



**BUILT WORLD**  
ENTERPRISE

## **2023 Alumni Newsletter**



**Happy New Year from Built World Enterprise!**

## Congratulations to our Fall '23 graduates!

Our best wishes go out to **Morgan Hallberg** and **Jake McDowell** as they use the skills they have gained at Michigan Tech in their future careers and endeavors! We are excited to see all the amazing things they will accomplish.

Morgan and Jake have each successfully completed their senior design projects this Fall and we are proud of all their hard work. Thank you for all the effort and success you have brought to BWE in these past years!



## **Current Project Teams**

### **Engineers Without Borders (EWB)**

The EWB team is designing a long term water supply solution for the community they work with in northern Guatemala. Water quality, flow rate, and geospatial data is being used from an assessment trip in May 2023 to ideate the most dependable solution to be implemented. If all goes well, a team will travel in May 2024 to facilitate the new system!



---

### **Steel Bridge**

The Steel Bridge team is working hard in preparation for the competition this Spring! This year the Steel Bridge team has been asked to create a theoretical bridge across a water hazard in the Louisiana Lincoln Parish Disc Golf Course. They have chosen the basic geometry for the bridge and are working on fine-tuning the model now. The team is hoping they can begin ordering steel and creating shop drawings in a few weeks, but have much to do before then. Good luck to Steel Bridge!



---

### **EPA Rainworks**

The team is working on the EPA Rainworks Challenge which involves incorporating sustainable and green infrastructure into college campuses. They have decided to focus on MTU's new masterplan and are coming up with a way to incorporate more sustainability into that. They are currently looking at creating guidelines for improving the LEED rating for the new buildings in the masterplan using the H-STEM building and the new East Dorms as examples.





## **ASCE Timber Strong**

The Timber Strong team is hard at work to prepare for their competition this Spring! This year they are tasked with building a two story wood structure similar to last year's project. However, this year the team must add a cantilevered second story. Through their design process they have decided to minimize the size of the structure to limit costs and optimize assembly efficiency. We wish them the best of luck in the upcoming year!

---

## **ACRP**

We're happy to bring back the ACRP team to BWE this year! As a team, they are looking into the various challenges available and brainstorming. In the coming weeks the team will be picking one of their ideas to move forward with and preparing for their submission to the competition in the spring.





# **WERC Environmental Design Competition**

The two WERC teams are busy in preparation for their competition at New Mexico State University in early April. They are finalizing their designs and starting to create prototypes to bring to the competition.

---



## **WERC Team 1**

Team 1 is working on developing an innovative stormwater management project that will mitigate the effects of extreme weather events for disadvantaged communities while considering all aspects of the triple bottom line. The team chose to focus on the small town of Dollar Bay, Michigan considering the impacts of flooding from rain and snow melt. They have been busy coming up with infrastructure designs that are sustainable, cost effective, and that will benefit the community!

---

## **WERC Team 2**

Team 2 is working on a cheap, modular CO2 removal device that can be implemented across many different communities. Their current idea is to incorporate a small filter device that can be built into HVAC systems. The filter device itself will use an algae box to remove the CO2 through photosynthesis. They are working hard on their prototype for the bench scale portion of the competition.

---



## **Completed Senior Design Projects**

### **Jake McDowell**

Jake has completed his engineering design project that will treat wastewater biosolids to Class A standards in colder climates.



### **Morgan Hallberg**

Morgan has completed her project creating an overview for the future of the Sustainability Demonstration House (SDH) yard.

## **Senior Design Projects In Progress**

### **Tania Bernal**

Tania is designing a plan for waterfront revitalization that consists of a flood and stormwater management plan that incorporates nature-based solutions.

### **Blake Cain**

Blake is working alongside the Steel Bridge team in creating scaled-up construction plans for the Lincoln Parish Park Bridge.

### **Joe Dlugos**

Joe is working on a green infrastructure stormwater management plan for Walker Lawn on Tech's campus. He will be incorporating a rain garden and sediment catching system. This will not only mitigate flood issues, but educate campus on green infrastructure and its benefits.

### **Ollie Fair**

Ollie is using '22-'23 Steel Bridge problem statement and design to create guidelines for their project. They are going to create a cost estimate and schedule for the construction of a bridge replacing the Sweetwater River Bridge.

### **Dylan Lane**

Dylan is going into depth with the water distribution part of the Engineers Without Borders project for his senior capstone design.

### **Averi Reno**

Averi is diligently working on a project to remediate the Portage Canal in our very own Houghton, Michigan. Her solution is made up of a remediation design as well as a water treatment plant design.

### **Francine Rosinski**

Francine is working on a remediation project to treat Hexavalent Chromium in the Huron River from a wastewater spill. Her design idea consists of using Planted Bed Floating System (PFB) to absorb the nutrients in the water.

### **Eden Traub**

Eden is currently working on a design to treat contaminated agricultural runoff. Her design will consist of nutrient reduction strategies at the edge-of-field as well as preventative strategies to improve the sustainability of farms.

**If you are interested in any of the projects and would like to hear more, feel free to reach out to us!**

## Sponsorship

If you would like to help fund any teams you can donate by going to [this website](#), and donating to the student leadership fund. To ensure your donations go to BWE, email Dr. Morse at [anmorse@mtu.edu](mailto:anmorse@mtu.edu), or when donating select “add another destination” then select “other” and say Built World Enterprise. If you have any questions, reach out to Dr. Morse.

<u>Level of Sponsor</u>	<u>Incentive</u>
<b>Bronze-</b> \$5-\$100	Acknowledgement in newsletter and in all teams final reports
<b>Silver-</b> \$100-\$500	Include your logo on BWE posters or banner in the WERC Booth, or on Timber Stong House; Include names on website plus bronze acknowledgements
<b>Gold-</b> >\$500	Private Campus Tour including a design review (presentations from the teams regarding their project progress- video version for those who can't do in person) plus silver acknowledgements



## **We would love to stay connected with you!**

If you want to stay up to date and prefer using an alternate email address, let the enterprise know so you can keep getting BWE updates and announcements. Let us know how we can reach you best! We value these connections and appreciate all your support. We hope that 2024 treats you all well!



**Michigan  
Technological  
University**

### **Social Media**

[Instagram: @bwe.mtu](#)

[Facebook: @Built World Enterprise](#)