Former College team finalists for provincial STEM award

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Section News
Page A3

A former team of Lethbridge College students was named a finalist for the Capstone Project of the Year Award, a provincial honour given out annually by the Association of Science and Engineering Technology Professionals of Alberta (ASET).

Former civil engineering technology students Hannah Thompson and Tyce Daniells were recognized for their efforts to determine if the addition of glass fibers to hot mix asphalt would improve its performance. Their idea was that glass fibers would bond with the asphalt and create elastic-like properties within it. This would result in less wear and tear of the asphalt.

Glass fibre is glass that has been drawn into long, thin strands and then processed into various other materials (e.g. cloth and rebar) or mixed with resins to be molded into various shapes, such as boats, doors or car hoods.

It's low-maintenance and has a high tensile strength with a melting point of approximately 1,135?C, and a softening point of 845?C. Given the immense impact borne by roadways when vehicles travel across them, the former teammates sought to confirm that the glass fiber additive would decrease the amount of stress at the point of contact between the wheel load and the asphalt pavement, and distribute that stress more evenly.

During lab experiments, the former teammates varied the fibre content throughout three asphalt mix designs. They ultimately concluded that hot mix asphalt combined with five per cent glass fibre content does improve the asphalt's stability. However, if the fibre content exceeds five per cent, the performance worsens.

"The motivation behind this idea was to try to find a way to better the life expectancy of asphalt roads, make them more durable," said Thompson. "We were pleased that our hypothesis proved true. Becoming a finalist for the ASET Capstone Project of the Year Award was a bonus we didn't expect."

"The former Lethbridge College team's project may, like asphalt, seem simple on the surface, but it has significant value and depth," said ASET CEO Barry Cavanaugh in a press release.

"Any research that makes more resilient something as fundamental to our daily lives as asphalt is a huge win for everyone, not just the former students who conducted that research."

The former Lethbridge College team's project is one of nine finalists for the 2023 ASET Capstone Project of the Year Award. The winning project will be announced at the end of October.

The Capstone Project of the Year Award was established by ASET in 2017 in response to overwhelming member interest in stories about Capstone Projects undertaken by teams of engineering technology students from NAIT, SAIT, Red Deer Polytechnic, and Lethbridge College as part of their end-of-program requirements.