ELECTRI INTERNATIONAL
Research and Education for the Electrical Construction Industry

Electrical Contracting Innovation Challenge

RULES AND REGULATIONS

2021 ELECTRI Competition for NECA Student Chapters

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2021 Competition for NECA Student Chapters
Electrical Contracting Innovation Challenge

ELECTRI International and the National Electrical Contractors Association (NECA) are pleased to announce the **13th Annual ELECTRI/NECA Student Chapter Competition**. The Electrical Contracting Innovation Challenge (ECIC) competition provides university students and faculty advisors with an engaging and fulfilling annual event that helps foster meaningful interaction between students, their local NECA Chapter, and NECA member companies.

ECIC Scenario:

Each faculty advisor and student team will work with [their local university Customer X] to design a new [student housing dormitory]. Teams will receive a set of construction documents and building information models from ELECTRI staff upon registering for the challenge. These materials will provide the foundation for you to design and virtually construct the most innovative electrical system to meet the Customer X's needs.

All NECA Student Chapter teams will use the same contract documents and general scenario to complete the project.

The teams will work with their local university employees, staff and students [Customer X] conducting interviews to identify their needs and preferences if they would ever undertake a similar project on campus. This interaction can help the student team think of creative ideas and solutions that will best serve the Customer X's needs.

Teams must create a detailed plan to engage with their local NECA chapters and contractors for assistance. It is essential for the student teams to work closely with a NECA electrical contracting partner to identify means and methods that take into consideration real-world project parameters including cost, work force and other considerations. All interactions with NECA chapters and contractors should be documented in the final proposal. This includes web or in-person meetings, training sessions, organized tours of fab shops and jobsites., etc.

Competition Goals

- Engage members of NECA Student Chapters in a rewarding educational experience.
- Challenge Student Chapter teams to develop technical skills vital to careers in electrical construction and professional skills in time management and oral/written communication.
- Foster an interest among NECA Student Chapters in opportunities for meaningful engagement with their local NECA contractors and NECA chapters.
- Provide a mechanism for NECA Student Chapters to create enthusiasm at their university about chapter membership and eventual careers in the electrical construction industry.

Competition Format

Working with [Customer X] teams are challenged to design an electrical system that provides the facility with an innovative solution that is both engaging and sustainable. Students are encouraged to explore new technologies that enhance the functionality of the building while also improving overall life cycle cost and environmental impact.

Team members are required to prepare a proposal while working closely alongside their NECA contracting partner. The proposal should include a detailed estimate of the proposed electrical system. Teams are advised to emphasize detailed technical solutions for the proposed systems including lighting controls, building automation controls, power, A/V, renewable energy, access controls, security systems, hands free controls and reduced life cycle cost features that respond to the unique needs of Customer X. **Teams should be prepared to encounter real-world scenarios like design changes and project addendums throughout the course of the project.**

We highly encourage the student teams to be creative and innovative in how they choose to design and construct the proposed building's electrical system. This competition will also help students gain valuable job skills and experience from local NECA contractors who can assist them in their future careers. ELECTRI anticipates the student teams will gain a new level of respect for the entire construction process and the important roles each project stakeholder plays during the design and construction phases of a project.

Each team's written proposal will be judged by NECA contractor members and industry partners to select the finalist teams who will be invited to attend the NECA 2021 Annual Convention in Nashville, TN on October 9-12. The final teams will each make a 15-minute oral presentation followed by a 10-minute question/answer session at the NECA annual convention to a group of judges that will determine the overall Electrical Contracting Innovation Challenge winner.

Each team entering the challenge is encouraged to create a three-minute video that profiles the team's project and highlights the team members' engagement with their local NECA contractor partner. All videos will be shown at the ELECTRI International Summer Meeting, and attendees will select three video finalists. The three video finalists will be screened during the NECA National Convention and the winner will be selected by a vote of contractors in attendance.

In addition to the awards for best proposal and best video, ELECTRI International will present three awards of $500 each, open to <u>every team</u> that submits a full proposal: Most Innovative Electrical System, Best Project Estimate, and Best Social Media Post.

2021 Competition Schedule

November 1, 2020	underCompetition Rules and Regulations delivered to NECA Student Chapter Advisors
December 15, 2020	Webinar with ECIC jury and ELECTRI Staff who will answer questions regarding the 2021 Challenge
January 31, 2021	Submit any RFIs about the proposal to Laura Holmes at Laura.holmes@electri.org
January 31, 2021	**Competition registration deadline for NECA Student Chapter Teams** (11:59 PM in each US time zone)

BIM Training Classes – The 3rd Tuesday of every month (Starting January 19, 2021) at 7PM ET

BIM Tutorial Sessions – The 4th Tuesday of every month (Starting January 26, 2021) at 7PM ET

Estimating Training Classes – February 11th, March 11th, April 13th at 7PM ET

April 30, 2021	**Submission deadline for final PDF proposals** (11:59 PM in each US time zone)
June 1, 2021	**Video Submission deadline** (11:59 PM in each US time zone)
June-July 2021	Proposal review by the ECIC jury
July 30, 2021	Notification of review results and selection of finalists
October 9, 2021	**Oral presentations at NECA Convention and Award Ceremony** in Nashville, TN. Top three teams: 15 minutes each + 10-minute Q/A

2021 ELECTRI ECIC Competition Scoring

The top three teams (based on written proposal scoring) will be invited to the NECA Convention in Nashville to give oral presentations on their ECIC proposals. The winner of the 2021 ELECTRI ECIC Competition will be the team with the highest **composite** written proposal and oral presentation score. The written proposal score and the oral presentation score will each represent 50% of each team's final score. Each finalist team's written proposal score will be published prior to the oral presentation segment of the competition.

Example:

	Team A	Team B	Team C
Written Proposal Score:	48	47	44
Oral Presentation Score:	45	47	48
Final ECIC Score:	**93**	**94**	**92**

Team B would be the NECA/ELECTRI ECIC Competition winner.

2021 Competition Rules

Participation

- All communications should be directed to **Laura Holmes**, laura.holmes@electri.org
- Student participation is limited to students actively enrolled in the university for which each student team represents in the challenge. Students who have graduated within six months of the NECA Convention will be eligible to take part in the team's on-site presentation at the Convention.
- Student teams are expected to have four to six core team members and are encouraged to engage fellow students in supporting roles. A maximum of six team members can present the proposal at the NECA Convention.
- Each university team may submit only one entry and one video.
- All team members are expected to be NECA Student Chapter Members. Teams are encouraged to recruit students from other disciplines to join the chapter and the team.
- Faculty members are strongly encouraged to use the challenge problem as an assignment in an existing course.

External Input

- The completed proposal work must be original and prepared by the team members.
- Teams are expected and encouraged to gain input and feedback on the proposal from NECA contractors and chapter representatives, vendors, material suppliers, and faculty members.
- No team member is permitted to have earned wages for participating in the competition or wages for working on the project selected by the team.
- Much like real-life projects, students should be prepared to manage addenda and change orders throughout the challenge.

Client Interaction/Outreach

- The project "organization" customer for each NECA Chapter Team must be a local representative provided by ELECTRI.
- Student teams are expected to conduct themselves in a professional manner in all aspects of the competition.

- Student teams are expected to plan virtual meetings and phone calls with their university employees, staff and students. All interactions should be conducted in a professional manner that is not disruptive to anyone's educational requirements.
- Teams are expected to represent accurately the goals and intent of the competition in any website and publication materials they use to develop sponsorship opportunities and outreach messages about their participation in the competition.

Travel Costs/Sponsorship/Expenses

- Teams are encouraged to seek financial sponsorship to support their team's travel costs to the Convention and other costs associated with the development of the proposal.
- ELECTRI International will provide travel support of up to $2000 to each finalist team.
- Awards for winning presentations and videos will be made to the university department of the winning team.
- Prize money is to be used to support general NECA Student Chapter activities, at the discretion of the NECA Chapter Faculty Advisor.
- The winners of Best Presenter will receive a financial award via a check made payable directly to the winning student.

2021 Detailed Scoring Guide

Proposal Summary Expectations	Total Possible Points
• **Written Executive Summary (10 POINTS), including mission statement (5 POINTS) and an explanation of the roll each team member will perform (5 POINTS)**.	**20**
• **Summary (15 POINTS) including all interactions with NECA contractors and chapter representatives (10 POINTS), including all interactions with university employees, staff and students. This summary can be placed in the proposal appendix.**	**25**
• **Team resumes – 1-page max for each core team member (1 POINT), uniformity (2 POINTS) and professional (2 POINTS) appearance.**	**5**

Technical Analysis 1: Design Scope / Electrical System Review	
• **Overall assessment of the design for the proposed electrical system for the facility. Focus on sustainability, security and enhanced user experience. Use of innovative technologies (10 POINTS), systems controls (10 POINTS), and overall life cycle impact cost considerations (10 POINTS).**	**30**
• **Ability to address project budget throughout the design process. What aspects of the design must be value engineered once the detailed estimate is finalized? Can the team justify added cost to be made up over the building life cycle? (10 POINTS).**	**10**
• **Produce a 3D model (BIM) and a set of construction documents. Documents should include the appropriate information to effectively communicate design intent that can used for takeoffs and bidding the job. Drawings should include (at a minimum) Manufacturer, Catalog Number, Fixture Description, Lamp Type, Input Watts, and Voltage. Drawing(s) should also include a symbol legend for control devices. (20 POINTS)**	**20**
• **Make a recommendation utilizing data (power and cost) to achieve a Net Zero Energy facility. (10 POINTS) *NOTE: What would be required if the customer asked how its project could meet the standard of a Net Zero Energy facility?**	**10**
• **Explain why the electrical system best suits the customer's needs. Provide product data sheets (submittals) for equipment and controls that are to be installed. (Product data sheets should be placed in the appendix section of the proposal.) (10 POINTS)**.	**10**
• **Provide information that supports building life cycle cost savings based on the electrical system. Operations and maintenance cost in conjunction with potential energy savings should be taken into consideration. (10 POINTS)**	**10**

• **Provide a detailed summary of the team's project that will convince the customer to install the proposed electrical system. (10 POINTS)**
  ○ **The report should address (at a minimum) the following questions:**
  ○ **What are the upfront costs of the proposed system?**
	10

○ **What is the life cycle costs and advantages of operating and maintaining the electrical system?**	
Application of Means and Methods – Estimate, Schedule and other Construction Considerations	
• **Develop a cost estimate for the proposed electrical system. Provide sufficient detailed information to demonstrate that the team's estimate is thorough and inclusive of all cost areas including material, direct labor, indirect labor, labor escalation, trade contractors, general conditions, equipment, overhead, and profit. Line item takeoff extension documents can be placed in the appendix if necessary. (40 POINTS)**	**40**
• **Provide shop drawing(s) for the proposed electrical system indicating the locations of fixtures, equipment and controls. Shop drawings should include electrical room layout, power supply and distribution, control systems, access and security systems, information and communication systems, interior and exterior lighting plans. Drawing(s) should also include a symbol legend for control devices. (30 POINTS)**	**30**
• **Prepare a 4D Model or Gantt chart schedule for the proposed work. It should be based on the completion of work in a timeframe that meets owner expectations. Provide a brief narrative of the schedule highlighting major project milestones and crew information, to explain how the campus will be affected during the project. (30 POINTS)**	**30**
Interaction with local NECA Contractors	
• **Teams are required to have a minimum of 1 team member attend the following educational courses:** **<u>Virtual BIM Training</u>: Teams are required to participate in a minimum of 5 hours of BIM training courses. ELECTRI will offer monthly online BIM training courses starting in January. Attendance will be accepted for both live and on-demand viewing. Student teams can also work with their local NECA contractor/chapter to schedule BIM training courses. (20 POINTS)** **<u>Virtual Estimate Training</u>: Teams are required to schedule a minimum of 2 hours of estimating training classes. ELECTRI will offer monthly online estimating training courses starting in February. Attendance will be accepted for both live and on-demand viewing. Student teams**	**50**

can also work with their local NECA contractor/chapter to schedule estimating training courses. (20 POINTS) • **<u>Participate in Monthly Construction Technology Webinars</u>: Team members are required to participate in monthly Construction Technology webinars hosted by ELECTRI. Real-time participation is strongly encouraged, but recordings will be available if you can't attend live. (10 POINTS)**	
• **Teams are required to partner and interact with one or more NECA contracting members in the development and refinement of their Electrical Contracting Innovation Challenge proposals. Provide a summary of the interaction the team completed with its sponsoring NECA chapter and local NECA contractors. (This may include online meetings, phone calls, tours of facilities and project sites, etc.) (40 POINTS)** ○ **Maintain a log of the team's communication and interactions with the NECA contractors/chapter regarding the ECIC project and include it in the proposal's appendix (10 POINTS).**	**50**
Campus/Local Media Engagement	
• **<u>Teams are encouraged to publicize participation in the Electrical Contracting Innovation Challenge in university/department newsletters, websites, social media and local media.</u> The submitted proposal should include at least one drafted or published article describing the team's participation in the competition and summarizing the project. For each media outlet, be sure to use the hashtag #ECIC and tag ELECTRI International and NECA (@ELECTRI_org and @necanet on Twitter)," along with identifying the NECA contractor who is supporting the team during the competition. Teams will be awarded (2 points each – up to a maximum of 20 points total for social media) for each LinkedIn, Twitter, Facebook and Instagram post and 20 points total for magazine and e-publications. Include links to all additional published articles in the proposal's appendix.**	**Max – 40**

Format/Appearance	
• **Each team is expected to submit a final proposal as though it would be presented to the customer for consideration. The proposal should be in PDF format and include a Table of Contents detailing each of the sections in the order they are listed on this scoring checklist.** • **Five (5) points will be deducted each time content is not placed in the requested order. Omitting the Table of Contents will result in a score of zero (0) out of 25 points for the Format/Appearance section.** • **Proposals are expected to be of professional quality—with no spelling or grammatical errors, cohesive formatting throughout, and written in a uniform voice and style. Proposals should be no longer than 40 pages and submitted in color. (15 POINTS)** • **An appendix may be added to provide additional material. The appendix may only include contractor engagement logs, media articles, product data sheets/cut sheets, and estimate backup documentation. There is no page limit on the appendix, but each item in the appendix must be cited in the proposal using the format: (See Appendix, page XXX). (10 POINTS)**	**25**
TOTAL POSSIBLE POINTS	**415**

Oral Presentation

ELECTRI International will provide the Rules and Regulations for the Oral Presentation to the three finalist teams selected by the competition jury.

Video Presentation

Each team is encouraged to document digitally its ECIC proposal preparation, interactions with the organization and NECA contractors. The video the team submits for the 2021 ELECTRI ECIC Video Competition must be no longer than three minutes duration. It should include a summary of the team's experience for the first 30 seconds. The remaining 2.5 minutes should highlight the team's creativity due to the challenges caused by current circumstances, closed campuses, and the inability to meet directly with NECA chapters, members, and community outreach services. The video can be set to music and/or narrated. **The more creative the better!**

All videos will be shown to the ELECTRI Council during its July 2021 meeting. The top three videos selected by the Council will be shown prior to the EC Innovation Challenge oral competition at the NECA Convention and some of the videos will be posted to the ELECTRI website. The final three videos will be scored by contractors attending the Convention with each finalist video receiving a financial award from ELECTRI International as detailed below.

Awards

Three finalist teams will receive a financial award for their respective university program, a plaque, and $2,000 in travel support from ELECTRI International to attend the NECA Convention. The award for the Best Presenter goes directly to the student winning this category. The awards for most innovative electrical system, best project estimate and best social media post are open to any teams that submit a final proposal.

Team Presentation	
1st place	$4,000
2nd place	$3,000
3rd place	$2,000

Video Competition	
1st Place	$1,000
2nd Place	$750
3rd Place	$500

Best Presenter	$500 (Awarded to Individual Team Member)
Most Innovative Electrical System	$500 (Awarded to Student Team)
Best Project Estimate	$500 (Awarded to Student Team)
Best Social Media Post	$500 (Awarded to Student Team)

Travel Support and Complimentary Registration for the NECA Convention

All members of each finalist team and the team faculty advisor will receive complimentary registrations to the NECA Convention.