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Sunflower hull wood impresses parks' staff, visitors

Usually people split sunflower seeds open and spit the hulls out, unless the hulls get caught in their teeth first. But now a biobased wood manufacturer has found a new use for an old annoyance and it's impressive to those who have witnessed the transformation.

The sunflower hull wood, Dakota Burl™ made by Environ Biocomposites of Mankato, Minn., is increasingly being used in park buildings, including Denali National Park in Alaska as well as lesser-known places. The hulls come from sunflowers harvested by western Minnesota farmers. The swirling, black outlines of the irregular shapes embedded within the wood make it an attention getter.

"It's a great visual," said Katie Hoeschen, director of the Lebanon Hills Visitor Center, the gateway to Lebanon Hills Regional Park, a 2,000-acre county park near Eagan, Minn., not far from Minneapolis. "This building is a teaching tool for school field trips. We talk about it as an edible building. Some kids even try to eat it."

Completed in 2003, the Visitors Center is intended to be a green building and has numerous environmentally friendly features, including a vegetative roof planted with sedums to facilitate the conversion of carbon dioxide to oxygen.

The sunflower hull wood is "eye catching," Hoeschen said. The wood is featured on the front reception desk and on office cabinets, which are out of site from the casual visitor who didn't arrive on a school bus.

The center also has decorative panels of wheat straw wood and acoustical tiles from aspen tree fiber, considered a rapidly renewable resource because aspen grows so quickly. (The wheat straw wood is another Environ Biocomposites' product; the aspen acoustical tiles are manufactured by Tectum Inc. of Newark, Ohio.)

But the wheat straw wood has a fine grain so "it doesn't jump out at you," she said.

The Murie Science and Learning Center at Denali National Park in Alaska, which opened in 2005, features strategically placed sunflower hull wood at its front reception desk, on the top surface of a circular display and along the back walls. "It's very prominent," said Murie Center Program Director David Tomeo.

The 3,500-square-foot center is open year round to accommodate winter tourists. Tomeo noted these visitors typically comment on the "whole beauty of the building," which also contains large amounts of wheat straw wood, rather than just focusing on the sunflower hull wood.

(Sunflower hull wood also is in the interior of the elevators at the National Park Service's office in Anchorage and in a nearby childcare center called Tundra Tykes that provides care to the offspring of federal government employees.)

"When people hear what it is, folks are fascinated," Tomeo added. "All builder types ask about it."

Those reactions are exactly what architect Paul Anderson of Partners & Sirny in Minneapolis had in mind when he designed the visitors centers and chose the biobased woods. His intent was to help his clients have the structures exhibit the parks' educational role.

In addition to the Lebanon Hills and Denali visitor centers, he selected sunflower hull wood for the cabinets in the St. Croix National Scenic Riverway visitor center and headquarters in St. Croix Falls, Wis., which opened in 2006.

"I try to practice green architecture to the greatest extent possible," said Anderson, who specializes in designing environmental education centers. "I'm always on the look out for sustainable materials."

Not everybody is a fan of sunflower hull wood, though. Marc Burns of Pacific Studio in Seattle, whose firm creates museum exhibits, including the ones at Murie, dislikes the product because he said it doesn't hold a finish. However, Sterling Black, Lebanon Hills contractor, doesn't recall it being a problem nor does he remember receiving any complaints from workers.

The veneer on the sunflower hull wood already is thinning and flaking in spots, Tomeo noted, adding that when light reflects off the surface, it looks "bumpy." In the next couple years, he expects the sunflower hull wood will need to be sanded and varnished again.

The manufacturer advises against installing sunflower hull wood in a bathroom or kitchen because it doesn't respond well to moisture. Steam from a coffeepot makes the wood swell, Anderson said, but he attributes that to the adhesives holding the pressed wood together rather than the biobased wood itself. He advocates applying a water-based polyurethane to the wood because it "brings the pattern out more, and it looks much deeper."

Sunflower hull wood has another drawback—it's pricey. Tomeo knows that from his own experience. He wanted to add another cabinet and needed a 4-by-8-foot sheet, but he found the price was too expensive and opted for maple instead.

The cost of a ¾-inch thick sheet is about $120, according to a distributor, North Star Surfaces of St. Paul, Minn. A sheet of premium maple of the same thickness is about half that price. But since there's no Dakota Burl supplier in Alaska, the cost of sunflower hull wood doesn't factor in transportation to the land of the midnight sun, far from the lower 48 and the manufacturer in Minnesota.

No matter its detractors and the downfalls, sunflower hurl wood has won over converts in the design field and within the parks system. “If prices were more reasonable, I’d consider it for my own home,” Tomeo said. But being practical isn’t always the point. Lebanon Hills goes above and beyond what normal homeowners would do to give them ideas about what’s possible, Hoeschen said.

It may take a while for these public models to translate into private buildings with sunflower hull wood, but biobased wood is clearly here to stay—at least within the nation’s parks.

“By nature, folks who work with the national park system are interested in being good stewards of our natural resources,” architect Anderson noted. “Sustainable design is consistent with that. I’m impressed with all my clients.”

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This USDA BioPreferred program success story was prepared by Iowa State University Extension’s Center for Industrial Research and Service (CIRAS), www.ciras.iastate.edu/.

Lebanon Hills Visitor Center, located at a county park in Minnesota, contains sunflower hull wood in the reception area and in office cabinets.

The Murie Science and Learning Center reception desk at Denali National Park in Alaska features sunflower hull wood. The center also has this biobased wood on a display counter and in wall panels.