking**), arrange for the delivery of building materials to the school site, and judge the Competition. Schools competing in the Open Competition will be responsible for any additional items they would like to incorporate in their structure beyond the provided materials list.

ELIGIBILITY

CIEF will accommodate as many high school teams that are interested in participating as possible. For the 2021 Competition, all high school teams will compete from their home campus or other designated build site.

We encourage schools to let us know as soon as possible of their desire to participate as determination may be made on a first-come, first-served basis. An Online Commitment Form must be completed no later than February 1, 2021 to participate in the 2021 Design Build Competition.

AWARDS

BEST IN SHOW (Build Competition, Design Competition, Open Competition)

Awarded to the team which earns the most overall points in the event. Attention to all the guidelines, from the plan submittal process to the actual construction, safety considerations, teamwork, etc., is taken into consideration.

ARCHITECTURAL AWARD (Design Competition, Open Competition)

Awarded to the school that has the most points in the architectural portion of the judging. Creativity is a key component of this award. Schools that do not follow the guidelines (Refer to Design p. 4) will not be eligible for this award. The same project design may not be used in successive years and can only be repeated once every three years to be eligible for this award.

WAYNE JOHNSON SAFETY PERSON OF THE YEAR AWARD (One for all Competitions)

Awarded to one individual who has assumed the role of the Designated Safety Person (DSP) for their team. The award winner, selected by the Safety Judges, will exhibit a keen understanding of worksite safety, appropriate safety regulations, and documentation, and will ensure that their local worksite is always being operated in a safe manner.

ROOKIE TEAM OF THE YEAR AWARD (One for all Competitions)

Awarded to a first- or second-year team with the highest amount of accumulated points. If a first- or second-year team wins Best in Show, the award will go to the "Rookie" team with the next highest number of points.

CRAFTSMANSHIP AWARD (One for all Competitions)

Awarded to the team with the highest combined Construction Evaluation and Building Code Compliance scores. Judging criteria will include how well the project is crafted including square cuts, wood joining that is void of gaps, flush surfaces where wood is joined, and wood fasteners finished flush and correct.

PEOPLE'S CHOICE AWARD (One for all Competitions)

People will be able to vote for their favorite structure based upon photo submissions from teams.

Note: Teams that do not strictly adhere to the materials list do not qualify for Best of Show Award or Architecture Award for the Build or Design Competitions.

Preliminary Plans Due: February 22, 2021 for Design & Open Competitions

Submit at: www.designbuildcompetition.com

A. Design and prepare construction drawings for a structure which meets the following criteria:

1. If the completed structure will be moved from the build site, the maximum width in one direction is 8'6" (including roof overhang, if applicable). Structures cannot exceed this width because of transportation limitations on local roads.
2. Maximum enclosed square footage of the structure is 96 sf.
3. If the completed structure will be moved from the build site, the maximum overall height (information from Highway Code Statute #35250 as written states): "No vehicle or load shall exceed a height of 14 feet measured from the surface upon which the vehicle stands, except that a double-deck bus may not exceed a height of 14 feet, 3 inches. Any vehicle or load which exceeds a height of 13 feet, 6 inches, shall only be operated on those highways where deemed to be safe by the owner of the vehicle or the entity operating the bus."
4. *Floor Framing Plan* at $\frac{1}{2}'' = 1'$. The floor platform must be incorporated into the architectural plan and maintain a minimum of 6" nominal clearance below the structure.
5. Skids or dunnage placement should be noted and incorporated to allow for future crane and/or forklift pick up the structure from the long end. Please visit the resources folder for an example diagram.
6. *Roof Framing Plan* at $\frac{1}{2}'' = 1'$. Roof must have a minimum slope of 3" vertical in 12" horizontal in order to use composition shingle roof covering. If roof exceeds a slope of 7" vertical in 12" horizontal pitch, team **MUST** make a notation when submitting preliminary plans for review.
7. Window: 2' x 2' window. Teams may frame for more, but only one window will be provided. Teams must install the window provided by CIEF. If competing in the Design Competition, teams **may not** install any other window, even though they have been framed for more.
8. Door: 3'0" x 6'8" door. Teams may frame for more, but only one door will be provided for the Design Competition. Teams must install the door provided by CIEF but may alter given door as they see fit; that is, alter the size and dimensions of the door if they are competing in the Design Competition. Teams must indicate left or right handing as viewed from the outside for the door swing.
9. Appropriate building or wall section(s) as needed to fully describe the work, including overall height of the structure. The maximum allowable height for the structure shall be 10' from the bottom of the sub-floor framing members to the highest point of the structure.
10. Inclusion of a nailing schedule.

PLAN REVIEW

11. Electrical: Electrical devices shall be shown on the architectural floor plan with indication of planned mounting heights and utilizing industry standard symbols. Installation of one duplex receptacle, one single pole switch and one keyless lamp socket utilizing type NM wiring (Romex). Installation shall be in accordance with the requirements of the National Electrical Code (NEC) as currently adopted by the California Electrical Code (CEC). All wiring shall be in a neat and workman like manner. Particular attention should be paid to *Article 300.4-Protection Against Physical Damage* relative location of bored holes and cable routing, *Article 300.14-Length of Free Conductor at Outlets Junctions and Switch Points*, *Article 334.24-Bending Radius*, and *Article 334.30-Securing and Supporting*. In addition, all wiring connections and circuitry shall be electrically correct in polarity, properly grounded, functional and safe for future energization.
12. *A Statement of Intended Use* for the structure, and how the design reflects that use.

B. Additional Documents Included with Plan Submittal

1. Any additional materials that you will be using outside of the materials list for the Open Competition must be listed and approved by CIEF before they can be used (examples include different door, extra materials, items for high performance attic and walls, green or solar technology, etc. Please note that any additional materials must be provided by the team/at the team's cost). Hazardous materials will not be allowed.

ARCHITECTURAL REVIEW

Architectural judges will review plans and make suggestions to ensure compliance and encourage students. CIEF will return plans by March 5, 2021 for the Design and Open Competitions.

CONSTRUCTION

CONSTRUCTION MARCH-APRIL 2021

Construction Site

Teams will compete from their home campus or other designated site.

Building Teams

For the 2021 Competition, there are no minimum or maximum number of students who can participate.

Instructors should not participate in the construction (use of tools) of the students' structures.

Power Tools

Teams are limited to the use of skill saws, saber saws, radial arm saws, power miter box saws, chop saws, routers, power drills (with attachments), belt sanders, and table saws with safety guards. There is no limitation on hand tools. No gas or air powered tools or saws, stationary tools, chain saws, or nail guns are allowed. Teams will be disqualified if it is discovered they use unauthorized tools.

Materials

Construction materials will be delivered to all campuses by March 5, 2021. All building materials listed are provided by CIEF.

Teams competing in the Build or Design Competitions cannot use any additional materials, which includes any prefabricated materials, during the competition. Painting is not allowed prior to final judging.

Each team will be provided with a sign identifying the school and team/materials sponsor which must be shown in the final photo and video submissions.

All teams should use proper PPE (hard hats, safety glasses, etc.). If a team needs assistance with PPE, please notify CIEF in advance of the Competition.

Structure Removal/Transport

Each team is responsible for transporting their structure from their home campus/build site to its final destination. Teams should reference who will be taking possession of the structure at the end of the competition in their final video. We encourage you to find a client/end user for your structure in advance of the competition.

Safety

- A. Safety is one of the most important items of consideration during the entire program. A copy of your school safety program including the Injury Illness Prevention Program (IIPP) and Code of Safe Work Practices (CSWP) should be submitted by the Designated Safety Person (DSP) in addition to a 60-second video showing the work area and how job hazards have been eliminated prior to the start of construction. Please refer to the Department of Industrial

JUDGING

Relations website: dir.ca.gov for relevant documents or the resources folder at resources.designbuildcompetition.org for samples. Submit all items online at designbuildcompetition.com.

- B. Previous instruction and proficiency in the use of power tools is required of all construction team members. Visit the Safety folder at resources.designbuildcompetition.com for documents requiring instructor confirmation of training (to be submitted by the DSP).
- C. CIEF will provide teams with an instructional safety video that is to be watched by all students prior to the start of construction.
- D. Under NO circumstances should students lift *completed* roof structures into place (this is for their own health and safety).

JUDGING

Teams will be judged by industry members and sponsors. Judges are from all areas of the construction industry.

Structures must be built according to plans. Judging will take place April 26-30, 2021 using the online platform *Inspected*. Schools will be asked to schedule a 15-minute session with Competition judges to review their final structure.

Teams should submit the following items by April 23, 2021 online at designbuildcompetition.com:

1. Five photos of the final structure: one from each side plus one from the front/left side showing two sides of the structure in the same photo (team sponsor sign should be on the front of the structure)
2. One team photo showing all participants with the final structure and their team sponsor sign
3. One video between 2-5 minutes with the following information:
 - a. Who will the structure be going to and how was that client/organization decided upon
 - b. Your team sponsor (this information will be provided to you prior to the delivery of building materials)
 - c. Showing all sides and elements of the final structure (review scoring guides to ensure that all elements can be judged from the video)
 - d. Designated Safety Person (DSP) referencing any injuries or safety challenges in the competition

**2021 DESIGN BUILD COMPETITION
MATERIALS LIST
(Per Team)**

<u>Quantity</u> <u>PER TEAM</u>	<u>Description</u>
6	4'x8' Sheets of 7/16" OSB Sheathings
4	4'x8' Sheets of 19/32" OSB Subfloor T & G
13	4'x8' Sheets of 7/16", 8" off center inner, seal panel siding, textured and shiplap
3	10' 4"x6" Doug Fir
1	8' 4"x6" Doug Fir
1	16' 2"x8" Doug Fir
10	18' 2"x6" Doug Fir
14	12' 2"x6" Doug Fir
55	92 1/4" 2"x4" Doug Fir
16	12' 2"x4" Doug Fir
5	8' 2"x4" Pressure Treated Doug Fir
20	16' 1"x4" KD Spruce
2	8' Z Metal Trim
1	Bundle of Shim Shingles
1	2"x2" Sheet Metal Flashing 50'
2	10' 6"x6" Wall to Roof Flashing
2	Squares Composition shingle roofing, 15# felt
1	2'0" x 2'0" Aluminum Siding Window
1	3'0" x 6'8" Pre-hung door (keyed lock, hinges, weather stripping, threshold)
1	12/2 with Ground Romex 65'
25	Romex Staples
2	Plastic Switch/Plug Boxes
1	3/O Plastic Box
5	Crimp Sleeves for Ground
1	Keyless Light Socket
1	60W Bulb
1	Switch and Plate
1	Duplex Plug and Plate
9	Wire Nuts

**** All nails, screws, and caulking are to be provided by the individual teams**

SCORING – BUILD COMPETITION

Craftsmanship	a. Stability	5 pts.
	b. Functionality and Appearance	5 pts.
	c. Square Cuts	5 pts.
	d. Wood Joining is Flush	5 pts.
	<u>e. Fasteners Finished Flush and Correct</u>	<u>5 pts.</u>
		25 pts.
Completeness	a. Floor	10 pts.
	b. Wall	10 pts.
	<u>c. Roof</u>	<u>10 pts.</u>
		30 pts.
Electrical	a. Code Compliant Rough-in (Bored holes, Cable Routing, Bending Radius, Securing, and Supporting)	2 pts.
	b. Functionally Correct Circuitry	2 pts.
	c. Correct Device Polarity	2 pts.
	d. Proper Grounding	2 pts.
	<u>e. Neat and Workmanlike Installation</u>	<u>2 pts.</u>
		10 pts.
Teamwork	a. Team Synergy (ability to listen, learn and <u>Participate) during Final Video Inspection</u>	<u>15 pts.</u>
		15 pts.
Safety/Designated Safety Person (DSP)	a. Injury Illness Prevention Plan (IIPP)	3 pts.
	b. Code of Safe Work Practices (CSWP)	3 pts.
	c. Training Records (Power tools, Ladders, Scaffolding Heat Illness, Manual Material Handling, and Fall Protection)	6 pts.
	d. Submission of 60-second Safety Video Prior to Start of Construction (Shows Work Area and Elimination of Safety Hazards)	5 pts.
	<u>e. Verification of Safety Video</u>	<u>3 pts.</u>
		20 pts.
Total Points Possible		100 pts.

SCORING OVERVIEW – DESIGN COMPETITION

Design

- a. Completeness of Plans 14 pts.
 - 24"x36" drawing sheet with statement of intended use
 - Site plan
 - Floor plan
 - Elevations of all sides of building
 - Framing sections
 - Appropriate scale: ½" = 1' on floor plan elevations
 - Nailing schedule

- b. Conformity to Design Criteria 12 pts.
 - Maximum width- 8'6" including roof overhang if applicable
 - Maximum enclosed square footage - 96 sq. ft.
 - Roof - minimum slope of 3" vertical, 12" horizontal
 - Minimum 1 window and 1 door
 - Skids or dunnage
 - Floor platform

- c. Creativity 14 pts.
40 pts.

Building

- a. Code Compliance 4 pts.
 - Roof
 - Wall
 - Floor
 - Wall Stud Spacing
 - Connections
 - Water Proofing
 - Finishes
 - Electrical

- b. Inspection 3 pts.
Structure Built According to Given Parameters
 - Maximum width- 8'6" including roof overhang (if applicable)
 - Maximum enclosed square footage - 96 sf
 - Roof - minimum slope of 3" vertical, 12" horizontal
 - Minimum 1 window
 - Minimum 1 door
 - Floor platform

- c. Percentage of Completion 18 pts.
25 pts.

SCORING – DESIGN COMPETITION

Construction

a. Degree of Difficulty	15 pts.
b. Team Synergy (ability to listen, learn and Participate) during Final Video Inspection	10 pts.
c. Workmanship	30 pts.
- Stability	
- Functionality	
- Appearance	
- Square cuts	
- Wood joining is flush	
- <u>Fasteners finished flush and correct</u>	
	55 pts.

Electrical

a. Code Compliant Rough-in (Bored holes, Cable Routing, Bending Radius, Securing, and Supporting)	2 pts.
b. Functionally Correct Circuitry	2 pts.
c. Correct Device Polarity	2 pts.
d. Proper Grounding	2 pts.
e. <u>Neat and Workmanlike Installation</u>	2 pts.
	10 pts.

Safety/Designated Safety Person (DSP)

a. Injury Illness Prevention Plan (IIPP)	3 pts.
b. Code of Safe Work Practices (CSWP)	3 pts.
c. Training Records (Power tools, Ladders, Scaffolding Heat Illness, Manual Material Handling, and Fall Protection)	6 pts.
d. Submission of 60-second Safety Video Prior to Start of Construction (Shows Work Area and Elimination of Safety Hazards)	5 pts.
e. <u>Verification of Safety Training Video</u>	3 pts.
	20 pts.

Total Points Possible

150 pts.

SCORING – OPEN COMPETITION

SCORING OVERVIEW – OPEN COMPETITION

Design

- | | |
|---|---------|
| a. Completeness of Plans | 14 pts. |
| - 24"x36" drawing sheet with statement of intended use | |
| - Site Plan | |
| - Floor Plan | |
| - Elevations of all Sides of Building | |
| - Framing Sections | |
| - Appropriate Scale: ½" = 1' on Floor Plan Elevations | |
| - Nailing Schedule | |
| b. Conformity to Design Criteria | 12 pts. |
| - Maximum Width- 8'6" Including Roof Overhang if Applicable | |
| - Skids or Dunnage | |
| - Floor Platform | |
| c. Creativity | 14 pts. |
| | 40 pts. |

Building

- | | |
|---|---------|
| a. Code Compliance | 4 pts. |
| - Roof | |
| - Wall | |
| - Floor | |
| - Wall Stud Spacing | |
| - Connections | |
| - Water Proofing | |
| - Finishes | |
| - Electrical | |
| b. Inspection | 3 pts. |
| <i>Structure Built According to Given Parameters</i> | |
| - Maximum width- 8'6" including roof overhang (if applicable) | |
| - Minimum 1 window | |
| - Minimum 1 door | |
| - Floor platform | |
| c. Percentage of Completion | 18 pts. |
| | 25 pts. |

SCORING – OPEN COMPETITION

Construction

a. Degree of Difficulty	15 pts.
b. Team Synergy (ability to listen, learn and Participate) during Final Video Inspection	10 pts.
c. Workmanship	30 pts.
- Stability	
- Functionality	
- Appearance	
- Square cuts	
- Wood joining is flush	
- Fasteners finished flush and correct	
	<hr/>
	55 pts.

Electrical

a. Code Compliant Rough-in (Bored holes, Cable Routing, Bending Radius, Securing, and Supporting)	2 pts.
b. Functionally Correct Circuitry	2 pts.
c. Correct Device Polarity	2 pts.
d. Proper Grounding	2 pts.
e. Neat and Workmanlike Installation	2 pts.
	<hr/>
	10 pts.

Safety/Designated Safety Person (DSP)

a. Injury Illness Prevention Plan (IIPP)	3 pts.
b. Code of Safe Work Practices (CSWP)	3 pts.
c. Training Records	6 pts.
- Power tools	
- Ladders	
- Scaffolding	
- Heat Illness	
- Manual Material Handling	
- Fall Protection	
d. Submission of 60-second Safety Video Prior to Start of Construction (Shows Work Area and Elimination of Safety Hazards)	5 pts.
e. Verification of Safety Training Video	3 pts.
	<hr/>
	20 pts.

Total Points Possible

150 pts.

APPENDIX: FORMS



TEAM ROSTER 2021

Due by April 1, 2021

Upload at: www.designbuildcompetition.com

SCHOOL: _____

	Role	First Name	Last Name
1	Instructor		
2	Instructor		
3	DSP		
4	Student		
5	Student		
6	Student		
7	Student		
8	Student		
9	Student		
10	Student		
11	Student		
12	Student		
13	Student		
14	Student		
15	Student		
16	Student		
17	Student		

All students will need to register online by April 1, 2021 at student.designbuildcompetition.com in order to participate.

Please submit multiple forms if necessary. There are no minimum or maximum number of students who can compete per team for 2021.



Release Form Due April 1, 2021
CIEF Design Build Competition

Instructors: Please collect completed forms and submit in one packet to forms@designbuildcompetition.com by April 1, 2021.

This form is required for insurance purposes and grants photo permission.

To be completed by each participating student and/or parent/guardian.

In consideration of the acceptance of my application for entry in the above entitled event for the Construction Industry Education Foundation (CIEF) Design Build Competition, I hereby waive, release, and discharge any and all claims for damages for death, personal injury, or property damage which I may have, or which may hereafter accrue to me, as a result of my participation in said program. This release is intended to discharge in advance the promoters, sponsors, partners and the CIEF, their insurers, and workers' compensation carriers (and their respective agents and employees), from and against any and all liabilities arising out of or connected in any way with my participation in said program, even though that liability may arise out of negligence or carelessness on the part of the persons or entities mentioned above.

I further understand that there is a potential that serious accidents can occur during Design Build Competitions and that persons involved could sustain serious or mortal injuries, and/or property damage, as a consequence thereof. Knowing the risks of the Design Build Competition, nevertheless, I hereby agree to assume those risks and to release and hold harmless all of the persons or entities mentioned above who (through negligence or carelessness) might otherwise be liable to me (or my heirs or assigns) for damages.

I understand that I am to act in a responsible manner and not put myself or others at risk by my behavior. I understand I am responsible for following the directions of the adult assigned by the school or agency to be my team's chaperone. By participating in this competition, I authorize the CIEF, its authorized employees, representatives, or agents to use my name as a participant and to take digital or tape, motion pictures and/or still photographs of participants as a part of participation in the Design Build Competition and consent to and authorize their use for promotional or educational purposes, advertising or trade without any compensation or notice to me.

It is further understood and agreed that this waiver, releases any assumption of risk and is to be binding by my heirs and assigns.

School Name: _____

Student Name (Please print): _____

Phone #: _____

Student Signature: _____

Date: _____

Parent/Guardian Name (Please print): _____

Phone #: _____

Parent Signature: _____

Date: _____

Address: _____

Students: Please return this form to your instructor. All students will need to register online to submit a t-shirt size and provide additional information. Please register by April 1 at student.designbuildcompetition.com in order to participate.



Solicitud de Exención
Requerido el 1 de abril de 2021
 CIEF Concurso de Diseño

Formulario para completar por cada estudiante participante.

En referencia a la aceptación de mi solicitud de participación en el evento arriba descrito para el Concurso de Diseño de la Fundación de Educación de industria de construcción (CIEF), por la presente renuncio, libero y desestimo todo reclamo por daños y perjuicios por muerte, lesiones personales, o daño a la propiedad que pueda tener, o que pueda acumular en el futuro, como resultado de mi participación en dicho programa. Este documento tiene por objeto no responsabilizar anticipadamente a los promotores, patrocinadores, socios y CIEF, sus aseguradoras y los operadores de compensación laboral (y sus respectivos agentes y empleados), de y contra todas y cada una de las responsabilidades derivadas o conectadas de cualquier manera con mi participación en dicho programa, a pesar de que esa responsabilidad puede surgir por negligencia o descuido por parte de las personas o entidades mencionadas anteriormente.

Además, entiendo que ocasionalmente pueden ocurrir accidentes graves durante los concursos de diseño y construcción y que las personas involucradas en dichas competiciones ocasionalmente sufren lesiones personales, graves o mortales, y / o daños a la propiedad, como consecuencia de ello. Conociendo estos riesgos, acepto asumir esos riesgos y liberar de responsabilidades y mantener indemne a todas las personas o entidades mencionadas anteriormente que (por negligencia o descuido) podrían ser responsables ante mí (o mis asignados herederos) por daños.

Entiendo que debo actuar de manera responsable y no poner en peligro a mí ni a otros a causa de mi comportamiento. Entiendo que soy responsable de seguir las indicaciones del adulto asignado por la escuela o la agencia. Al participar en este competencia, autorizo al Comité de Liderazgo del Concurso, a sus empleados, representantes o agentes autorizados a usar mi nombre como participante y a tomar fotografías digitales o en video, y / o fotografías de los participantes (todas ellas incluidas en este documento como parte de la participación en el Concurso de Diseño y autorizo su uso para fines promocionales o educativos, publicitarios o comerciales sin ninguna compensación o aviso.

Además, acepto y entiendo que esta exención libera cualquier asunción de riesgo y debe ser vinculante para mis herederos y cesionarios.

Nombre de la Escuela: _____

Nombre del Estudiante (por favor en texto impreso): _____

Numero de Telefono : _____

Firma: _____

Fecha: _____

Nombre Padre/Madre o Guardian: _____

Numero de Telefono: _____

Si es Menor de Edad, Firma del Padre/Madre o Guardian: _____

Fecha: _____

Domicilio: _____

Estudiantes: Por favor devuelva ese formulario a su instructor. Todos los estudiantes deberán registrarse por la web para enviar una talla de camiseta y proporcionar información adicional. Regístrese antes de 1 de abril en student.designbuildcompetition.com para poder participar.

