

# Researchers looking at tire derived aggregate to revolutionize construction

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Dr. Hany El Naggar, associate professor and graduate studies coordinator with the Department of Civil and Resource Engineering, is leading a team of international students in assessing how TDA – which is made from recycled tires - enhances the strength of soil for major civil engineering projects such as bridges, buildings and highways.

"We have a lot of soft soils in Nova Scotia that you cannot readily build on because they are too weak to support infrastructure. But when you use a TDA-soil mixture for the backfill, you have something that is lightweight but significantly reinforces the [strength](#) of the foundation soil. Now, you can build the structure you want on that soil, doing it economically without any risk that it will fail," says Dr. El Naggar.

The TDA being tested is manufactured by Halifax C&D Recycling Ltd., which holds the exclusive contract to recycle the approximately one-million tires discarded by Nova Scotians annually. Jim Simmons, an environmental engineer who has been working with Halifax C&D Recycling to promote TDA, says the university's research will help position Nova Scotia as a world leader in resolving the environmental and health issues related to scrap tires. Implementing and professionally demonstrating the applications locally will further demonstrate the many advantages of using this technology.

"We know that discarded scrap [tires](#) are breeding grounds for mosquitoes because they pool water, and we've seen the dangers of that with the Zika virus," says Simmons.

"We've also seen the consequences of tire fires and the pollutants they release into our air, land and water. There's a real need for scrap tire management around the world, and if we do this and do it well, there's no reason our consultants and small businesses can't explore this knowledge around the world. Dalhousie's research will make that possible."

Dr. El Naggar's team is also conducting a Natural Sciences and Engineering Research Council of Canada-funded characterization study of Halifax C&D Recycling's TDA to establish product design standards, thus reinforcing the reliability of the product for use in civil engineering projects. Findings from these initiatives could be published as early as this fall.

"TDA is a product that is both lighter and stronger than traditional soil backfill," explains Dr. El Naggar. "It diverts waste from our landfills, turns it into a revenue stream and has a wide range of applications. Once we demonstrate that, we'll go from trying to create demand for TDA to having to keep pace with it."

Provided by Dalhousie University

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