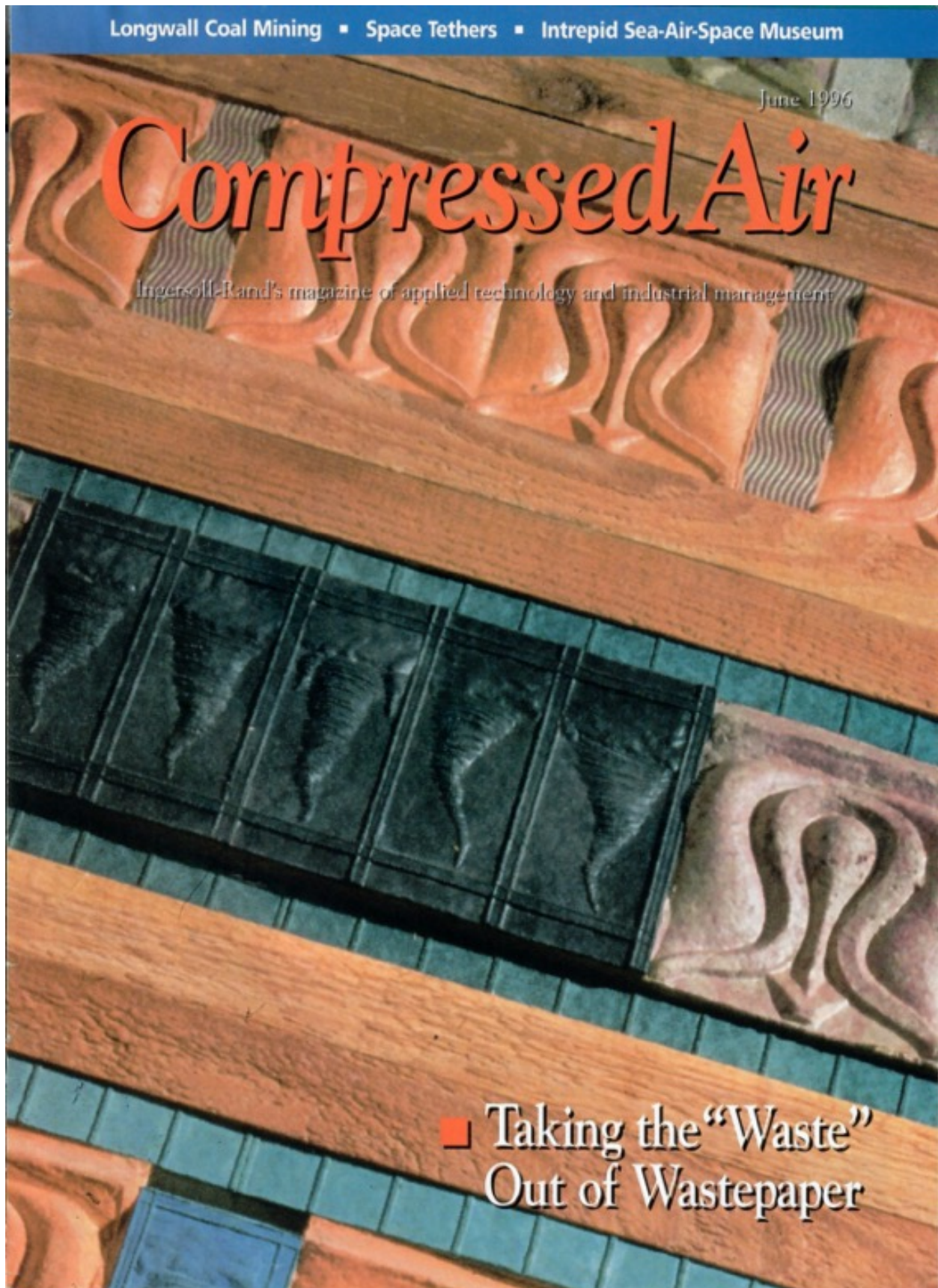


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Changing Paper Back Into Wood

by Derick Schermerhorn



Instead of making paper from wood, Stanley Shetka makes wood from paper. Through a patented process, he turns wastepaper into a material that is both malleable and strong, creating wood-like products such as toys, park benches, furniture, caskets, industrial-strength blocks, and multiroom family homes.

"Our mission is dedicated to reducing preconsumer and post-consumer waste through the creation of environmentally responsible products and building materials made from wastepaper," says Shetka, a professor of art and design at Gustavus Adolphus College, St. Peter, MN. His company, All Paper Recycling, Inc., was established four years ago to accomplish exactly that.

Paper makes up about 40 percent of solid waste in the United States, according to Fingerhut Companies, Inc., a major catalog company based in Minnetonka, MN. By using recovered paper to produce his products, Shetka not only saves landfill space but also provides new markets for collected paper—an important factor in successful recycling programs.

The paper Shetka uses can be almost any kind of wastepaper, including types that most recyclers reject, such as waxed paper, glossy magazines (which contain high amounts of clay fillers), and telephone directories (which have bindings of heavy glue). He will take anything from cereal boxes and junk mail to newspapers, milk cartons, and old books. None of the

Many people view wastepaper as a nuisance, something that should be hidden from sight in a landfill. Stanley Shetka sees it as a raw material, and the building block of his success.

wastepaper has to be presorted or de-inked. In addition to paper, Shetka occasionally uses waste clay and fiber sludge that he buys from paper mills.

Compressing the Sunday Paper

In Shetka's production process, wastepaper is mixed with water and beaten to a fibrous pulp. The pulp is then poured into a system that processes the material to a uniform density to form blocks, or into special molds to form other products.

No bonding agents are needed. Density, strength, and thickness of blocks are controlled by the amount of pressure applied, as well as by the quantity and type of fiber used.

By introducing certain additives to the pulp before processing, blocks can be made waterproof, insect-proof, or flame-retardant. After the blocks are air- or kiln-dried, they can be sanded, sawed, glued, nailed, or screwed together, like regular wood. They can be sealed, painted, or finished with standard varnishes and stains.



One block uses an entire Sunday newspaper. According to Shetka, a 2-inch-thick block measuring 6 inches \times 18 inches has the same strength as a 1-inch-thick pine block of the same dimensions. However, some paper makes stronger blocks than others. "Boxboard, used in cereal boxes, is strong," says Shetka. "Magazine paper tends to be weaker."

Patented as ShetkaBoard, the blocks can be made in almost any size a customer wants. "Standard" sizes have ranged from 6 inches \times 12 inches \times 2 inches to 9 inches \times 17 inches \times 3 inches, although 2 foot \times 2 foot and 4 foot \times 4 foot blocks also are produced. Thickness can range from one-eighth inch to 6 inches.

The fibrous pulp can be molded to fit a variety of needs. Finished chairs, for example, are turned out in a one-step procedure. "If after several years a leg were to break off," says Shetka, "the entire chair and its broken fragment could be repulped and a brand new chair produced using the same fibers."



The fibrous paper pulp can be molded to fit a variety of needs. Shown are a chair made entirely out of pressed paper and coasters made from ShetkaBoard.

In tensile, bending/breaking, and compression tests, Shetka's paper-wood "performs pretty similar to pine," but at one-fifth the cost, and well below the price of plastic moldings and stone. "And with our board, you don't have to worry about knots or splitting," says Shetka.

ShetkaBoard blocks are aesthetically pleasing, as well. By layering different kinds of paper, he creates blocks that resemble marble but have a soft, felt-like texture. By varying the material in the pulp, he can change the color of the blocks. Cereal boxes make tan; the white pages and yellow pages of a phone book make blue-gray and green, respectively. The combinations are endless.

Shetka recently developed a new material called ShetkaStone. As its name suggests,

ShetkaStone is even harder and denser than its wood-like relative. Shetka uses it to produce a variety of items. "It can be used to make tabletops, wall partitions, even flooring," says Shetka. "We make just about whatever our customers want. We can 'tweak' the production process any way they like."

ShetkaStone, like ShetkaBoard, is 100 percent recyclable, even though it may sometimes contain waste plastic to make it water-resistant. Some landfills reject plastic because it is not biodegradable. But in the Shetka system, plastic products can be ground up to make new products. "We use everything we take in," asserts Shetka. "There's no garbage system here." All paper scraps and dust produced during the cutting and shaping of pressed paper is put back into the pulp. Even the water used in turning the paper to pulp is used throughout the process again and again.

Coffins, Movie Sets, and a Presidential Doghouse

"In addition to blocks, we fabricate our materials into sheets to make such things as boxes, crates, or sound-absorbing acoustical panels," says Shetka. "Using molds in our system, we mass-produce plaques, coasters, CD storage units, picture frames, pencil holders—whatever you can think of."

Molds for ornamental products, such as jewelry, can create details as thin as strands of hair. Holographic images decorate the covers of "sculptural books" that are carved out of blocks of paper.

Shetka's products are sold either directly to end users or to distributors. Many of his smaller products may be found in college bookstores, stationery stores, coffee shop checkout counters, and stores that specialize in products made from recycled materials. Restaurants buy Shetka



tabletops. A major cosmetics firm displays its soaps in Shetka soap dishes. A museum uses Shetka acoustical panels in its walls and ceilings.

"We can make products much more economically than if the same items were made out of wood," notes Shetka. Pine wood handles for paintbrushes, for example, cost 20 cents apiece. Paintbrush handles made of ShetkaBoard would cost only 2 or 3 cents.

One of the company's major targets is the specialty knickknack market, where profits, according to Shetka, can be enormous. A small ornamental box made from molded ShetkaBoard, for example, may sell for \$5 to \$7. Yet the wastepaper used to produce it costs practically nothing.

Some customers license Shetka's process to turn out their own products. Many of them have a large output of paper waste and want to make useful products from it. Flooring and roofing manufacturers have licensed Shetka's process—as has an Indiana coffin maker.

"We had an inquiry from President Bush about using ShetkaBoard for a doghouse," says



Far left: Bench (18 inches × 20 inches × 40 inches) and children's playhouse made of recycled pressed paper.

Left: Screen produced by Stanley Shetka. Panels are made with thin layers of paper painted with a Japanese-style design, and framed with ShetkaBoard. The screen can be used as a wall partition.

Shetka. "Unfortunately, he left the Oval Office before we could get his order."

Fingerhut Companies, Inc., is paying Shetka \$45,000 to research turning its wastepaper into shipping pallets. Warner Brothers Studios recently flew Shetka to California to discuss using his material, instead of fiberglass, to make its giant movie sets.

Are any companies competing with All Paper Recycling, Inc.? "If they are, they're copying us," he says. "And they're not supposed to, because our process is patented."

Architecture Allied with Art

At Gustavus Adolphus College, Shetka teaches architectural design and drawing, instructing students not only in the tenets of art but also in the creative reuse of materials. They learn how to form sculptures out of bronze, wood, and, of course, his pulpboard materials. A graduate of the Minneapolis College of Art and Design and the University of Minnesota, as well as a founding member of the St. Paul Art Collective, Shetka has trav-

eled extensively, exhibiting his own sculptures from London to Beijing.

His recent entry in a Texas exhibit—a Japanese-style screen made with thin layers of paper panels, or "windows," framed with ShetkaBoard—won first place. An attractive piece of art, it is also useful as a room partition.

Almost any kind of housing structure can be fabricated from Shetka's materials. An 11-foot-tall, 12 foot × 16 foot house built of his blocks was displayed in 1991 at the Children's Museum in St. Paul, MN. It won that year's "Best Paper Recycling Story Contest," sponsored by the American Paper Institute. The house, as well as the child-size furniture and toys inside it, was fashioned entirely from Shetka's pressed paper materials. Children proved that the house was sturdy by climbing all over it without causing any damage.

A full-size, three-bedroom house is under construction in Webster, MN. The prototype home is made completely of Shetka's materials, including furniture, moldings for doors and windows, ceilings, and other house parts. The project is made possible through a grant from the Charles Lindbergh Foundation. Shetka hopes to have the house "ready for occupancy" by fall 1996.

For Shetka, architecture is allied with art. "I see no difference between sculpture and

ShetkaBoard blocks impressed with designs of a tornado. The blocks can be used for moldings in home construction. The colors come from the colored papers that were used to make the molding.

architecture," he says, "except that architecture is something you can walk into."

His First Paper Block Was a Textbook

Shetka made his first paper block at the University of Minnesota as a protest. Asked to hand in a "paper" for an art history class he did not particularly like, he cooked his textbook to a pulp in boiling water, cast the pulp into a solid block, and submitted that.

"The teacher asked me what it was, and I said it was everything in the textbook," explains Shetka. "I told him it was a different view of history. Destroying history to make history."

The instructor gave Shetka an "A."

ShetkaBoard first appeared in 1990 as the creation of a kinetic piece of sculpture that Shetka had crafted as an art project. Visitors "fed" wastepaper into the sculpture, and the sculpture, with a digestive system consisting of a washing machine, churned out small blocks of pressed paper.

A few weeks later, Shetka began working on what evolved into his present-day process, using the same washing machine to produce the pulp, and his feet to press it into bricks and boards. He soon graduated to cement mixers, a hydraulic press, and complex molds. In 1992, Shetka formed All Paper Recycling, Inc., to market his products and technology. Today, he holds patents for both the process and the press and operates a 4,000-square-foot research and production facility in St. Peter, MN.



By June 1996, Shetka expects to start-up a 12,000-square-foot facility in New Prague, MN. He also plans to install a fully automated pulping unit and press capable of recycling 100 tons of paper a day to produce board units up to 4 feet x 9 feet in size. The entire production system for these boards—like every production system Shetka has—will require just one employee to operate.

Why didn't someone else think of this process first? "It's too easy," says Shetka. "I talk to paper engineers who have 10 degrees, and they don't get it. Architects don't understand it, either. But you send them a few blocks, and they get excited."

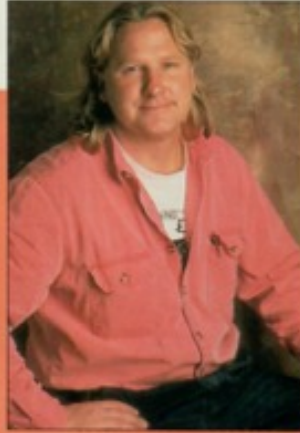
Business in Every State

In addition to a small manufacturing staff, All Paper Recycling, Inc., has a board of directors consisting of a former computer executive,

A 160-Acre Sculpture

Stanley Shetka lives on the 160-acre farm in rural Webster, MN, where he spent his childhood. He believes that growing up on a farm nurtured his creative impulses. Living with 13 siblings and no running water, Shetka learned to rely on nature to supply many of his needs. Instead of buying paints for his artwork in art stores, he made paints from plants. He still does. "As an artist, I don't believe in art stores," says Shetka. "They impose artificial restraints on the kind of materials one is supposed to make art with." He attributes his self-taught engineering skills to working with the farm's heavy machinery.

On his farm, Shetka is putting together his "World Art Project," a sculpture he started in 1973. It is made of objects sent to him by people from all over the world. Shetka's ambition is to have the sculpture eventually consist of at least one item donated from every individual on Earth. So



Carol Overaker

far, he has received "hundreds of thousands" of pieces, ranging from 4-H ribbons and old shoes to audiotapes and wisdom teeth—all items of personal significance to the contributor. Contributions made of paper also are welcome. In fact, Shetka urges

each person to send a dollar bill along with the item for the sculpture. He carefully catalogs each piece and preserves it intact in the sculpture, unless it happens to be "junk" from an obviously insincere participant. In that case, he simply grinds it up and makes it part of the sculpture anyway.

"When you put art in galleries," says Shetka, "you get something that's 'finished.' This sculpture, on the other hand, is ever-evolving, ever-growing." He expects that the sculpture, in time, will cover most of the 160 acres of his farm.

Once called a genius by one of his students, Shetka shook his head. "Nah, I'm a farmer," replied Shetka. "I just like to cross boundaries."

an engineer, and a lawyer. Supervising operations, along with Shetka himself, is a production manager who has a master's degree in art and a degree in biology.

"Our profits keep growing," says Shetka. Sales and licensing, along with investments from stockholders, provide most of the company's income. Private and government grants, including a recent one from the U.S. Office of Environmental Assistance, also help the company to expand.

"We plan to license our technology throughout the U.S.," says Shetka. "There's room for this business in every state. Soon every city will be able to collect its waste and turn it into something worthwhile."

For More Information

To find out more about All Paper Recycling, Inc., please write to Stanley Shetka, All Paper Recycling, Inc., 101 W. Pine St., St. Peter, MN 56082, U.S.A. CA