

FINAL REPORT



UNIVERSITY OF
MARYLAND

U.S. DEPARTMENT OF ENERGY SOLAR DECATHLON 2017

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November 16, 2017

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Fundraising Activities

Final Project Budget:

Solar Decathlon budget estimates as of 11.14.2017	
Cash Income	\$205,000
DOE Decathlon Winnings	\$225,000
Total income:	\$430,000
Project total expenses:	\$905,000
Balance:	(\$475,000)

Fundraising:

	Cash		In-Kind	
	Goal	Actual	Goal	Actual
Academic Units	\$250,000	\$70,000	\$360,000	\$360,000
Sale of House	\$300,000	\$-	\$-	\$-
Prize	\$100,000	\$225,000	\$-	\$-
Material	\$-	\$-	\$400,000	\$255,000
Professional Service	\$-	\$-	\$75,000	\$95,000
Cash	\$270,000	\$135,000	\$-	\$-
	\$920,000	\$430,000	\$835,000	\$710,000

Lessons Learned

What went well?

- Direct mail-solicitation still effective
- It is much easier to get free products/services than monetary donations

What didn't go well?

- Crowd sourcing required more team engagement to be successful
- Few monetary donations
- Better alumni participation

What you would do differently?

- Allot money in budget for professional fund raiser
- Keep thorough/accurate account of in-kind gifts
- Contacting alumni or people specifically from Maryland

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Media Outreach Activities

Over 50 **articles** have been written on reACT. **News outlets** include: AltEnergyMag, American Indian, American Indian Report, ARCHITECT, Architectural Record, Baltimore Sun, Big Ten Network, BuilderOnline, Capital News Service, CBS Television Network - Washington Bureau, Chronicle of Higher Education, Cision PR Newswire, CityLab, ClimateWire, DOE Better Buildings Residential Network peer exchange, Denver Post, Diamond Back, ENERGIAS RENOVABLES, Fox 5 DC, FOX News Channel - Washington Bureau, GENK, Globenewswire, Greenwire, HGTV, Home Power, Indian Country Media Network, Inhabitat, KUSA-TV, Le Temps, LucasSustainable, National Geographic Magazine, New York Times - Washington Bureau, NPR/National Public Radio, Neue & Aktuelle Trends der Zukunft, Professional Builder/Building Design + Construction, Quartz, Reuters Television - Washington Bureau, Solar Novus, Terp magazine, The University Network, Trim Tab, US News & World Report, VOA News Online, WBAL-TV, WJLA-TV, WTTG-TV, WUSA-TV, WUSA9 – Wake up Washington, Washington Post, and numerous University of Maryland Media Outlets.

Periodic design reviews over 100 attendees.

Kick-off event audience of over 400.

Campus outreach events such as the First Look Fair, GreenFest, and by far the most popular Maryland Day (nearly 75,000 visitors of all ages).

Trade Fairs: Team Maryland attended the bi-annual MCX Spotlight Pop-up Event at the Material ConneXion Materials Library in New York City.

Team Maryland has made **presentations** to the Ford Motor Co., Tesla Inc., Johnson Electric, Whiting-Turner Construction Co., Clark Construction Co., Maga Designs (virtual reality designers) and Panasonic Corporation.

Internal to the University, we've been invited to make presentations to the Provost and Deans Council, the Institute for Systems Research Research Day, Board of Visitors meetings for The Clark School of Engineering, The School of Architecture, Planning and Preservation, and the Civil and Environmental Engineering, as well as the University Board of Trustees.

Other presentations to the **scientific community** include: American Institute of Chemical Engineers Annual Meeting, UMD Engineering Sustainability Day, UMD Sustainability Conference, University of Maryland Energy Research Center. American Ecological Engineering Society Conference. Five students received scholarships to attend the Earth

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Optimism Summit. The team also traveled to make a presentation to 6th and 7th graders at Our Lady of Sorrows Grammar School. Lastly, we have travelled and presented to the tribal councils and assorted committees of the San Carlos Apache Indian Reservation (Bylas, AZ) and the St. Croix Chippewa Indians (Webster, WI). Outreach to the Nanticoke Indian Tribe has been by far the most successful by forming an Alliance for Sustainability with them.

On-Site Exhibition Activities

During the tours, we hosted approximately 10,000 visitors and it was great to hear the their feedback as they learned about our house, reACT. We had plenty of insight from other decathletes, individuals, students, and professionals about the decisions we made as a team and the commitment we put into the design and construction of this house over the past two years.

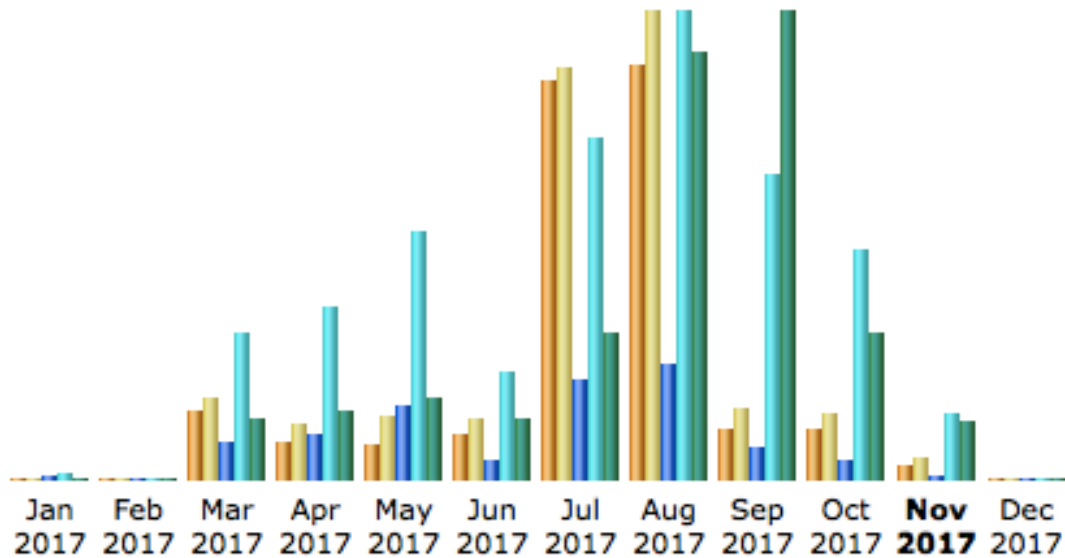
- Visitors preferred personalized tours.
- Visitors really seemed to enjoy the concept of our brochure handouts and our younger visitors figured out different ways to use it (like hats!)
- The younger visitors to the decathlon really enjoyed it when tour guides related what they were learning in their classes to decathlon homes.
- The more visitors can engage with the home (models, comfortable furniture, switches, etc.) the better.
- Tour guides at different stations can control flow much better than full walking tours.
- Having a shift schedule completed and posted each week would help with organization. A schedule posted the night prior or morning of tours leads to missing shifts.

Team's Online Presence

2017.solarteam.org Website activity

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Monthly history



Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2017	4	5	233	446	16.76 MB
Feb 2017	2	2	36	92	3.36 MB
Mar 2017	300	352	2,350	9,128	1.77 GB
Apr 2017	158	239	2,786	10,702	2.02 GB
May 2017	150	272	4,559	15,305	2.35 GB
Jun 2017	197	262	1,129	6,698	1.74 GB
Jul 2017	1,714	1,775	6,161	21,056	4.28 GB
Aug 2017	1,784	2,016	7,110	28,836	12.36 GB
Sep 2017	217	308	2,075	18,779	13.53 GB
Oct 2017	218	290	1,279	14,127	4.26 GB
Nov 2017	63	97	312	4,110	1.71 GB
Dec 2017	0	0	0	0	0
Total	4,807	5,618	28,030	129,279	44.04 GB

Blogs: Beginning in the spring of 2016 reACT posted a blog, which informed the community of Team Maryland’s progress.

UMD Solar Decathlon By the Numbers

- Facebook Page - 459 Following the page, 439 Likes
- Several of our posts reached 1000+ visitors per post. These included one of our first construction updates, our “People’s” Choice” share, a photo of our hydroponics system, a few posts about the Nanticoke Indian Tribe, and a fun post

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sharing #SnowlarDecathlon. These post trends influenced our visitors to learn more, or be excited about our project. In the past month, we reached nearly 10,000 new people.

- Twitter Page - 166 Followers
- Instagram - 211 Followers
- Youtube - 18 Subscribers
- Department of Energy Posts - The virtual walkthrough and feature videos from the competition organizers garnered our house over 5,000 additional views.
- Nanticoke Indian Tribe - the Tribe graciously shared several of our posts, including virtual tours and competition updates of our house.

Lessons Learned

- Our website was being developed by students specializing in web design, coding, and online resources. However, the students dropped out two weeks before the competition, and didn't inform us that they were not continuing with submitted changes. Next time, we would set up regular meetings with our web team, to work collaboratively with design and programming, and ensure an on-the-ground website team to provide live competition updates.
- Video Blogs would have allowed for personal touches to our program, and in the future engaging students with videography experience may have helped us.
- Having various team members access instagram/facebook/twitter and giving their insight of the days activities during the competition.
- Our social media team lead did a great job in posting daily photos of our house during the competition and keeping people up to date with our progress.
- We developed a team at UMD that helped us monitor the competition, and provided insight on materials. In the future, we would engage them from the very beginning of the project, allowing us to have more regular engagement with media and the university.
- A more interactive base with followers, through "Live" and "Story" functions on social media outlets. Some of our competitors utilized polls and live videos on their Instagram pages
- The team created the social media platform to reach out to people that did not know about sustainable living or people who were not convinced that a sustainable lifestyle was for them. However, as we were posting sustainable tips and lifestyle benefits, we realized that those posts were not getting a lot of attention. This is because the vast majority of people that were following us or interacting with the content we posted were people that were already aware of sustainable technologies and lifestyles.

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- As the assembly and competition weeks came around, traffic on our social media platforms picked up in speed. By the week of the competition, we learned how to keep our posts informational but also lively to showcase the team's personality and appeal to people, hoping to convince them to vote for us for the People's Choice Awards.
- One aspect of social media that the team wishes they had done was a video production. Whether it be some professional video production, or a live update on either Facebook or Instagram, post-competition, the team wished there was some sort of interactive live feed where people could ask questions about the competition or the house.

Team's Perspective on Organizers

The organizers were extremely helpful throughout the duration of the two years. They were quick to respond to any questions we had and during the competition were helpful in making sure we were able to complete everything quickly and effectively. During the assembly phase, the organizers on site made sure our safety was priority and aided us in any complications along the way.

One issue with the project was the rules - according to the Solar Decathlon 2017 Draft Rules document, the rules were last updated on September 5 2017. This means they were in an unfinalized, draft form until then. The rules should be finalized when the final teams competing are announced, and certainly well before the teams start designing houses for the competition. Teams use the rules as a guide for what can and cannot be executed in the design of the house. When unfixed, changes undermine design decisions that were informed by previous iterations of the rules wasting potentially hundreds of hours (if not more) of design work. Unchanging rules would allow teams to commit to design decisions without worry that a design decision would become invalid (or valid). If changes are made, *all teams must be made aware of these changes*. This was not the case in this decathlon as we noted alterations to the ground condition expressly forbidden in the rules being applied by both other teams *and* organizers (gravel foundations, helical soil augers greater than 3 ft in depth, etc).

Additionally, during the assembly period we are concerned that there was miscommunication during high levels of stress and fatigue. Expectations for deadlines and inspections were augmented but not effectively communicated to the team.

Future Plans for reACT

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At the end of each U.S. Department of Energy Solar Decathlon, team houses are sold and their location is tracked at: <http://www.solardecathlon.gov/past-where-now.html>. Team Maryland houses have a tradition of becoming education outreach centers. For instance, as part of its educational mission to raise public awareness on the practical value of architecture, the Potomac Valley Architecture Foundation (PVAf), purchased the Leading Everyone to an Abundant Future House (LEAFHouse) following the 2007 competition. WaterShed (2011) was purchased by Pepco, a major Team Maryland sponsor during competition, as part of their commitment to educate our customers about energy-efficient and environmentally-friendly practices, and opened as the Pepco WaterShed Sustainability Center.

The success of LEAFHouse and WaterShed (2011) is just one manifestation of the University of Maryland's broad involvement with sustainability. However, even with the University's recognized national leadership in sustainability through academics, research, and campus operations, there currently is no physical site that brings all of these University pursuits together. If a visitor comes to campus, where would they go to see the University's commitment to sustainability? If researchers want to field-test their projects or have a conference between disciplines to share and discuss ideas, is there a location that would immediately come to mind?

Solar Park

LEAFHouse is now located on a 3.7-acre site at the north entrance to the campus (Paint Branch Parkway and Route 193) and is used by students and faculty for ongoing research. The multi-acre site presents a tremendous opportunity for the University to become the first institution in the nation, or even in the world, to establish a research, meeting, and demonstration center specifically dedicated to promote interdisciplinary collaboration, development, testing and showcasing of innovative technologies for sustainable practices. Through a Memorandum of Understanding with the University of Maryland, academics, students, individuals, businesses, government agencies, and communities would have a nexus from which to communicate and learn from each other. As part of a long-term vision for bringing the University to the attention of the world as a leader in sustainability, the University plans to make reACT part of campus in proximity to LEAFHouse, and allow them to become anchors for the development of a leading-edge research park.

This sustainability park for academic research and collaboration has the facility to provide:

1. A Visitor Center for prospective students and tour groups that showcases the face of sustainability at the University of Maryland. It could serve as a learning

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tool to teach about sustainability, as well as a demonstration site for designers, contractors, policy makers, and researchers.

2. A Solar Village anchored by Solar Decathlon buildings that would continue to be monitored and studied, providing long-term performance data for the University community, and ample opportunity for undergraduate, graduate, and doctoral level projects, as well as provide a versatile and vital space for investigations via grants. For instance, reACT is being proposed as the locus for a behavioral research lab in a \$1.5M NSF STEM Curricular Design Research Grant, "Fostering STEM Identities and Dispositions among Native American Children and Families through the Convergence of Indigenous Knowledge Systems and Sustainable Technologies."
3. Facilitate reACT's commercialization and technology transfer to markets - this park has the potential to be a partnership platform between research and market ready, environmentally sensitive, and cost effective commercially available products. Companies could use the site to test and showcase leading-edge technologies, and as funding sites for major collaborative initiatives.
4. Myriad campus clubs and organizations to have a place to meet and practice their interests, such as urban gardening. GreenFest could be held here, as well as other special-interest fairs and fests, a potential source of revenue. On Maryland Day, this site could accommodate thousands of visitors. This site would give a place for concerts, lectures, even just a place to "get away" and hang out, while still being on-campus.

This site would serve a very broad community. Team Maryland expects this to be the right catalyst to energize this currently unused lowland area in a sensitive, forward looking and dynamic way, especially by providing a visibly exciting and distinct focal point for what is one of the University's main entrances. Currently, there is a glaring planning deficit in that not even one sign exists to designate this as an edge and gateway to the University of Maryland. It also does nothing to bring attention to this as the entrance to the Xfinity center, one of the University's biggest revenue generators. Surely a missed opportunity, over 30,000 commuters pass through or go by this portal daily, with many thousands more entering here for athletic events. Currently, there is no celebration of this special spot. By sensitively and powerfully developing this entrance and site, the University would have a vibrant focal point that would clearly and dynamically demonstrate to the world that the University of Maryland is dedicated to solving our most important contemporary issue; "what is sustainability and how are we going to achieve it?"

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Team Maryland is currently working with the University's Associate Vice President for Economic Development and Director of UM Ventures on technology transfer and commercialization for the following reACT innovations.

1. The VRF system reallocates waste heat from the interior and from the Greencourt to improve the efficiency of the heating system and to heat water.
2. Greywater Treatment System recycles wastewater for irrigation and, our research goal is to achieve drinking quality water.
3. Hydroponic system: Closed-loop Vertical Hydroponic Garden.
4. Architectural Variations: reACT's essential "DNA:" the Court DNA, the Cluster DNA and the Compact DNA.
5. Modular Furniture: Kitchen Island, Dining Table and Desks, made of identical, smaller components that can be assembled in diverse ways can host a gathering of up to 16. The kitchen/dining and desk furnishings are not only movable on lockable casters, but are adjustable in height from 28" to 48" above the floor and able to lock together.
6. Open Source reACT SmartHouse control system, which uses weather forecasts and simulations of the house to optimize performance and resource utilization, such as power and water. The UMD Gemstone team will also be making adjustments to the existing filtration system as well as sending filtered greywater to an EPA certified water quality testing lab to generate results on the quality of the filtered water from the system.
7. Solar Driers: A VersaLift storage elevator has been adapted to transport food or clothes to the attic, where solar heat can dry clothes, fruit and vegetables (for preservation) and eventually perform as a heat retention cooker.
8. Factory Construction: Kit of Parts, the discrete modular components, with all systems, wiring, plumbing and ducting included, and shipped to the building site for integration with the rest of the house. They are sized for easy transportation by truck or train. Each module, in turn, is comprised of components that can be mass produced in factories, efficiently transported to the building site and assembled by local labor. Materials may therefore be selected based on locally/regionally available materials to enhance sustainability and affordability, and to promote local industry. Many components can be flat-packed and transported via flatbed truck or train. Final assembly of the components can be accomplished using local labor, with homes enclosed in as little as a week, with relatively little specialized training.

Team Officer's Future Plans

From Sophie Habib (Lead Health & Safety Officer):

As a Master of Architecture student in my last year, I am currently working towards completing my degree this upcoming May. My thesis is focused on how we can encourage interdisciplinary collaboration through the built environment. The Solar Decathlon has given me a greater appreciation because it gave me the opportunity to work with other disciplines around the university and in the profession. After I complete my Master's degree, I am interested in working in the Baltimore-Washington metropolitan area as an architectural designer with a focus on sustainable design. I am looking forward to becoming an Architect in Maryland and Washington D.C.

From Alla Elmahadi (Lead Construction Manager):

As a current student in the Masters of Architecture and Masters of Real Estate development program, I am currently focusing on the effects of sustainable development through architecture. The decathlon has further aided my interest in the importance of sustainable design, both within the micro and macro scale. I hope to continue working in the architecture field, with a focus for sustainable design practices after graduation, within the D.C./Maryland area, challenging design concepts and innovations, stemming from my time as a decathlete, to aid in creating a more sustainable world, particularly in developing countries. I will continue working towards my license to become a registered architect, both in the USA (Washington DC/Maryland region) and the U.K.

From Malik Johnson-Williams (Deputy Project Architect):

As of the time I write this, I am still currently seeking employment as a designer as I work towards my license as a registered architect. This January I am beginning my thesis research affordable sustainable housing in the Washington Metropolitan area. Expanding on what I have learned from my time in the Solar Decathlon, my research focuses on how can design be used to foster both diversity and community in an increasingly urban world. In addition to my thesis work, I am continuing to challenge my construction abilities at home. Using my new-found skills, I am working on renovating my own mothers 1700 square foot ranch-style home.

From Sandra Oh Boun (Lead Project Architect):

I am currently a Master's of Architecture student in my final year and will be graduating this fall. I am currently working on my thesis that focuses on bringing awareness around the immigrant community in detention facilities. The analysis/thesis highlights current design conditions, and how negative design choices affect its users

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and the environment. Additionally, it focuses on designing alternative housing that utilizes sustainable design to better the health of the user and environment. My experience with Solar Decathlon as an architecture student has taught me many invaluable lessons in design, project management, collaboration with other disciplines, construction and community. The Solar Decathlon experience has further pushed my interest in working in the sustainability field and social justice projects. Upon graduation I plan to stay and work in the D.C area and become a licensed architect.

From Emily Goo (Water Team Lead):

In the two years that I have been part of the 2017 Solar Decathlon competition, I have been able to learn and experience things that I would otherwise been able to learn in the courses that I have taken. I have an invested interest in sustainable water design and overall green building design after participating in the competition. I believe that green sustainable buildings, cities, and communities have potential in solving current problems present worldwide.

From Eyuel Gorfu (Engineering Health & Safety Officer):

It was a very rewarding experience to work alongside colleagues that are knowledgeable in sustainable construction. As an undergraduate Chemical Engineer, I had little to no background in architecture or other studies of engineering. Through this project, I was able to participate in a real-life project and learn a great deal about other fields through collaborative work. I am currently in my last year of undergraduate curriculum. I am looking forward to my future as a process engineer to help build a more sustainable and efficient world. I will continue to support and participate in projects that challenge my curiosity and benefit the greater community.

From Charles White (HVAC Team Lead):

Testing and installing the HVAC systems for reACT was a challenging experience but a rewarding opportunity. My role on the team included sizing equipment; drawing up an ultra-energy efficient configuration that takes advantage of passive solar gains and ensured a serviceable arrangement of the systems for future maintenance. With safety and craftsmanship in mind, we completed electrical, water, ventilation and refrigeration connections, which met building codes and satisfied industry standards. My mechanical contracting career will start this year @ Siemens Building Technologies, a building-automation service group in the DC area. There I will take on the role of programming controllers and user interfaces for building management systems.

From Matthew Lagomarsino (Living Systems Team Lead):

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Working on the living systems for our Solar Decathlon house has given me invaluable experience in designing, building, and implementing green technologies in a real-world scenario. It was especially beneficial to see first hand what it means to work on a multidisciplinary team and plan how to work with this team to integrate the living systems into all of the other systems of the house. Once I graduate this coming Spring '18 with a B.S. degree in Ecological Technology Design, I plan to continue on my work with green technologies with the intention to make ecology the central focus of designs, while working towards resolving some of humanity's most pertinent issues such as water scarcity and food security.

From Emma Schrantz (Public Information Officer):

My participation with Solar Decathlon was unexpected in many ways. While I am an architectural designer by trade, my responsibilities with the team allowed me to apply past experience with identity (brand) design and communications outlets. Through work with the Client Relations team, I've also become more aware of the social and design considerations through conversations with the Nanticoke Indian Tribe. These cultural considerations tie heavily into the work I do as a Masters of Architecture and Historic Preservation student. I want to tie my experience with sustainability as well as logo and brand design into my thesis work, and upon graduation I would like to pursue my architecture license. Ultimately, I would like to work on adaptive-reuse projects around the country, incorporating sustainability measures into designs, which will ensure the continued respect and survival of our country's historic buildings and communities.

From Alan Uy (Automation Team Lead):

As a chemical engineer I was pleasantly pleased to be able to contribute to the Solar Decathlon. This project surprised me as a truly one-of-a-kind and unforgettable experience, spanning from energy modeling and sustainable/smart technology to the physical construction of the house. This experience has definitely bolstered my interest and practical knowledge in sustainable technology as I continue to pursue my Ph.D. in Chemical & Biomolecular Engineering.

From W. Paige Andros (Student Project Manager)

Prior to this competition my primary interest was for working in automotive design specifically to increase engine efficiencies. Participation in the Solar Decathlon has expanded my view of what efficiency and design improvement means. The concepts of sustainability and innovation potential go far beyond a single project or individual, supporting the development of strong communities that work to promote self-reliance

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and sense of stewardship for the world around them. I would like to be involved in endeavors that not just increase model efficiencies, but that give individuals the tools they need to build self-reliance and have opportunities. Affordable, sustainable housing resonates with me, and I find it likely that I will become involved in such endeavors. I also would like to be involved in education that opens opportunities for individuals. That could fall in a number of paths. My whole course in life changed when on a whim I went to check out this odd event I read about in the Washington post called Solar Decathlon (2011). I was never satisfied with my career as a makeup artist and hairstylist after that visit. Solar Decathlon was the catalyst that moved me to pursue an education that would enable me to have a more significant impact on helping/serving others, the realm of design and invention, as well as personal growth. My mind was opened to the relevance and literal potential sustainability has, all theoretical to me before that point. As I finish my degree in Mechanical Engineering I'd like to continue to be a part of bringing those potentials to life.

From Sean Richardson (Lead Construction Manager - Engineering, Deputy Structural Team Lead):

After Solar Decathlon I plan on graduating in the Spring semester with a degree in Civil Engineering and a minor in Sustainability. I'm applying to the Peace Corps this January and if I get in I'll be in Central or South America working on that. I want to help build houses or other structures for communities that need it, but I would also be okay with teaching students math and science. After I get back from the Peace Corps or if I don't get in, I want to work on sustainable design and construction.

From Greg Goldstein (Deputy Construction Manager - Architecture):

In my last year of a two year Masters of Architecture, I am currently exploring ways that ideas from the reACT home can be applied to University of Maryland's campus for my thesis - particularly concepts of recapturing waste heat and consolidation of MEP. My interest in performative architecture has always been what makes a building tick, and I have always approached architectural design from a standpoint many would call engineering based. The Solar Decathlon has provided me with the unforgettable opportunity of seeing a multidisciplinary process unfold first hand - the collaboration of engineers and architects (among other professions) is a must, reinforcing my stipulation that the line between these two fields should be blurred. I will be applying lessons learned from the Decathlon for years to come - my future in architectural practice has likely been shaped by this event.

From Srijesh Sudarsanan (Lead Electrical Engineer):

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As an engineering student deeply passionate about utilising interdisciplinary research and engineering for driving societal change, the depth of impact and learning that the Solar Decathlon offered more than satisfied me. Testing our mettle on several fronts from engineering aptitude to collaborative flexibility, the whole process was as rewarding as it was rigorous. From interactions with professional mentors and curious general public alike, we got very real, practical insight into what environmental sustainability meant to everyone's own lives and that inspired significant introspection too. Overall, I hope to utilise what I have learnt and come to appreciate in my future endeavors and designs as an aspiring embedded systems/ machine-learning engineer as well as to facilitate sustainable lifestyles and education in general.

Competition Improvements

From the Water Team:

If the competition was held in the summer rather than in the fall, then there may be greater member participation. If the competition was held in the summer rather than the fall, then there may be greater member participation. Specifically, some students did not travel to the competition in Denver because they were unwilling to take a week or more off of classes. If the competition was held during the summer, when most students do not have class, then it would make it easier for students to commit to go to the competition site. In addition, if the competition was held during the summer, it may have more visitors, especially students, that show up and explore the competition. It is important for the solar decathlon to be held at a time when visiting students are most able to come, if the competition wants to engage youth in sustainability education.

From the Automation Team:

A dedicated Wi-Fi or an ethernet connection for the Solar Decathlon houses rather than using a public one is recommended for future Decathlons. It was very difficult to receive any kind of signal while within any of the houses. A more dedicated connection would facilitate the implementation of smart technologies for the houses and communication/outreach.

From the Architecture Team:

Juried competitions are one of the best avenues for participants to improve both future entries and personal practice in the future. Our team found both the amount and detail of jury feedback inadequate, *particularly from the architecture jury*. Given the team's commitment for the past two years on the project (including time, energy and resources invested) we feel more detailed feedback is both deserved and necessary for future growth. Our team raised this concern with Joe Simon, the competition manager

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and he was quick to reply back with assurances this will be looked over for the future.

In addition, competition duration time should be extended. Three years to design and build a house offers better opportunities to refine the design and test how the house works, as well as time to learn from the house and develop strategies that could better work in the future.

From the Communications Team:

One thing we noticed was how heavily our scores were weighted with our narrative. Our communications plans and strategies continued to evolve, even as we arrived with the competition. The feedback we received pointed to this issue, but our team pushed hard to make sure we had an effective exhibit design, brochures, and on-site materials for our visitors. We feel more detailed feedback on what strategies worked and did not work would be helpful, as well as more consideration for the final exhibition product on-site. Additionally, our communications narrative did not discuss much about our target market's overall details, because our team included all of that material in our market potential narrative. It may be useful for communications juries to review all narratives of the team, not just the communications narrative

Other Information

- Anything that would be helpful to the organizers or future teams
- After two years of hard work, it would be nice to receive more detailed feedback from jurors and other professionals.
- It is best to start fundraising from the onset.
- It is important to dedicate resources to marketing and communications.
- It would be very interesting to see how the jurors opinions of the homes would change if they discussed their evaluations with the jurors of different competitions.
- It would be interesting to take feedback from visitors, who are potentially in the market and their take on what they think works and doesn't work. I.e the composting toilet was a big hit among visitors. However, in the juried feedback it was stated that it does not have high market potential.
- Solar Decathlon should work to push universities to offer curriculum related to the solar decathlon. Only a few members from our team were getting credits for their time and work committed to the project. This made it extremely hard for leaders to recruit people to join, as many students that were not leaders themselves felt like they did not have enough of an incentive to come out every week for a year+ to volunteer their time. If more classes were offered, student participation would be better leading to an overall better experience for all teams. As an example, when a

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course was offered for ENST students for the 2011 Watershed House, 12 ENST students designed the green wall. This time around, with no curriculum from ENST related to Solar Decathlon, 2 ENST students had to do practically all the work. Additionally, this affected many students over the summer semesters. Students, who pursued work experience, to be able to afford living expenses, were unable to contribute, as were students who relocated home for the summer.

Contact List

All team members who worked on the project, including permanent (non-university) email addresses (This includes members throughout the 2 year period who worked on it for a specific amount of time).

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