

Engineers Without Borders

Rose-Hulman Institute of Technology



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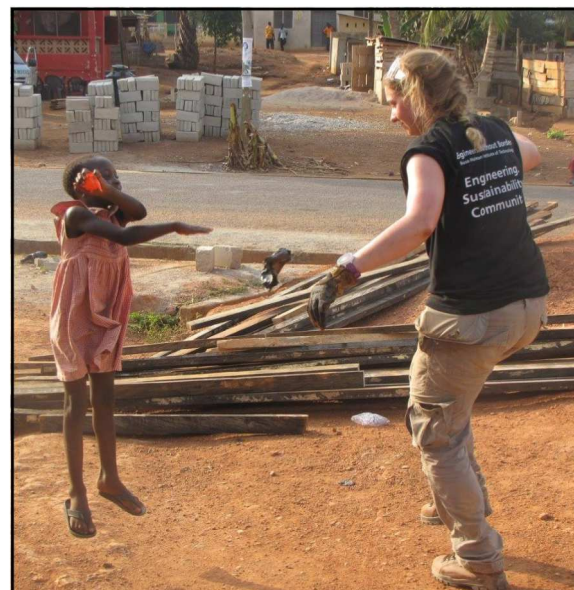


What is Engineers Without Borders?

EWB-RHIT is part of the national Engineers Without Borders USA organization. EWB-USA is a non-profit humanitarian organization established to partner with developing communities worldwide in order to improve their quality of life. Since its founding in 2000, EWB-USA has run more than 80 projects in 35 countries. The projects we work on are initiated by and completed with contributions from the host community, which helps ensure that our work will be maintained after we leave.

Our **VISION** is a world in which the communities we serve have the capacity to sustainably meet their basic human needs and that our members have enriched global perspectives.

Our **MISSION** is to support community-driven development programs worldwide by collaborating with local partners to design and implement sustainable engineering projects, while creating transformative experiences and responsible leaders.



Student member, Ally Phillips, playing a game with a local girl from Gomoa Gyaman, Ghana

In this Issue

We have had a busy year with traveling, hosting fundraisers, and doing local community service. We have completed the first community latrine in Gomoa Gyaman, Ghana and are planning on returning this summer to start implementing the second one. We have also started working with Habitat for Humanity to help our local Terre Haute community. Along with our wallyball tournament this winter, we are planning a soccer tournament for this spring. Be sure to check out Jung Fang's Alumni Testimonial!



The EWB-RHIT Team

President Ally Phillips

Junior, Civil Engineering
Hometown: Mooresville, IN

Engineering Team Manager Rachel Broughton

Sophomore, Engineering Physics
Hometown: Libertyville, Illinois

Fundraising and Marketing Team Managers Dale Conrad

Computer Engineering
Hometown: Bel Air, Maryland

Camille Blaisdell

Sophomore, Biomedical Engineering
Hometown: Barrington, Illinois

Treasurer Alex Lutzow

Sophomore, Civil Engineering
Petaluma, California

Secretary Emily Haussmann

Freshman, Mechanical Engineering
Sugar Land, Texas

Local Outreach Chair Louis Campbell

Freshman, Civil Engineering
Hometown: Phoenix, Arizona

LEAD Case Study

From Friday evening, March 18 to Saturday afternoon, March 19, three EWB-RHIT students participated in the annual LEAD case study competition. In this competition, organizations around campus send teams of approximately four students to evaluate an engineering problem in the local community, with a focus on sustainability. Teams work overnight from Friday to Saturday to complete project proposals which identify a particular solution to the open-ended problem.

Our team consisted of members Emily Haussmann, Scott Szatkowski, and Zsolt Truckai. Their challenge was to create both short and long term solutions regarding the energy needs of the Ryes neighborhood of Terre Haute, a particularly economically troubled area. The one-year, or short term budget was \$50,000, while finding means to develop the neighborhood as a whole over five years was allowed one million dollars.

After their long night's work, Emily, Scott, and Zsolt created a detailed proposal with estimated costs for a panel of judges to evaluate. In the short term, they planned to hire and send an inspector to each house in the relevant block to inspect for problems with insulation and heating systems. There were still funds left to fix these problems and hire another inspector to manage pests in the homes. For their long-term plan, the team proposed to renovate the local park and repave the lowest-quality sections of roads, hiring some residents in the process.



EWB Members and LEAD Representatives

Habitat for Humanity

Our chapter has begun participating in more local projects within Terre Haute. We On February 6, we volunteered with Habitat for Humanity to complete roofing work. The group consisted mostly of members that traveled to Gomoa Gya-man, Ghana later that February. The build provided a great hands on building and bonding experience for the travel members as they prepared for their trip. EWB members had the opportunity to practice their roofing skills using hand tools alone, similar to the tools used in Ghana. Smaller scale projects bond our team which will help when traveling out of country. On April 30th, a second team volunteered and completed some painting work. We look to continue our partnership with Habitat for Humanity next year.



Habitat for Humanity Volunteers. From L to R: Jordan Kamp, Louis Campbell, Ross Hunter, Sanders Park, Rachel Broughton, Dale Conrad, Karina Colotl, Nate Bonshire

Wallyball Tournament

We held our first Wallyball tournament this past winter to raise funds for our trips to Gomoa Gya-man. The fundraiser was a huge success with 16 four-person teams showing up to raise over \$300. While the tournament was competitive, all skill levels were able to participate. The Rose-Hulman bookstore donated awesome prizes such as posters, water bottles, and school supplies. We would like to extend our thanks to all participants and the Rose-Hulman bookstore, without whom none of this would have been possible, and look forward to hosting another tournament next year.



Participants playing wallyball

Ghana Implementation Trip

Early this spring, we travelled to Gomoa Gyaman, Ghana to construct the superstructure of a 12-stall latrine. The team built upon the substructure work completed in August 2015. This spring's student travelers were Ally Phillips, Karina Colotl, Zhou Zhou, Nate Bonshire, Ross Hunter, and Sam Starr.

After six months of planning and a long flight from chilly Indiana, we landed in the tropics and made our way to Gomoa Gyaman, two hours outside of Accra, the capital of Ghana. We arrived and were greeted in the midst of a funeral celebration, quite different from our funerals in the U.S. - a joyful meeting in both recognition of the deceased's life and our arrival. That first day, we checked the strength of the previously built slab and pit walls and found they were of sufficient strength ($f'c \approx 3500$ psi).

Prior to arrival, we pre-ordered solid CMU block we knew would be suitable for construction, most of the cement, and wood for the roof system. Some rebar still remained from the substructure. Over the next two days, nine courses of CMU block topped with a 7" thick bond beam and a final course of CMU block above the beam. Later, we had some difficulties communicating how to build roof trusses, since they are not commonly used in Ghana. In the future, we will be using rafters, since that is the most common roof system.



EWB Member Ross Hunter and children of Gomoa Gyaman

In-the-field challenges included designing a tank stand for a 700 liter polytank and access point covers for the holes used to empty the latrine. We were not quite sure of the dimensions of available polytanks or method for covering the access points before travelling, consequently, design and construction were completed almost simultaneously. Over the next couple days, com-



Nearly Completed Latrine

munity laborers added plumbing, fascia boards, and doors to the latrine.

After our departure, the citizens of Gomoa Gyaman added ventilation pipes, applied stucco to the outside, and finished piping for sinks. The sinks will drain to a sewer near the road to keep excess water out of the pit. Additionally, they plan to construct a privacy wall and install the sinks and toilets seats - the latter were not available because the manufacturers in Accra were on strike. Our next trip will be in August of 2016 and we will confirm completion of this first latrine and construct the substructure of the second.



Travel team in front of latrine. From L to R: Nate Bonshire, Sam Starr, Zhou Zhou, Ross Hunter, Karina Colotl, Ally Phillips, Dr. Kyle Kershaw, Jed Holt

Student Spotlight: Emily Haussmann

Q: How will your involvement in EWB impact your education as a mechanical engineer?

I decided to major in mechanical engineering because it's one of the most generalized STEM majors. To me, this major is an opportunity to be a polymath who understands and brings together different fields of science and engineering. Projects such as EWB-RHIT's in Ghana help me branch out into different fields, and solve problems in remote locations like Ghana. I think that looking at topics such as statics or material science from the perspective of an EWB build will both broaden my knowledge and deepen my understanding of what I already knew.



EWB-RHIT Mentors

Technical Mentor

Roger Ward

Professional Engineer

EWB-Indianapolis

Technical Mentor

Jed Holt

P.E. (retired)

President, Emeritus Bowen Construction

Faculty Mentor

Dr. John Gardner

Spanish Professor

Rose-Hulman Inst. of Tech

Faculty Mentor

Dr. John Aidoo

Civil Engineering Professor

Rose-Hulman Inst. of Tech

Fundraising

Fundraising is vital to our ability to continue using our Rose-Hulman education to impact developing communities worldwide. The cost of travel and construction materials is extremely high, but both are necessary for our chapter.

Through school organizations, such as the Student Government Association, we are able to raise some funds for our projects. This only covers a fraction of the total amount needed to complete our projects—especially for international air travel. We rely on private donors like you to support our projects and make a difference in third-world communities.

Donating to EWB

Contributions can be made to “Rose-Hulman Institute of Technology”, directed to “Engineers Without Borders” in the memo.

For more information, contact Camille Blaisdell at: blaisdcb@rose-hulman.edu

Contact Us

Please contact us at philliaa@rose-hulman.edu if you have any questions or would like to become more involved.

More information can also be found on our website at: www.rose-hulman.edu/ewb



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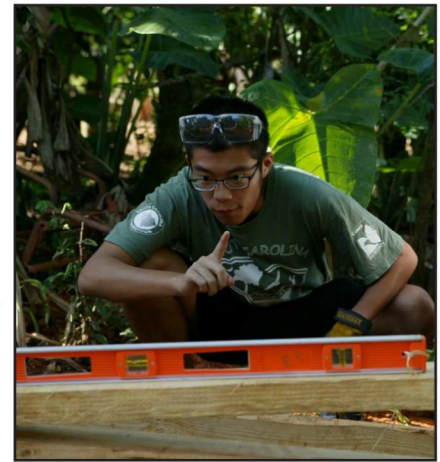
Alumni Testimonial: Jung Fang

“EWB provided me with the opportunities to grow as an informed global citizen, a team, player, and a leader. I joined EWB at the very beginning of the freshman year and during my time at the club, I had the opportunity to travel to Batey Santa Rosa community in Dominican Republic, where we implemented three ventilated-pit latrines. Although they were simple in engineering construction, there was a tremendous amount of preparation for the latrine design, trip planning, and material purchase, which stretched beyond what we learned in classrooms. When we arrived at the community, we faced many new challenges. For example, a cow fell into a pit and to rescue it, community members had to destroy that pit and dig a new one at a different location. Based on new pit size and slope at the location, we had to recalculate many of our design specs. Another challenge was the weather, as it started pouring after two or three pm every day. It inevitably shortened our work schedule and also slowed down the curing of concrete slabs and stools. It became a valuable lesson for our later implementation trip schedule planning. Despite the challenges, I still vividly remember kids teaching me Spanish and everyone’s wide smile at the completion of the project. The most rewarding of the trip was to see the realization of our hard work that made a real, direct impact on so many lives.

Of all of the clubs and organizations I was involved on campus, EWB was definitely the most memorable. During my four years at EWB, I witnessed the club to evolve from a six-member group to one of the most influential organization at Rose-Hulman. I have met so many bright people in the club who inspired or mentored me and whom I have made many life-long friends with. Through the connection of the club, I had the opportunities to talk to many faculty and executive members at Rose-Hulman. I had the opportunity to discuss our club funding and trip planning with the school president, Dr. Conwell. I also had the chance to meet Dr. Amadei, the EWB-USA founder and was able to be the MC for his leadership talk.

EWB offers a variety of leadership roles that suit people of different backgrounds and personal goals. When I joined the club, I intended to improve my people skills, presentation skills, and ability to lead a team. During my four years I assumed the roles of club treasurer, marketing team manager, and president and they help tremendously with my professional development and leadership skills. I still vividly remember the long discussions on the club goal settings after the Ghana implementation trip was cancelled due to Ebola outbreak and conversations on membership feedback. Overall, I believe that EWB can provide members with valuable global perspectives, team and project management skills, and life-enhancing travel experiences.”

-Jung Fang, Chemical Engineering, Rose-Hulman Class of 2015



Alum, Jung Fang, building a latrine in Batey Santa Rosa, Dominican Republic

ENGINEERING A MORE SUSTAINABLE WORLD—ONE COMMUNITY AT A TIME

