

Building bridges WSU led consortium wins prestigious award

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The designers of an innovative bridge that uses wood plastic composites developed by a consortium led by Washington State University's Wood Materials and Engineering Laboratory (WMEL), received a prestigious award from the American Council of Engineering Companies (ACEC).

In the award, the ACEC, which includes 5500 member companies throughout the US, cited the use of the wood plastic composites (WPC) in the

bridge's design and said the bridge was a "model of sustainable engineering." The Wood Lab researchers provided the WPC materials to Brad Miller from HDR Engineering of Missoula, Montana, for his design.

The 90-foot bridge is located at the entrance to Rattlesnake Wilderness and National Recreation Area, near Missoula. It features innovative uses of small diameter timber including a large, structural wood-plastic composite section.

The design of the section and the material used resulted from a WMEL project, in which researchers designed bridge and pier components from wood-plastic composites that could carry heavy loads for the Navy. This highly innovative material provides a durable and environmentally friendly replacement for creosote-treated piers in harbors.

The composites, which are made of a combination of wood fiber and plastic like that used in window parts and pipe, can be processed into complicated shapes to facilitate installation and performance.

This material class has been developed in the past decade and has become popular in the residential housing market for such light-load applications as doors, windows, siding, flooring, and decking. They are used in outdoor, moist environments because they resist moisture damage well.

Approximately 40 percent of all commercial WPC products in North America use formulations developed at the Wood Lab. The WMEL researchers more recently developed composites that can support heavy loads.

"This bridge is a great example of how our engineering research can play a role in solving challenges in sustainable engineering design," said **Mike Wolcott**, professor of civil and environmental engineering. "Using re-used and recycled products to make a structurally sound and attractive bridge means putting fewer chemicals in our environment and using less of our limited resources."