This paper outlines the development of the first CAED Hasslein Student Competition at Cal Poly, SLO. The College of Architecture and Environmental Design at Cal Poly, SLO has not yet been successful in creating a platform to engage students of all five majors to collaborate in an educational atmosphere. This project aims to challenge students to work in teams made up of all five disciplines in a Request for Proposal-style competition. This paper focuses on how the idea of this competition came to be and the steps that were taken to successfully write the competition problem statement. These steps included data collection, writing the problem statement, and the development of the competition scoring rubric. Data collection was done in the form of a student survey and personal interviews with CAED administrators and industry supporters. The information obtained assisted the development of the competition by including different perspectives and using them to adhere to the different skillset across the CAED. Furthermore, this paper discusses the processes moving forward with this project which would involve hosting the first CAED Hasslein Student Competition. This competition is meant to give students an opportunity for interdisciplinary collaboration before entering the construction industry post-higher education.

**Key Words:** Student Competition, Interdisciplinary, Design-Build, Collaboration, Proposal

**Introduction**

The construction industry requires the collaboration of multiple professionals in different specialties to come together and reach an end goal: the completion of a project. The specialties involved on
projects include developers, designers, and builders who are better known to many as the owner, the architect, and the contractor. These entities are responsible for collaborating and communicating to ensure that their project is run efficiently, as “time is of the essence.” An analysis done by RSMeans presents that 44% of the current buildings in America are Design-Build – a project delivery method that increases the collaboration between designers and builders early on in the preconstruction phase of a project (“Research Finds Continued Growth of Design-Build”). This makes Design-Build the leading project delivery method in America and alludes to the idea that interdisciplinary collaboration in the construction industry is at an all-time high. By this standard, these professionals from different fields in the construction industry must be well-acquainted early in their careers.

Although the idea of communication between different disciplines in the construction industry sounds simple, these players are essentially speaking different languages based on their educational backgrounds. At California Polytechnic State University in San Luis Obispo, the College of Architecture and Environmental Design (CAED) is split up into five separate majors: Architecture, Architectural Engineering, City and Regional Planning, Construction Management, and Landscape Architecture. Although they are in the same college, these majors have minimal overlap in their courses throughout their four to five years of school. In a survey done by students within the CAED, about 80% of students surveyed answered that they have had the opportunity to work with students outside of their major within their college, but less than 5% of students surveyed have had the opportunity to work with all five majors within their college. This statistic likely means that there are currently unequal opportunities for students in different majors within the CAED to work together.

**Background**

*How This Came About*

The idea to create the CAED Hasslein Student Competition began with acknowledging that there needed to be more options for the students in different majors in the CAED to interact and work together before being launched into the construction industry. Outside of their courses, there have historically been opportunities for students to join interdisciplinary clubs or competition teams that involve students from more than a single major. However, this new competition would provide an opportunity for students to work together with a targeted goal of interdisciplinary collaboration within all five majors in the CAED.

The author of this competition has been a full-time Construction Management student at Cal Poly, SLO for the last four years and has been a part of multiple interdisciplinary organizations – the first being the Associated Students of Construction (ASC) Design-Build Competition Team. The author has been a part of this organization for the last three years, and each year this team is tasked with assembling a proposal to build a project using the Design-Build project delivery method. The makeup of this team has consisted of Construction Management students, Architecture students, and Architectural Engineering students who all work closely with one another on all aspects of the project. Although the ASC Design-Build Competition Team has been highly successful, this opportunity is limited to six students per year, making it exclusive and inaccessible. The author wanted to take the benefits of the ASC Design-Build Competition and emulate the experience by creating a new student competition internal to the CAED.
In the winter of 2022, the author met with the Alliance, a foundation for interdisciplinary studies that supports the CAED at a roundtable discussion. After speaking with Cal Poly alumni and industry supporters, the idea of a new competition came to fruition. Like the Alliance Foundation, the new competition was proposed to be in honor of George Hasslein, the founding Dean of college in 1968. A strong advocate for an interdisciplinary curriculum, Hasslein initially combined the five majors that now make up the CAED to promote the learning and growth of students going into the construction industry. Michael Schussel, a Board Member of the Alliance Foundation, acted as the lead collaborator during the development of this project. Schussel advised the author that, “the Alliance would gladly support a friendly competition made for students by students.”

Methodology

Data Collection

Student Survey

This section will give an overview of the means and methods of data collection for this senior project paper. The author’s intent by sending out this survey was to adhere to and involve students in the five majors of the CAED in the development of all aspects of this project. It is important to note that the results from this survey are invaluable and were collected with the direct intention of creating an opportunity for interdisciplinary collaboration that is popular across all disciplines. The survey was sent out through multiple administrators including the CAED Associate Dean for Academic Affairs, Department of Construction Management, Department of Architectural Engineering, and Department of Landscape Architecture. This survey was created through Microsoft Forms and averaged about 4 minutes and 50 seconds to complete. Figure 1 shows the makeup of surveyed students by major.

![Figure 1](image)
The contents of this survey included these 18 questions:

1. Major
2. Minor
3. Year
4. Have you had the opportunity to work with other CAED students outside of your discipline (major)?
5. If yes, in what setting did you work with other students in the CAED? (Select all that apply)
6. Have you had the opportunity to work with ALL 5 disciplines within the CAED?
7. Interdisciplinary collaboration is achieved when professionals from separate fields work together to achieve a common goal. What is interdisciplinary collaboration to you?
8. How important do you feel it is to engage in interdisciplinary collaboration before entering the building industry?
9. Do you feel there are enough opportunities for interdisciplinary collaboration within the CAED?
10. Have you participated in a student competition at Cal Poly?
11. If yes, which competition have you been a part of?
12. If other, what student competition have you been a part of?
13. If yes, please provide some feedback on your competition experience:
14. Would you be interested in competing in a new CAED Interdisciplinary Student Competition? (Hypothetical)
15. What would incentivize you to participate in a new CAED Interdisciplinary Student Competition?
16. If other, what would incentivize you to participate in a new CAED Interdisciplinary Student Competition?
17. Would you find it beneficial to implement an interest form to assist students in finding team members in other majors?
18. Please provide any constructive feedback or opinions you have regarding this proposed competition. Your opinion as a current student in the CAED is very valuable!

Personal Interviews

The author of this competition scheduled two interviews to conduct supplementary information and advice in developing a new student competition within the CAED. The first was performed on April 25th, 2022, with Mark Cabrinha, CAED Associate Dean of Academic Affairs via Zoom call. This interview was conducted to better understand the perspective of college administrators to enhance the interdisciplinary aspect of this project. The author intended to inquire about similar past attempts to develop a student competition, challenges that may be faced as far as student and faculty engagement, and skill levels to target when writing and marketing this competition.

The second interview was also performed on April 25th, 2022, via Zoom call, but this time with Mike Schussel, Board Member of the Alliance Foundation. The purpose of this interview was to further understand what the Alliance’s end result on a project like this would be. The author inquired about what goals the Alliance wanted to reach for students and how to equally engage all students. This information was critical for the development of this project.
After gathering the supplemental information from students, faculty, and industry support, it was time to launch into writing the problem statement. This started by writing a rough draft in a Microsoft Word document, and later would be transferred into a formatted publishing application. The goals and background of the competition were introduced first before rolling into the problem statement. To begin, an homage to George Hasslein was included to educate participants in the competition about his legacy and why the competition is named after him. Next, the goals of the competition and the judges were introduced. The competition’s goals are to prepare a proposal to develop, design, and build a mixed-use building on a unique site selected. This method of competition was the most effective way to include different disciplines that must work together during site selection, design, and preconstruction.

The decision on which deliverables to include in the problem statement was based on past project experience, past competition experience, and information obtained by industry professionals. It was important to choose deliverables based on the skills brought to each team by different disciplines yet include deliverables that were not exclusive to specific disciplines. The final deliverables that students will have to complete include: Site Examination and Planning, Regulatory Impact Assessment, Structural and Architectural Design, and Construction Management Plan. It was specifically chosen to not include six deliverables because this could lead to creating six different silos amongst the team members. The author chose four, lengthy deliverables to promote increased interdisciplinary collaboration.

The rubric for this competition was prepared for future judges to have a clear understanding of what is most important in this competition. Deliverables were weighted based on how time and skill-intensive it was thought to be. An Interdisciplinary Score of 10% was included in the rubric to encourage all five disciplines to be on each team. Teams will be awarded more points for having members with diversified skills and backgrounds.
Deliverables

The CAED Hasslein Student Competition

Request for Proposal
DEVELOPED BY CAL POLY ALLIANCE, FACULTY, AND INDUSTRY SUPPORTERS

The Goal

The goal of the CAED Hasslein Student Competition is to prepare a proposal on how you and your team of up to six (6) students will develop, design, and build a mixed-use project. You will be using a Design-Build project delivery approach – a more collaborative method than the traditional Design-Bid-Build approach. Your team will begin by selecting a unique site of your choosing and provide information regarding but not limited to:


Your team will be responsible for demonstrating a clear understanding of your proposal and the qualifications it will take in order to complete this project.

The Judges

Your team will besoundsjury at Hasslein-Alliance Inc. (HAI) – a top-rated agency that wants to buy and develop your proposed project. Teams will have two weeks from receiving the Request for Proposal to collaborate and submit your completed proposal package. HAI is requesting a single document that includes an executive summary, a table of contents, and a team profile. In addition, HAI would be more compelled to fund your project if your team has a history of similar successful projects – be sure to include this in your proposal.

Hasslein-Alliance Inc. expects that all teams will be implementing their company core values into your proposals:

- Sustainability
- Equity
- Community

Site Examination/Plan

- Site Map
  - Include site location and description.
  - Use local and regional perspectives.
- Existing Site Conditions
  - Use pictures or renderings to display the existing building.
  - If your existing site requires no demolition, show that.
- Site Configuration
  - Include site boundaries and easements.
  - Describe why your team chose this configuration.
- Traffic Control Plan
  - Include pedestrian, auto, and/or public transit routes.
- Site Features
  - What are the positive features of this site? What are the negatives?
  - Include information on soil mechanics, geology, grading, rare species, etc.

Regulatory Impact Assessment

- Zoning Map
  - Include current zoning maps for your site and describe the zoning type.
  - Address any required zoning changes?
- Clearly identify any permits or additional entitlements that could be required on your project.
- Community Outreach Plan
  - How may politics or the state of the local community affect your project?
  - Describe how you plan to include the community in decision-making for your development.
Design
- Conceptual Design
  - Structural System Concept
    - Include sketches, floor plans, renderings, and/or other mediums you feel will best represent your proposed design
    - Describe why your team chose to use this method of the superstructure
    - The structural methodology should consider applicable structural codes, fire codes, equipment loading, seismic loading, etc.
  - Architectural System Concept
    - Include sketches, floor plans, renderings, and/or other mediums you feel will best represent your proposed design
    - Describe how your team came up with the elements of your architectural concept
    - Mechanical systems should include but are not limited to: Domestic Hot and Cold Water, Sanitary Sewer, Fire Suppression Systems, and HVAC
  - Landscape System Concept
    - Include sketches, materials, renderings, and/or other mediums you feel will best represent your proposed design
    - Describe why your team chose to use this landscape design and how it relates back to HAI’s company values

Project Management Plan
- Project Schedule
  - Provide a full project schedule beginning with preconstruction
  - Include project milestones
- Project Estimate
  - Provide a full project estimate
  - Include procurement of materials, equipment, labor, staffing, etc.
- Risk and Opportunity Analysis
  - Describe and identify any risks that may occur during construction
  - Provide an opportunity analysis
  - Describe any opportunities for success during construction
- SWPPP and Sustainability Plan
  - Describe what measures your team is taking to implement SWPPP and best management practices
  - Describe what elements your team has specifically included in reaching your sustainability goals during construction
- Site Logistics Plan
  - Elements to include but are not limited to: Entrance/Gate Locations
  - Fire Lane Access
  - Emergency Access
  - Emergency Evacuation Route
  - Material Staging
  - Temporary Trailers
  - Temporary Tickets
  - Employee Parking
  - Include a narrative explaining the logic of how you developed your plan.

Rules and Requirements
- Projects must be original developments and reasoning must be provided as to why your team chose such a project.
- No team member is allowed to reach out to any trade/professional or governing agency that is affiliated with your prospective geographical area or project
- Teams should be designing their buildings to be realistic and functional.
- All applicable design and zoning codes must be followed.
- Standard Proposal Format should be followed:
  - Maximum of 20 pages printed in PDF sheet size 8 1/2 x 11
  - Teams are allotted two (2) PDF files size 11 x 17 (this is included in the total page count)
  - Minimum of 10 point font and 1 in margins
  - Fonts must be legible
  - Pictures and graphics are encouraged
- Proposal assembly will be as follows:
  - Cover Page
  - Executive Summary
  - Table of Contents
  - Team Profile
  - Past Projects
  - Site Evaluation/Plan
  - Regulatory Impact Assessment
  - Design
  - Construction Management Plan

Presentations
Each team will have twenty (20) minutes to present in front of HAI executives (judges) why their project should be chosen for funding. It is expected that every team will not only summarize their proposal but highlight the aspects that set their team apart.

Scoring
Interdisciplinary Score
In order to reach the goal of cross-collaboration between the different majors of the CAED, the interdisciplinary score will make up 20% of every team’s final score. This is to ensure that teams utilize the skills and talents across all disciplines. Teams must include a minimum of three (3) students with different majors out of their six (6) total members. Five (5) points will be awarded including four (4) teammates with different majors and an additional five (5) points will be earned by including five (5) teammates with different majors. Note that students with majors outside of the CAED are welcomed to participate however, their involvement will not count towards the interdisciplinary score.

The HAI executives (judges) are expecting clear, quality deliverables that correspond with the rubric found on the last page of this document. All teams will be held to the same standard of work.

Contact
For direct questions please contact XXXX XXXX at xxxxxx@rupoly.edu. Please note that any questions asked after the RPI meeting may not be answered.
Lessons Learned

In the past, the CAED has attempted to create ways for students in different majors to collaborate in an educational setting, but there has been no great attempt made by a student. This led to many challenges to overcome and for new information to arise. A survey sent out to all students in the CAED uncovered information that was critical to developing this project, the first piece of information being that only about 8% of students feel that there are enough opportunities for interdisciplinary collaboration within the college. This was a driving factor in the development of this project and validated the author of this project’s desire to create more possibilities to work together with students in other majors. It was also shown from personal interviews that the CAED administration and outside organizations also want to find a way to bring students together in a structured way. Mark Cabrinha stated that in order to bring such different curriculums together into a competition, the problem statement would have to, “manage the complexities” of all five majors. Through this process, it was learned that managing the complexities of the CAED required a great deal of unbiased thought towards competition deliverables. With a background in Construction Management alone, the author was faced with educating herself on the roles of the different players in the construction industry.

When developing the competition Request for Proposal, a newfound appreciation for judges and problem writers was obtained. It was learned that to create a unique problem statement, writers must challenge the teams to think macroscopically. There is no “copy and paste” when it comes to an RFP because no project is the same. Each RFP is catered to the requirements of its specific project,
therefore making it difficult to create an RFP when the project is unique to each team. With the help of faculty and industry supporters, the author was able to utilize past project RFPs to develop the final problem statement.

Moving Forward

The end goal for the CAED Hasslein Student Competition is to host several teams made up of CAED students of all five different majors compete to win prize money sponsored by the Alliance Foundation and/or an industry partner. To reach this goal, the next step would be to put this plan into action and organize the CAED Hasslein Student Competition for the 2022-23 school year at Cal Poly, SLO. Using the survey conducted, connections established by the author, and this ASC Senior Project Paper, it is hoped that this competition could be held as early as Spring Quarter 2023. This will require marketing the competition to students and sending out an interest form; fundraising for the prize money and other sponsorships; communication with the school to reserve classrooms for presentations and awards; and other logistical decisions to be made. It is of the utmost importance that every decision for this competition revolves around the importance of interdisciplinary collaboration among students in the CAED. The CAED Hasslein Student Competition should aim to make a lasting impact on students, faculty, and the school itself by exemplifying what can happen by working with students outside of their field of study.

References