



**BUILT WORLD  
ENTERPRISE**

## **February 2024 Newsletter**



### **Built World Enterprise Members!**

We are super happy to see that BWE continues to grow each semester. Welcome to our new members **Lauren Sayles, Isabel Smith, and Vaughn Van Til!**

## **Project Updates:**

### **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 are 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!



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### **Steel Bridge**

The Steel Bridge team is working hard in preparation for the competition on April 4th! 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 are finishing up fabricating bridge pieces and hope to begin training to assemble the bridge as fast as they can until the competition. Good luck to Steel Bridge!



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### **EPA Rainworks**

The team is working on the EPA Rainworks Challenge which involves incorporating sustainable and green infrastructure into college campuses, specifically MTU's campus. Currently, plans for the new HSTEM building are being finalized. The design includes planter boxes and a rain garden to help with rainfall and snowmelt. A blue water reuse system is also included to reduce the water demand of the HSTEM building. This design will be used as a sustainable standard for the rest of MTU's masterplan.





## ASCE Timber Strong

The Timber Strong team is hard at work to prepare for their competition in April! The team is building a two-story wood structure with 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. They have recently turned in their final report and are working on fabrication. We wish them the best of luck!

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## ACRP

ACRP is currently working on their final design for streamlining the NOTAM system in airports. They are focusing on a system that categorizes and organizes NOTAMs to increase ease of use and safety, benefiting both pilots and the public. Throughout development, the team will continue to utilize feedback from airport professionals to improve on our design. Good luck to the ACRP team!



## WERC Environmental Design Teams:



### WERC Task 1

Team 1 is working on developing an innovative stormwater management project that will mitigate the effects of extreme weather events for disadvantaged communities. The team has been designing bioretention cells and bioswales to reduce runoff from snowmelt in Dollar Bay, Michigan with an added goal to treat chloride from road salt. The team is currently testing alternative chloride-adsorbing media, biochar and kaolinite clay, to see which material will work best to implement in their design. Good luck to this team as they travel to New Mexico in early April!

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### WERC Task 4

Team 4 is working on a cheap, modular CO<sub>2</sub> removal device that can be implemented across many different communities. Their design will consist of a small filter device that can be built into HVAC systems. The device itself will use an algae box to remove the CO<sub>2</sub> through photosynthesis. They are working hard on their prototype for the bench scale portion of the competition. Best of luck in competition!



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For more information on the WERC Environmental Design Teams, visit [www.werc.msu.edu](http://www.werc.msu.edu).

## **Senior Design Projects**

### **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 a 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 this year and would like to offer any insight don't hesitate to reach out!**

## Sponsorship

If you would like to help fund our 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, please reach out to Dr. Morse.

<u>Level of Sponsor</u>	<u>Incentive</u>
<b>Bronze- \$5-\$100</b>	Acknowledgement in newsletter and in all teams final reports
<b>Silver- \$100-\$500</b>	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- &gt;\$500</b>	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 would like 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. We value these connections and appreciate all your support. Have a good Spring!



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### Social Media:

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