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Respondent

9 Etienne Sirois

41:29

Time to complete

Instructions:

NOTE: To remain eligible for SSC funding after the Step 1 application, the SSC strongly suggests that project leads present their proposed projects at a working group meeting BEFORE submitting their Step 2 application. If you have not attended a working group meeting, please do so and then continue the Step 2 application.

Linked below is our calendar with all of our working group meetings
<https://studentengagement.illinois.edu/student-sustainability/ssc/calendar/>

If you have any questions about the application process, please contact the SSC at Sustainability-Committee@illinois.edu.

1. Please select the working group meeting at which you presented. *

- Energy + Transportation & Infrastructure
- Food & Waste + Land, Air, & Water
- Education & Justice

2. Date of Working Group Presentation: *

4/23/2024



3. Project Name: *

Illinois Solar Decathlon Build Project

4. Total Funding Requested from the SSC: *

\$150,000

5. Project Lead Full Name: *

Rachel Chen

6. Project Lead Department: *

Civil and Environmental Engineering

7. Project Lead University Email Address: *

rmchen2@illinois.edu

8. Are you a student? (NOTE: All student-led projects must have a faculty/staff advisor. *

- Yes
- No

9. Project Category: *

- Education & Justice
- Energy
- Food & Waste
- Land, Air & Water
- Transportation & Infrastructure

10. **Project Abstract:**

In 200 words describe the project *

The Illinois Solar Decathlon Build Team is building and designing a home for a low-income family chosen by Habitat for Humanity. Our core principle behind our project is net zero energy emission, renewable energy, environmental sustainability, and affordability. Additionally, we are also planning on competing in the 2025 Solar Decathlon Build Challenge, Gateway Decathlon, Buildner, or similar competitions—competing in competitions supplements our publicity and is not integral to our mission. As communicated, we will continue to update SSC as our project and competition situation progresses. The project site for this construction is 272 Keystone, Rantoul, IL. Our project purpose is not only to build an environmentally-resilient home but to educate students on the green technologies that can be applied in the modern day construction industry. After completion, the home will be donated to a low-income family matched by Habitat for Humanity of Champaign county.

Project Team Member List (Student projects must include their faculty/staff advisor's info)

Project Lead

11. Full Name: *

Rachel Chen

12. Department: *

Civil and Environmental Engineering

13. University Email Address: *

rmchen2@illinois.edu

14. Do you have a faculty/staff advisor? *

- Yes
- No

Project Team Member List (Student projects must include their faculty/staff advisor's info)

Faculty or Staff Advisor

15. Full Name: *

Andrew Stillwell

16. Department: *

Electrical and Computer Engineering

17. University Email Address: *

andrewrs@illinois.edu

18. Do you have additional members? *

- Yes
- No

Project Team Member List (Student projects must include their faculty/staff advisor's info)

Additional Member

19. Full Name:

Anushree Parkhi

20. Department:

Architecture

21. University Email Address:

aparkhi2@illinois.edu

22. Do you have additional members? *

- Yes
- No

Project Team Member List (Student projects must include their faculty/staff advisor's info)

Additional Member

23. Full Name: *

Christopher Eng

24. Department: *

Civil and Environmental Engineering

25. University Email Address: *

caeng2@illinois.edu

26. Do you have additional members? *

- Yes
- No

Project Team Member List (Student projects must include their faculty/staff advisor's info)

Additional Member

27. Full Name: *

28. Department/Campus Affiliation: *

29. University Email Address: *

Project Questionnaire

30. Beyond SSC, do you have other sources contributing funding or support (e.g., staff time, external grants, etc.) to this project? *

- Yes
- No

31. Do you have a plan for ongoing funding beyond SSC? (SSC does not guarantee ongoing financial support) *


- Yes
- No

32. Have you spoken with anyone in UIUC's Division of Facilities & Services or a facility's site manager (if relevant) regarding project feasibility and/or approval? *

- Yes
- No

33. Please attach any letters of departmental commitment or support here along with any other supplemental media that will support your application (presentations, pictures, etc.).

 [SSC ISD Letter of Support-1. Etienne Sirois.pdf](#)

 [Letter of Support Prof. Taylor Etienne Sirois.pdf](#)

34. **Project Timeline:**

List your project's timeline and milestones. (NOTE: SSC funding agreements remain active for two years and it is expected that the awarded amount will be spent within the award period.) *

Entire project timeline: 3/18/24 - 4/23/26
 Pre-construction:
 Surveying: 3/18/24 - 4/1/24
 Apply for Building Permit: 4/15/24 - 5/6/24
 Design + Landscape Review: 4/22/24 - 5/13/24
 Utility Extension Application: 4/24/24 - 5/15/24
 Fire Dept Review: 5/1/24 - 5/8/24
 Complete Design: 7/15/24 - 7/22/24
 Contracting: 7/22/24 - 9/16/24
 Mobilization + Site Work: 9/30/24 - 11/18/24
 Build Phase:
 Excavation: 11/25/24 - 12/12/24
 Foundation: 12/30/24 - 1/16/25
 Wall + Floor + Deck Wood Framing: 2/4/25 - 2/20/25
 Roofing: 3/11/25 - 3/25/25
 Exterior Sheathing: 4/11/25 - 4/25/25
 Plumbing Rough-ins: 5/13/25 - 5/21/25
 HVAC Rough-ins: 6/9/25 - 6/17/25
 PVE Rough-ins: 7/4/25 - 7/14/25
 Insulation: 7/31/24 - 8/7/25
 Drywall: 8/26/25 - 9/3/25
 Doors/Windows: 9/19/25 - 9/25/25
 Finishes: 10/14/25 - 10/30/25
 Appliances: 11/18/25 - 11/24/25
 Landscaping: 2/16/26 - 3/12/26
 Finals Inspection: 3/31/26 - 4/3/26
 Move-in: 4/22/26 - 4/23/26

35. **Project Description:**

Describe your project in sufficient detail such that we can evaluate its merit and feasibility.
 What does your project hope to accomplish?
 What are your project's deliverables? *

Our house is tailored for a low-income family and will provide them with an energy efficient affordable home. We are designing the home to serve as a model for future builds that prove that sustainable housing is affordable and realistic. Our team is responsible for designing, construction, quality inspection and maintenance. Our primary objective is to not only build the house in the most eco-friendly way but also create a lifestyle for the resident which makes it easier to be climate friendly. Some examples of completed project deliverables include:

- Fully dimensioned floor plan, including all indoor and outdoor living spaces
- Detailed building sections, including wall, roof, and floor sections
- Complete landscape spatial design
- Rough foundation design with column placements, roof truss, and framing layout
- CERV duct system layout and geothermal heating/cooling system
- Hot water delivery system, associated piping, including toilets, showers, sinks, and laundry equipment

As one of the few fully student-run teams within the Solar Decathlon chapters, we place heavy emphasis on expanding green infrastructure-related learning and leadership opportunities on campus. We consist of over 130 members across 30 majors, all of whom work on real-world projects. Not only do our members learn to work in multidisciplinary teams as they would in the real world, but many of them go on to work full-time in the infrastructure and energy industries. Along with supplemental workshops and industry mentorship, our projects prepare our students to solve climate issues after graduation.

36. **Environmental Impact:**

How does your project increase environmental stewardship at UIUC?
 If applicable, what is the carbon, water, waste, and/or energy savings? *

The project is a student-led initiative with two major targets—education on sustainability and sustainable construction. The proposed project integrates a wide range of sustainable features. Some of these features include:

- A geothermal system that would provide for heating systems in the house
- Heat pump water heater for efficient hot water delivery
- Energy efficient and optimized design to maximize solar gain and reduce energy demands
- Sustainable, local and ethical materials that have good insulation and reduce building energy demands
- Solar panels that help the house achieve net-zero status, and complement the passive design principles of the house.
- Water-efficient and sustainable landscaping
- Smart systems integration and home automation that accounts for further energy demand reduction.
- Emphasis on occupant comfort through warm and comfortable interior design and optimal indoor temperatures.
- Focus on efficient ventilation to ensure provision for good Indoor air quality.
- Integrated compost system
- Integration of a rainwater harvesting system and a greywater system that allows for optimal re-use of greywater for flushing, planting etc.
- Integration of a kitchen garden that provides for sustainable food production.
- Use of timber based wall and structural systems that allow for carbon sequestration.

While the students work on the design and construction of this family home, they learn immensely about different sustainable techniques and technologies in their area of interest. This helps promote sustainable design education on campus.

37. **iCAP Objective Correspondence:**

Does your project aim to advance one or more of the Illinois Climate Action Plan's (iCAP) objectives? If so, how?

A full list can be found here:
<https://icap.sustainability.illinois.edu/objectives>

6.1 Broaden Sustainability Education
 This project aims to provide students within the University of Illinois an innovative space to learn sustainable building techniques. The buildings and construction sector accounts for approximately 37% of global greenhouse gas emissions, and we believe the most effective way to tackle this is by influencing the students who will make their way into the buildings industry. As the only building-related RSO that works on real projects, we are fully equipped to shape the green building innovators of tomorrow. Our designated course, ABE 498, is just one way of providing students with an incentive to step into this industry. Working on these projects requires an unfathomable amount of time and passion, and our course recognizes those efforts with tangible credit hours. While the course is not mandatory for students, it gives those who are interested in becoming more involved a boost in their university curriculum. Many students have sacrificed their time and grades to make a difference in these projects, and we hope these benefits will show students that investing in sustainable development is worth it in the long run.

38. **Student Impact:**

How many students will be directly impacted by this project? *

Overall, the project offers multiple educational and learning gains to students on the team. Our student team is composed of over 130 individuals—with the Build team having over 50 active members—, who are impacted directly by the project.

39. How many students will be indirectly impacted by this project? Please be realistic in your estimate. *

Around 300 with students that interact with ISD for educational opportunities and classes that tour our constructions.

40. How will this project benefit students?

How will students be involved with this project?
What educational components are in your project? *

An important goal that we are targeting through the design and development of this residence is the knowledge and skills that students develop with respect to sustainable design and construction. The organization is a student led initiative working on a live project. Through collaboration across different departments, students learn about innovative technologies not just in their field of study, but also in other fields that may have an influence on their work. This helps members gain an overall comprehensive understanding of different sustainable ideas. While working on this project, students also learn about on-site implementation which gives them an exposure of the real world as opposed to just a digital experience. Students learn REVIT and various softwares which are used actively in the industry. Students also learn to collaborate with industry professionals working in the fields of sustainable energy and design through regular mentorship meetings. Overall, the project offers multiple educational and learning gains to students on the team. Our student team is composed of over 130 individuals—with the Build team having over 50 active members—, who are impacted directly by the project. ISD assures full transparency on our project for students motivated to learn from our construction. Further, at ISD we believe that we have an interesting journey of construction which can be shared with a multitude of students. We intend on opening up the project to host multiple events to educate students on campus about our design approach. This contributes towards indirect education of other students who are interested in the industry but not directly involved with our organization itself.

Project Finances

41. **Please Complete the Attached Budget and Timeline Excel File**

Please be very descriptive when filling out the document. Submit the completed document below.

<https://studentengagement.illinois.edu/student-sustainability/ssc/docs/SSC-Supplemental-Budget-Timeline.xlsx>

*

 [ISD - SSC Supplemental Budget Timeline STEP 2_Etienne.Sirois.xlsx](#)

42. **Project's Finance Manager:**

Must be a fulltime UIUC faculty or staff member** *

Andrew Stillwell

43. Project's Finance Manager's Department: *

Electrical and Computer Engineering

44. Project's Finance Manager's University Email: *

andrews@illinois.edu

45. Has your project and/or project team applied for SSC funding previously? *

- Yes
 No

46. Did your project and/or project team receive SSC funding? *

- Yes
 No

47. What is the total amount of SSC funding received to date? *

\$150,000 last cycle, but that was the same organization, different project.