STUDENT SUSTAINABILITY COMMITTEE

Funding Application – Step II

Funding Criteria

A. General Rules

1. Students, faculty, and staff are encouraged to submit requests for funding. Student-led projects require a faculty or staff sponsor in order to have funds awarded.
2. Funding can only go to university-affiliated projects from students, faculty, staff, and departments.
3. All SSC projects must make a substantial impact on students. This may be a direct impact or an impact through education and engagement. All SSC funding is 100% from student green fees, so the projects funded by the students must benefit them.
4. SSC encourages innovation and new technologies – creative projects are encouraged to apply.
5. Unless a type of expense is specifically listed below as having restrictions, SSC can generally fund it. The items referenced below should not be taken as comprehensive list.

B. Things SSC Can Fund, On A Case-By-Case Basis

1. SSC can fund feasibility studies and design work; however, it must work toward ultimately addressing a sustainability need on campus.
2. SSC can fund staff positions that are related to improving campus sustainability. Strong preference will be given to proposals receiving matching funding from departments and/or plans for maintaining continuity of the position after the end of the initial grant.
3. SSC can fund outreach events with a central theme of sustainability, provided their primary audience is the general campus community.
4. SSC discourages funding requests for food and prizes but will consider proposals on a case by case basis that prove significant reasoning.
5. SSC can fund repairs and improvements to existing building systems as long as it works toward the goal of improving campus sustainability; however, a preference is shown to projects utilizing new or innovative ideas.
6. SSC can provide departments with loans for projects with a distinct payback on a case by case base. Loans will require a separate memorandum of understanding between SSC and departmental leadership pledging to repay the award in full and detailing the payback plan.

C. Things SSC Will Not Fund:

1. SSC will not fund projects with a primary end goal of generating revenue for non-University entities.
2. SSC will not fund personal lodging, food, beverage, and other travel expenses.
3. SSC will not fund any travel expenses.
4. SSC will not fund tuition or other forms of personal financial assistance for students beyond standard student employee wages.

Your Step 2 funding application should include this application, the supplemental budget form, and any letters of support.

Please submit this completed application and any relevant supporting documentation to Sustainability-Committee@Illinois.edu. The Working Group Chairs will be in contact with you regarding any questions about the application. If you have any questions about the application process, please contact the Student Sustainability Committee at sustainability-committee@illinois.edu.

General & Contact Information

Project Name: Adapthaus
Total Amount Requested from SSC: $100,000

Project Topic Areas: ☐ Land & Water ☒ Education ☐ Energy
☐ Transportation ☐ Food & Waste

Applicant Name: Jonah Messinger
Campus Affiliation (Unit/Department or RSO/Organization): President of Illinois Solar Decathlon
Email Address: jonahfm2@illinois.edu

Check one:
☐ This project is solely my own ***OR***
☒ This project is proposed on behalf of (name of student org., campus dept., etc.): Illinois Solar Decathlon (ISD)

Project Team Members

Name	Department	Email
Jonah Messinger	PHYS/Illinois Solar Decathlon	jonahfm2@illinois.edu
Mayur Mistry	ARCH/Illinois Solar Decathlon	mmistry2@illinois.edu
Akash Jain	CEE/Illinois Solar Decathlon	akashj2@illinois.edu
Karan Ruparel	ARCH/Illinois Solar Decathlon	ruparel2@illinois.edu

Student-Led Projects (Mandatory):
Name of Faculty or Staff Project Advisor: Dr. Xinlei Wang
Advisor's Email Address: xwang2@illinois.edu

Financial Contact *(Must be a full-time University of Illinois staff member)*
Contact Name: Mrs. Ronda Lynn Sullivan
Unit/Department: Business Office, Human Resources/ Agricultural & Biological Engineering
Email Address: rsully@illinois.edu

Project Information

Please review the proposal materials and online content carefully. It is highly recommended you visit a working group meeting sometime during the proposal submission process.

Please provide a brief background of the project, its goals, and the desired outcomes:
You may copy and paste your Step 1 application answer if nothing has changed.

ADAPTHAUS, named after its concept of flexibility and adaptability, aims to provide a sustainable and affordable housing solution for its users. It is targeted towards young-professionals looking to buy a house in the Champaign-Urbana area. The key element of the house is its ability to expand with the needs of the family. The client, a young professional or a couple, can start with a single studio apartment and attach modules as their family size or purchase power increases.

ADAPTHAUS maintains a high sustainability quotient through efficient systems integration, local material procurement and manufacture, recyclability, reusability, and energy efficiency. The building design is highly sensitive to the local climate, and through its orientation and the design of its envelope, fenestrations, cladding materials, and building materials, it accommodates for dramatic changes between seasons. The house is located in the Urbana-Champaign area, which is near cultural centers, retail outlets, and other economic drivers in the town, all easily accessible through public transportation. The house is driven towards environmental comfort, social relevance, and economic accessibility space for an adaptable residence. We have partnered with industrial experts, including Thornton Tomasetti, Affiliated Engineers, and Skender, to ensure our design is innovative and realistic.

Completed Deliverables submitted to Solar Decathlon

- 50% Design Drawings, April 2019
- 95% Construction Documentation, November 2019

Upcoming Deliverables

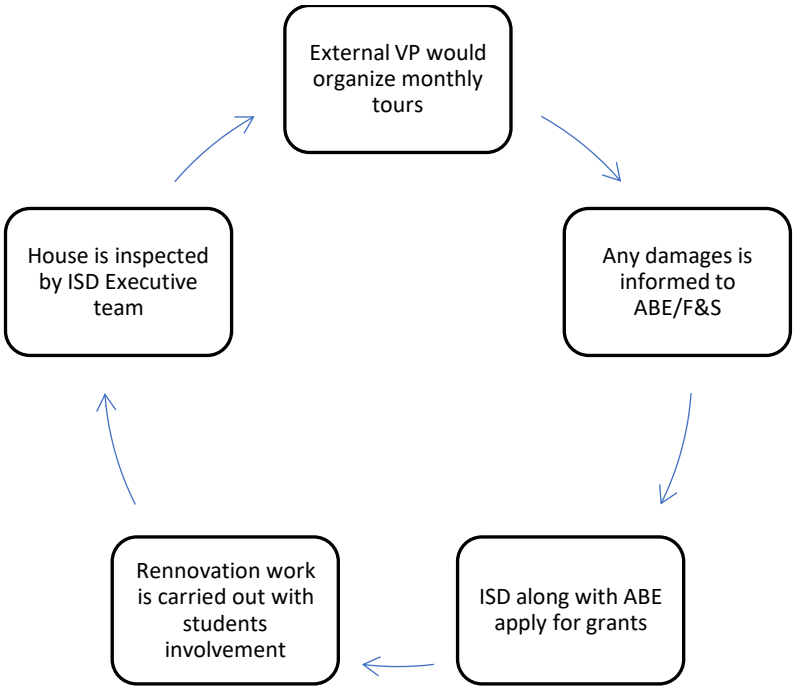
- 100% Construction Documentation, February 2020
- Construction on-site, February-April 2020
- Solar Decathlon Jury testing, May 2020
- National showcase, July 2020

Future House Usage and Maintenance

Our long-term goal for this project is to provide accommodation to Illinois Solar Decathlon graduate students and/or visiting scholars and faculty. We are also in touch with the Department of Agricultural and Biological Engineering, Facilities and Services, and the City of Champaign to enter into an agreement for long term maintenance of the house. Although this is still an ongoing discussion, Illinois Solar Decathlon is anticipating the support of the University for house insurance and long-term maintenance of the house through Facilities and Services. The Office of Business and Financial Services has agreed to enter into an agreement with Illinois Solar Decathlon to define the roles, sponsorships, purchasing process, etc. Our executive team will also visit the house frequently to check the house condition and communicate with Facilities & Services and the Department of Agricultural and Bioengineering regarding any renovations or retrofit required. The External Vice President of Solar Decathlon will be responsible for coordinating tours and collaborating with the Department of ABE and Facilities & Services to ensure the house is maintained. We intend to provide an

instruction manual for house occupants (similar to the ones used in Airbnb's) in order to ensure that the house is looked after by the house occupants in the future.

Maintenance Flowchart



Where will the project be located? Are special permissions required for this project site?
If special permission is required for this location, please explain and submit any relevant letters of support with the application.

The current location for the project is 1202 N Walnut St in Champaign, IL 61820. The City of Champaign is donating land for our project for $1. Please see the attached letter of support from City of Champaign for our project.

Other than the project team, who will have a stake in the project? Please list other individuals, groups, or departments affiliated directly or indirectly by the project. This includes any entity providing funding (immediate, future, ongoing, matching, in-kind, etc.) and any entities that benefit from this project.
Please attach letters of commitment or support at the end of the application.

Immediate = Department of Energy, Skender Construction, Thornton Tomasetti (Structural Documentation Stamping Authority), Affliated Engineers (Advisory role), Department of Civil and Environmental Engineering, Student Organization Resource Fee, Grainger Center for Electric Machinery and Electromechanics.

In-kind/Product sponsors = Mitsubishi, Kohler, USG, Pella, Ecosmart, Newell Instruments, Sherwin Williams, Resource Furniture, Xylem, Daltile, Momentive, Marfa Cabinets, Sherwin Williams, SmartPlank, Sharkbite, Biofoam, Solar Edge, Momentive Performance, WAC Lighting, General Electric. Attached are letters of support emails.

Matching = Engineering Design Council

Ongoing = Illinois Clean Energy Community Foundation, Deans Office, College of Engineering, Department of Agricultural and Biological Engineering.

Future = Illinois Science and Energy Innovation Foundation, LafargeHolcim Awards for Sustainable Construction, Department of Mechanical Engineering, Department of Electrical and Computer Engineering, Office of Provost, College of Fine and Applied Arts, and College of Business.

How will this project involve and/or benefit students?
This includes both direct and indirect impact.

Illinois Solar Decathlon is an interdisciplinary registered student organization with over 120 undergraduate and graduate students. Over the past 12 years, ISD has built five solar-powered net-zero houses, and have been rewarded for their efforts by the Department of Energy. The Build team consists of 50 students from different academic backgrounds. These students are divided into several teams, which include, but are not limited to, Architecture, Structure, Photovoltaic + Electrical, Mechanical, Plumbing, Construction Management, Lighting, Landscape, Finance, and Public Relations. Students are encouraged to join a team outside of their academic major in order to broaden and diversify their skillset. This project will educate the students of the University of Illinois Urbana-Champaign about the process of designing and building a net-zero energy house. Moreover, collaboration with industrial experts further educates students to innovate in the realm of sustainable and resilient infrastructure. Our students also attended several conferences related to architecture, structures, and energy, which gave them insights into the industry and interact/network with professionals.

How will you bring awareness and publicize the project on campus? In addition to SSC, where will information about this project be reported?

Starting July 2020, Adapthaus will be open to tours for UIUC students, high school students, local community members, corporate sponsors, and the Illinois Solar Energy Association as well. This will educate everyone about net-zero energy houses. We will also organize collaborative marketing events with corporate sponsors.

Information about the project will be circulated via iSEE newsletter, Solar Decathlon newsletter, ISD Social Media, Engineering Council webpage, Engineering Colleges website, Architecture Department websites, and Skender social media, YMCA newsletter, The Daily Illini, and the News Gazette.

Financial Information

In addition to the below questions, please submit the supplemental budget spreadsheet available on the Student Sustainability Committee website. Submission of both documents by the submission deadline is required for consideration of your project.

Have you applied for funding from SSC before? If so, for what project?

The following are the projects we have applied funding from SSC

- Gable Home – Permanent Foundation ($60,000 Education)
- Element House at the Energy Farm ($44,300 Energy)
- SECS Re_home landscaping ($4,008 Land & Water)
- Solar Decathlon 2013 ($30,000 Education)
- Solar Decathlon 2011 ($50,000 Education)

- Solar Decathlon 2009 ($55,000 Education)

If this project is implemented, will you require any ongoing funding required? What is the strategy for supporting the project in order to cover replacement, operation, or renewal costs?
Please note that SSC provides funding on a case by case basis annually and should not be considered as an ongoing source of funding.

No ongoing funding is required. We will require funding in the first quarter of 2020 during construction. Our strategy is to apply for several local grants, UIUC colleges and departments, and, corporate funding.

Please include any other obtained sources of funding. Have you applied for funding elsewhere?
Please attach any relevant letters of support as needed in a separate document.

Department of Energy Grant = $130,000 committed ($52,000 received, next installment to be released in December)
Department of Civil and Environmental Engineering = $4,950
Engineering Design Council = $5,000
SORF = $10,000
AIA = $500
MEEA = $500
Mitsubishi = $500
Other funding applications = Illinois Clean Energy Community Foundation, Illinois Science and Energy Innovation Foundation, Deans Office, College of Engineering, Department of Agricultural and Biological Engineering, Department of Mechanical Engineering, Department of Electrical and Computer Engineering, College of Fine and Applied Arts, College of Architecture, Office of Provost, LafargeHolcim Awards for Sustainable Construction. Attached are relevant letters of support.

Environmental, Economic, and Awareness Impacts

How will the project improve environmental sustainability at the Urbana-Champaign campus? If applicable, how does this project fit within any of the Illinois Climate Action Plan (iCAP) goals?

This project will increase awareness of sustainable measures at the Urbana-Champaign campus. The application of passive house design principles has been educating and inspiring our students to make sustainable decisions for designing a net-zero energy house. This house will expand the ever-growing demonstrations of practical, sustainable, and renewable energy production. In terms of energy usage, our house will be net-zero; we are using solar panels and batteries for energy storage. We will also use tankless water heaters as well as greywater and rainwater systems for efficient water usage. We are using recycled steel for our building structure and our aim for material procurement has been to procure materials locally. Since our design is modular, we are fabricating our modules in Skender's factory, to reduce waste on-site.

Our project aligns with iCAP goals because the project is increasing sustainability outreach within student groups by supporting and communicating about their efforts in the sustainability field. Addresses iCAP Chapter 10 "Curricular Education" at UIUC i.e., ABE 498 through undergraduate research, practical experiences, and add new sustainability-focused courses. Addresses iCAP Chapter 11 "Outreach" goals by supporting co-curricular student sustainability programs and strengthen sustainability outreach programs.

How will you monitor and evaluate the project's progress and environmental outcomes? What short-term and long-term environmental impacts do you expect?
Some examples include carbon emissions, water conservation, green behavior, and reduced landfill waste.

Monitor and Evaluation

- US Passivhaus Institute certification will help to monitor the energy efficiency of our house.
- The home automation system will measure the energy consumption and energy generation of the house over the years.
- Jury testing in May 2020 will evaluate our house for air tightness, energy production, energy usage etc.

Short-term impacts

- Reduction in construction waste due to modular construction methods.
- Reduction in embodied energy of materials by using recycled materials and locally procured materials.
- Greywater and rainwater systems enabling efficient water usage and conservation
- ADAPTHAUS is designed to operate as a stand-alone Photovoltaic (PV) power supply to showcase grid islanding capability.

Long-term impacts

- Through net-metering with the electric utility, Ameren, the surplus of energy generated during the day, can be returned to the grid when internal consumption is low. The ability to sell electricity back to the grid will offset the cost of any energy the house needs to purchase in an emergency, or when consumption is high, and the internal battery is depleted.
- Encouraging the local community to take sustainable measures in their houses will increase the environmental impact in the Urbana-Champaign area.

What are your specific outreach goals? How will this project inspire change at UIUC?

Illinois Solar Decathlon aims to utilize ADAPTHAUS as an outreach platform to educate and inspire young and aspiring students at Urbana-Champaign campus. We have been conducting several tours for students at our previous homes that helped them to understand passive house design aspects and the reasons why houses and even buildings need to become energy efficient. This project has tremendous potential to inspire students from any academic background, be it engineering, finance, architecture, or computer science, to not only pursue a career in green building design but also to take energy conservation measures in their current houses. Students are encouraged to attend and participate in Sustainability Working Advisory teams and contribute to the Illinois Climate Action Plan public input sessions, so they understand how UIUC is contributing to sustainability efforts.

If applicable, how does this project impact environmental injustice or social injustice?

Not Applicable