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New "Wheelchair-Friendly" Surface Material Being Tested at State Parks

Madison, Wis.— People who use wheelchairs may find it easier to move around at two Wisconsin state parks thanks to a field trial of new surface materials being conducted by researchers from the USDA Forest Service Forest Products Laboratory (FPL) and the Wisconsin Department of Natural Resources (DNR).

FPL and the DNR have joined forces to field-test improved surface materials called accessible engineered wood fiber. The tests are being conducted at the playground area at Governor Nelson State Park on the north shore of Lake Mendota and on a path at Cox Hollow Lake beach at Governor Dodge State Park near Dodgeville.

"Engineered wood fiber" is the technical name for a loose, mulch-like mixture of hardwood chips that meets certain specifications regarding size and shape of the chips, consistency, drainage, impact attenuation and other qualities. A 10- to 12-inch layer of engineered wood fiber is widely used in playgrounds to prevent injuries around swings, climbing gyms and other playground equipment.

"The traditional engineered wood fiber and other loose materials such as sand or pea gravel used in playgrounds are generally effective at reducing injuries from falls, but such surfaces pose a serious obstacle for anyone using a wheelchair or walker," says FPL research engineer Ted Laufenberg. "Because the material, whether wood chips, sand or pea gravel, is able to move, the wheels or feet of a mobility device quickly sink in, causing the wheelchair or other device to get stuck or even tip over."

"At FPL, we've been working to develop a cost-effective surfacing material that combines the necessary shock-absorbance with enough firmness to enable a wheelchair or other device to maneuver

easily and safely," Laufenberg said. "This would make it less costly for states and local communities to comply with federal regulations requiring accessibility of public parks and playgrounds."

Currently available materials such as a molded rubber can be prohibitively expensive.

The prototype surfacing material consists of a 1½- to 2½-inch thick layer of engineered wood fiber mixed with an adhesive binder or stabilizer. In the playground area, the stabilized fiber is on top of eight to 10 inches of loose (unstabilized) engineered wood fiber, which is on top of a layer of stone and landscape fabric to ensure good drainage. On the path, the prototype surfaces are laid directly on the sand.

The field test is expected to reveal which adhesive binder--polyurethane or latex--performs best under real-use conditions.

The research has been partially funded by the U.S. Access Board, an independent federal agency devoted to accessibility for people with disabilities.

Technical reports describing FPL research into improved engineered wood fiber (and many other topics) are available for free from FPL's website: www.fpl.fs.fed.us.

"We hope these materials will make our playgrounds more accessible, which will increase the level of enjoyment for all visitors to the Wisconsin State Park System," said Mike Willman, director of the Wisconsin State Park System.

The USDA Forest Service Forest Products Laboratory was established in 1910 in Madison, Wis., with the mission to conserve and extend the country's wood resources. Today, FPL's research scientists work with academic and industrial researchers and other government agencies in exploring ways to promote healthy forests and clean water, and improve papermaking and recycling processes. Information is available at FPL's Web site: www.fpl.fs.fed.us. Through FPL's Advanced Housing Research Center, (www.fpl.fs.fed.us/ahrc/), researchers also work to improve homebuilding technologies and materials.

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EDITOR'S NOTE: Photographs are available.

Also, additional technical background on the development of accessible EWF can be found in two published technical reports available on FPL's website:

Laufenberg, Theodore L.; Krzysik, Andzej; Winandy, Jerrold. 2003. Improving Engineered Wood Fiber Surfaces for Accessible Playgrounds. Gen. Tech. Rep. FPL-GTR-135; U.S. Dept. of Agriculture, Forest Service, Forest Products Laboratory. 15p.
[/documents/fplgtr/fplgtr135.pdf](http://documents/fplgtr/fplgtr135.pdf)

Laufenberg, Theodore L.; Winandy, Jerrold E. 2003. Field Performance Testing of Improved Engineered Wood Fiber (EWF) Surfaces for Accessible Playground Areas. Gen. Tech. Rep. FPL-GTR-138; U.S. Dept.

of Agriculture, Forest Service, Forest Products Laboratory. 14p.
[/documents/fplgtr/fplgtr138.pdf](#)

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