BUILT WORLD
ENTERPRISE

April 2024 Newsletter

Built World Enterprise Members!

CONGRATULATIONS to our Spring ‘24 graduates!

Our best wishes go out to **Tania Bernal, Blake Cain, Joe Dlugos, Ollie Fair, Dylan Lane, Josh Nolan, Allie Olson, Averi Reno, Francine Rosinski, & Eden Traub** 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.

We are proud of all your hard work, BWE will miss you. Thank you for all the effort and success you have brought to BWE in these past years! Welcome to the alumni community!

Spring 2024 Competition Recap:

Steel Bridge:

The Steel Bridge team won 1st place overall at the Eastern Great Lakes regional ASCE symposium!

- ★ 1st place in stiffness
- ★ 1st place in structural efficiency
- ★ 1st place in lightness
- ★ 2nd place in construction speed
- ★ 2nd place in construction efficiency
- ★ 3rd place in cost estimation

The team is now preparing for Nationals in Ruston, Louisiana! Good Luck!

Timber Strong:

The Timber Strong team competed in Akron, Ohio and placed 1st overall at the ASCE build competition. They also set a new record in build time this year, beating their own previous record. Congratulations!

WERC Environmental Design:

Congratulations to both of our WERC teams who competed at the WERC Environmental Design competition hosted by New Mexico State University!

WERC Task 1: Stormwater Management in Cold Climates: A Green Solution for Salinity Reduction

1st Place Overall

2nd Place Benchscale Demonstration

Honorable Mention for the Business Flash Talk

IEEE Environmental Engineering Publication Initiative

WERC Task 4: Modular CO_2 Removal for Community Integration

Awarded with the judge's choice for their CO_2 removal system

End of the Year Recap:

Engineers Without Borders (EWB)

The EWB team designed 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. The team plans on traveling back and assessing for a riverbank filtration system and taking community surveys in Fronterizo and Canton.

Steel Bridge

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. After winning the 1st place overall prize at regionals, they will make their way to Louisiana for the national competition. Congratulations and good luck Steel Bridge!

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 designed 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. Congratulations to Timber Strong on their placement in this year's ASCE competition!

ACRP

ACRP is 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 completed an innovative stormwater management project that mitigates the effects of extreme weather events for Dollar Bay, Michigan! The team designed a system of bioretention cells and bioswales that not only reduces runoff from snowmelt, but reduces salinity pollution from road salt. The team used a combination of kaolin clay and biochar soil amendments for this treatment. Congratulations to this team for their success at the 2024 WERC competition!

WERC Task 4

Team 4 designed a cost-effective, modular CO2 removal device that can be implemented across many different communities. Their design consisted of a small filter device that can be built into HVAC systems. The device itself will use an algae box to remove the CO2 through photosynthesis. Congratulations to this hardworking and creative team on their success this year!

Completed Senior Design Projects

Tania Bernal

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

Blake Cain

Blake worked alongside the Steel Bridge team to create a scaled-up construction plan for the Lincoln Parish Park Bridge.

Joe Dlugos

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

Ollie Fair

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

Dylan Lane

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

Averi Reno

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

Eden Traub

Eden designed a system to treat contaminated agricultural runoff. Her design consisted of nutrient reduction strategies at the edge-of-field as well as preventative strategies to improve the sustainability of farms.

THANK YOU SENIORS!

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, 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.

Level of Sponsor	Incentive
Bronze- $5-$100	Acknowledgement in newsletter and in all teams final reports
Silver- $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
Gold- >$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 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 summer!

Michigan Technological University

Social Media:

Instagram: @bwe.mtu

Facebook: @Built World Enterprise