Green Guide

to the museum

madison children's museum

Use this guide to find examples of our commitment to working locally and sustainably

“ONLY LOCAL” INITIATIVE

Madison Children’s Museum sought to go beyond green in building our new museum and exhibits by working locally and sustainably in all aspects of project development. Use this guide to see specific green examples that were guided by an overall commitment to:

- work with **local talent**, including architects, designers, contractors, artists, and fabricators.
- use **materials** that are local, reclaimed, recycled, natural, organic, and/or donated.
- use materials with **low embodied energy**—that is, the total amount of energy required to manufacture a product is as little as possible.
- model **sustainable behavior** for visitors every step of the way.
- put the **health** of visitors, the community, and the environment first in every decision.

Look for numbered icons like the one below that indicate areas of the museum with several green examples within view.

CAPITOL ENTRANCE

PHOTOGRAPH BY ZANE WILLIAMS © 2010

Natural Light
The museum restored the building's historic front window openings and installed high-efficiency low-e glass, bringing in a flood of natural daylight and reducing the museum's reliance on artificial illumination.

Fresh, Local Food
Food provided by the café includes fresh, locally sourced, and seasonal foods, most of which are packed with nutrition and contain few artificial ingredients.

Signage
Most of the signs inside the museum are made of wood, aluminum, wheat board, Green Core board, or reclaimed materials. The wheat and Green Core board substrates contain no formaldehyde and are made from renewable resources like wheat or wood fiber. Exterior signs are mostly aluminum, with LED lighting used in our illuminated parking sign.

Repurposed Building ▲
This building was originally built in 1929 as a Montgomery Ward department store. One of the museum's greenest choices was to reuse this historic structure, centrally located on bus lines, rather than building new.

Stained-Glass Windows ▸

These stained-glass windows were originally created by artist Kathleen Johnson for the museum's First Feats exhibit in 1998. They were repurposed by Denny Berkery to pay tribute to the museum's major benefactor, W. Jerome Frautschi, who provided funds to purchase the building.

Linoleum Floor

The flooring in the Community Concourse is linoleum, a natural and durable product made from linseed oil, burlap, rosin, and pigment.

Benches ▾

Benches throughout the museum were crafted by University of Wisconsin-Madison woodworking students and professors using local hardwoods, reclaimed materials, and low- or no-VOC adhesives and finishes. Look for creative use of reclaimed fire hose, board games, piano parts, chair legs, street signs, and other found objects.

DeATLEY COMMUNITY CONCOURSE

Front Desk

The front desk incorporates materials that are local, reclaimed and carry low embodied energy. The artful play areas, benches, and drawers were designed by Madison artists Tom Loeser and Bird Ross, in collaboration with neighboring families from the YWCA.

No- and Low-VOC Paint and Finishes

No- and low-VOC products were used throughout the building for interior paints, finishes, polyurethanes, and adhesives. Volatile organic compounds (VOCs) can affect the environment and human health. Since preschoolers' immune systems are not fully developed, it is important to keep indoor air toxins to the lowest levels possible. The museum used AFM/Safecoat interior paint, the only doctor-approved brand for chemically sensitive people.

PHOTOGRAPH BY ZANE WILLIAMS © 2010

Highly Efficient HVAC

Look above to see Daikin VRV (variable refrigerant volume) units, which use air-source heat pump technology that can heat a building for as little as 20 percent the amount of energy required to heat with a traditional gas-fired heating system. The Daikin VRV system utilizes heat recovery technology that can capture the internal heat of a building and use it to minimize the amount of new energy required. The system is also extremely flexible and ideal for existing building retrofits with space constraints.

Barn Boards ▲

Two fallen barns in southern Wisconsin provided the boards for this "squashed house," designed by local artists Gail Simpson and Aris Georgiades, and built by artist/fabricator Dan Ganch. Barn boards connect visitors to the Wisconsin landscape and reinforce a sense of place.

WILDERNEST ENTRANCE

working with local artists and craftspeople

Local Talent

More than 120 local artists created exhibit components, objects, and public art for the new building. Notice the mural to the left of the elevator by Laura Dronzek and Kevin Henkes, the welded entry gate by Erika Koivunen, and the ceramic mural by Linda Leighton. Working with local artists and craftspeople to create the museum keeps money within our community while generating a sense of ownership and pride.

Floor Overlook

Flooring for the Evjue Early Learning Gallery is a combination of locally harvested hardwoods, donated to the museum by Wisconsin Woodland Owners Association members. The wood was selectively harvested from within 100 miles of Madison, kiln dried, and made into flooring by small rural businesses.

Tree Trunk Slide

The slide is made from a naturally downed tree discovered by one of our fabricators in his backyard!

Tree Identification Exhibit

Use of natural materials throughout the museum is not only beautiful but also raises awareness of Wisconsin's rich natural resources. This exhibit helps children connect to the natural world even in an indoor environment, priming them to notice different trees on their next woodland walk.

Bone Bridge ▲

The bridge walkway is actually a reclaimed wooden arch from the former Kohl's grocery store on East Washington Avenue in Madison. The "bones" were crafted from sheet material for concrete forms, purchased from the Habitat for Humanity ReStore of Dane County.

WILDERNEST NORTH

Activities That Emphasize Healthy Living

Activities in the Wildernest were carefully designed to teach children sustainable behaviors while they play. Hanging laundry, gardening, buying fresh produce, and caring for the chickens all give children a chance to practice sustainable living.

Mosaic

The floor mosaic was created by local artist Pat Smith using a combination of handmade tiles, broken dishes, local stone, and glass.

Natural Stone, Found Objects ▲

The rock grotto was created using Door County and Fond du Lac stone, all sourced from Wisconsin quarries. Found objects, many from staff members' desks in the old museum, create an "I Spy" game and literally embedded old museum memories in the new building.

Costumes

Material for all costumes was donated or came from recycled clothing.

◀ **Cozy Cottage Willow Furniture**

The willow used in these handmade chairs is a fast-growing native species, which is typically found along country roads and ravines throughout southern Wisconsin. The willow was carefully crafted into seating by artist Kimberly Sotelo.

WILDERNEST SOUTH

PHOTOGRAPH BY ZANE WILLIAMS © 2010

Wool Carpeting, Wool Rugs

Tough and durable wool was used throughout the Wildernest for carpeting, rugs, and objects. Felted wool animals and pretend food offer an appealing alternative to plastic. Wool is naturally grown, organic, and biodegradable. Preschoolers are less likely to put wool objects in their mouths—and if they do, museum staff run soiled objects through the washing machine.

Wattle and Daub Construction

The Hearth Hut is made using the wattle and daub technique. Woven branches provide a framework which is filled in with earthen plaster made of sand, clay, wheat straw, wheat paste, and water. A heated mixture of linseed oil and beeswax is applied as a final coating. The grass roof is natural but not local, since the only available fire-rated material comes from Florida.

Clay/Straw Construction

The earthen Music Hut is made from local soil, wheat straw, wheat paste, beeswax, and food-grade linseed oil. This hut and its neighbor can be fully composted when they are no longer needed.

Goat and Cart

MCM's resident goat was created by Early Learning Coordinator Cheryl DeWelt Robinson out of needle-felted local wool roving, attached to an armature built out of old furniture. The cart was crafted by museum volunteer John Haverberg and is mounted to the chassis of an old baby buggy.

Water Dome and Rain Chains ▸

Both the glass for the water dome and the rain chains within it had former lives. Cut sheets of tempered glass came from this building's former interior spaces, giving them new life and saving them from the landfill. The rain chains are strings of antique electrical insulators, formerly used on rural power lines.

Chlorine-Free Water Purification

Water for the museum's water-based exhibits recycles through a chlorine-free purification system in the basement that brings it to drinkable quality. An ultraviolet light sanitizer purifies the water, and then a minimal amount of bromine is added to meet health code. A double-filtration system removes particulate matter to the size of one micron.

CELEBRATIONS ROOM

Flooring

This flooring is made of both walnut and ash. Locally harvested walnut was donated by Jim Deppeler of Windsor, Wis., who served as executor of his uncle's estate that included the lumber at a Monroe sawmill. Mr. Deppeler heard of the museum's need and donated the walnut in his uncle's honor. The ash flooring, like that in the Early Learning Gallery, was donated by members of the Wisconsin Woodland Owners Association.

Bleacher Boards

The window sills and step seating in this room were made out of bleachers that were reclaimed from the gymnasium at Oak Creek Junior High School outside of Milwaukee and then refinished. The same bleachers were used unfinished as wall paneling in the rooftop Clubhouse.

Fabric Seat Cushions ▲

The fabric used for the seat cushions is GreenGuard certified and made with 100 percent eco-intelligent polyester. Made by Knoll Textiles, this fabric can be easily recycled.

Banana Fiber Counters ▼

These countertops are Lamin-Art Abacá, a decorative surface manufactured using recycled banana fibers, which are randomly sprinkled over the surface of the material resulting in an organic, non-directional design and texture.

GIRLS & BOYS RESTROOMS, FLOOR 2

Recycled Partitions
Partitions in all the museum restrooms are made by the Bradley Corporation with 100 percent post-consumer recycled material. Each stall keeps more than 1,600 milk jugs from the landfill.

Dual-Flush Toilets
Toilets made in Kohler feature conserving, dual-flush handles that pull up for liquid waste (less water) and push down for solid waste (more water).

Photovoltaic Sinks ▲
These sinks from the Bradley Corporation in Milwaukee are made of a recycled solid surface called TerreonRE, which contains 25 percent pre-consumer recycled content and is also certified by GreenGuard as a low-emitting material. Photovoltaic panels on the sinks use light to power the faucets. This technology does not require electrical hookups or batteries, saving maintenance costs and keeping batteries out of landfill.

Drinking Fountains
Are you wondering why the water isn't ice-cold? The museum is saving energy by opting to have drinking fountains without chillers.

Hand Dryers

Dyson Airblade hand dryers used in all of the restrooms eliminate the power-hungry heating element of traditional hand dryers, drying hands faster and more hygienically while using 80 percent less energy. Carbon dioxide emissions over the dryer's lifetime are also low, equivalent to carbon emissions created by watching two minutes of television. By not buying paper towels, the museum will cover the cost of the hand dryers within two years.

Ceramic Tiles

Throughout the building's bathrooms you'll find ceramic tiles made by more than 300 local schoolchildren, which were made with local clay from Paoli Clay Company outside of Madison.

8 BAKKE ART STUDIO ENTRANCE

Entryway ▲
The entryway was created by Madison artist Dale Malner from old paintings that used to hang in the corporate headquarters of Trek Bicycle Corp. Dale accepted the museum's challenge to make a 100 percent recycled entryway for the Art Studio.

Refrigerator Doors & Window Frames
Refrigerator doors and old window frames have avoided the landfill and found a playful reuse in our rotating art gallery.

Chairs & Tables

Art Studio chairs were purchased from University of Wisconsin SWAP (Surplus With a Purpose) and painted by museum visitors under the direction of artist-in-residence Katharine Goray. Tables were purchased from a Beloit College deconstruction sale, refinished, and shortened to accommodate young visitors.

9 ART STUDIO & CLASSROOM

Bottle Caps ▲

More than 13,000 Madison elementary school students created bottle cap art for these beautiful mosaics, designed by students from Shabazz City High School. Glass, stone, and small objects that are integrated into the mosaics were donated by museum members and friends.

Cabinets

All the museum's cabinets were made using a combination of local, sustainably harvested ash, and formaldehyde-free ash plywood. Cabinets were handmade by Bontrager Cabinetry in Dalton, Wis., as part of the museum's commitment to patronize small businesses.

Interactive Paint Wall

Painting on this wall is fun and helps eliminate some of the museum's great need for paper, especially for working in large scale.

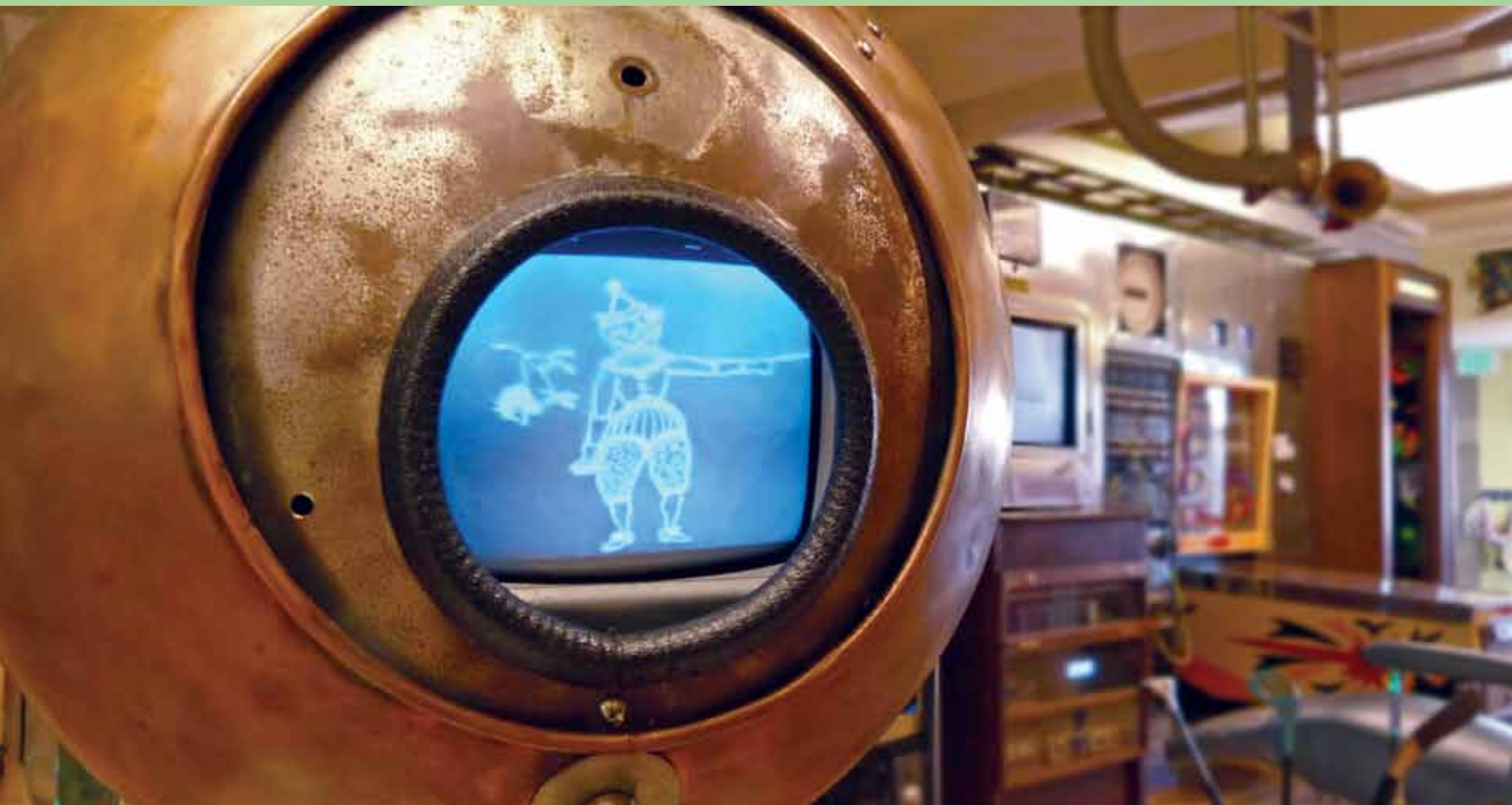
Use of Recycled Supplies

Many of the materials used for making art in the Art Studio and classroom are commonly thrown away or recycled: old egg cartons, cardboard tubes, yogurt containers, yarn, you name it. Their use inspires young artists to use available materials rather than buy new. Most supplies have been collected and donated by friends of the museum.

10 WAYBACK MACHINE & PIE IN THE SKY DINER

Retro-Technology ▾

The Wayback Machine transforms obsolete and retro-technology into a lively, interactive electronic playground. Eight Madison artists, musicians, and craftspeople, along with electronics wizard Chris Murphy and museum staff, created a fantastic visitor-controlled console, demonstrating the imaginative repurposing of electronics.



Repurposed Exhibits ▲

The new Pie in the Sky Diner counter is actually the repurposed Juice Caboose and former Dairy Bar from exhibits dating back nearly 20 years! Rather than re-creating an age-old favorite, staff covered the exhibit with leftover metal siding from the rooftop, installed new laminate and doors—and *voila!* This helped decrease costs, increase fun, and keep an old exhibit from the landfill.

◀ **Felted Pie Ingredients**

Pizza and pie ingredients, and all food toys in the Wildernest exhibit, are made from recycled sweaters by local artist Julie Case and Early Learning Coordinator Cheryl DeWelt Robinson. MCM is the first museum in the country to eliminate plastic toys. The decision came easily after testing for heavy metals suggested that this would be most optimal for children's health while supporting sensory play experiences. Additional local artists created Artist Made Pies for our Pie Safe, using an assortment of materials.

11 HODGEPODGE MAHAL CLIMBER

Emphasis on Healthy, Active Kids

Active children have stronger bodies, learn more easily, and help contribute to a healthy and resilient community. By providing lots of opportunity for active play, the museum is encouraging a community of movers and doers.

Repurposed Objects ▸

The parts and pieces of this climber came from many sources: an old three-wheeled car from a scrap yard, a buoy from Lake Michigan, shovel handles no longer needed from Fiskars, and remnant slide parts from a slide company.

12 REFAB LAB

Repurposed, Recycled Building Supplies and Exhibits

Building supplies and exhibits in the ReFab Lab have many former lives. Old Madison street signs have been made into bricks and tables, old soda bottles are now building boards, and hollow-core doors are made into building blocks. The Punch Buggy is made from a 1950s three wheeled Trojan car, Weber grills, bookshelves, and other metal parts, while icicle targets were crafted using old billboard vinyl.

Emphasis on Collecting and Saving Things

Children are natural collectors. In the Whatnot Spot, the focus is on collections—appreciating things that are old, looking at the intrinsic beauty of objects in groups, and saving things rather than throwing them out. Here you'll find a beloved doll collection from Fan Taylor, one of the museum's early founders; a wooden animal collection from Ira Baldwin, one of the museum's donors; and handmade trains and a carousel, made in the 1930s by former UW physics professor and physics museum founder L.R. Ingersoll.

Emphasis on Tinkering and Fixing Things

A big part of sustainability education is emphasizing buying and using less in the first place. The Tinkerer's Workshop, with its emphasis on tinkering and fixing things, helps teach children that learning to repair things can be lots of fun. The table was made from a reclaimed airplane, the countertop from an old exhibit, and the tool shelves from old fire hose boxes at the Wisconsin State Capitol!

this table was made from a reclaimed airplane

13 COW HOIST & TRAIN

Use of Volunteers and Local Photos

The train set was donated to the museum, and designed and installed by a group of more than nine skilled and dedicated volunteers from the Wisconsin Model Railroad Association. Volunteers play a critical role in the museum's success and contribute significantly to its financial sustainability. Photographs surrounding the train layout, donated by local photographers, depict southern Wisconsin and reinforce a sense of place.

Repurposing of Museum Icons

The museum prides itself on civic engagement opportunities for even our youngest visitors. In elections at our State Street location, young visitors voted on favorite exhibits to bring to the new museum. The cow in the hoist and the one above the parking lot entrance were winners, along with other icons scattered throughout the museum. By encouraging civic engagement and teaching children that they, too, have a voice, the museum models democracy and encourages active citizenship, which is the bedrock of sustainability.

Anticipation of Expansion

The museum was designed from the outset with expansion in mind. This economy of scale and forward vision for the museum's future has all been captured in a master plan for future expansion. Extension of the central staircase to the third and fourth floors and location of future restrooms has been anticipated, so that major exhibits like the climber won't need to be relocated or rebuilt.

14 ROWLAND ROOFTOP RAMBLE ELEVATOR LOBBY

Reclaimed Carpet Tiles

Reused from our State Street location, Interface brand carpet tiles are found in the lobby, elevator, and some staff offices. Since carpeting is a leading contributor to indoor air pollution, only reused carpet tiles and wool carpets are used in the building's public areas to ensure optimal indoor air quality.

Elevator ▾

Elevators are expensive both in initial cost, energy use, and long-term maintenance. The museum combined the building's original two small passenger elevators into one large passenger/freight elevator. Museum staff can use the giant elevator to move large objects, and an entire school group can ride to the roof at one time, while encouraging staff and able-bodied visitors to take the stairs.

Repurposed Mural, LED Lights ▲

This exquisite mural by Spring Green native Richard Haas was donated by a downtown property owner who wanted to find a new home for the piece within Madison. The museum was able to modify building plans in order to accommodate the mural, and replaced the original neon tube lighting with efficient new LED lights.

ROOFTOP MECHANICALS

Mechanicals Built for Expansion

The Daikin system (see #2) is in two parts. Heat pumps mounted to the ceiling in the galleries are paired with condensing units seen here with tall ship-like stacks, where heat is extracted from or ejected into the air depending on the season. The "missing stacks" are for future expansion of the system, when the museum renovates floors 3 and 4.

Heat Recovery Wheel

In front of the condensing units is a large metal structure that houses a heat recovery wheel. As a public assembly building, the museum needs to provide a greater amount of fresh air than an office building, and also exhaust that same quantity of air. In the winter, much energy is wasted if the building's heat goes out with the exhaust. Here exhaust air runs through the heat recovery wheel, which extracts the heat and adds it back to the system for more efficient operation.

Green Screens ▸
This green trellis offers another opportunity to grow food in an unlikely spot, while somewhat concealing the building's mechanical systems and adding beauty to the area.

16 ROOFTOP RAMBLE LAKE OVERLOOK

Brand Log Cabin Historic Reuse

Below, you see the museum's cabin, originally built in the early 1840s in Walworth County. The cabin sat on land owned by The Nature Conservancy, whose volunteers disassembled it log by log for rebuilding on the museum site. Objects inside and around the cabin were researched by three Madison classrooms. Some furniture and objects were replicated by a local fabricator, and other authentic items were generously donated by JTaylor's Galleries/MapSmart on Capitol Square. Now the cabin serves as a focal point for the museum's local history initiative.

View of Black Rooftops ▲

This green roof provides an example of possibilities for all the rooftops in our city. By building a green roof, or having plants on existing roofs, citizens and businesses can help manage rainwater runoff, decrease heat absorption, and moderate downtown temperatures.

View of Public Transportation Routes, Bike Racks

More than 40 percent of all trips made by car in the United States are less than two miles. The museum encourages visitors and staff to use alternative transportation. There is more parking for bikes than cars, the museum is centrally located and on all of the bus routes, and safe biking and walking routes are posted on the museum's website.

Natural, Local Stone for Stream and Pond ▶

Local Fond du Lac stone was used to create the stream and pond. Using local materials helps reduce transportation costs while connecting people to their environment.

17 ROOFTOP RAMBLE CAPITOL OVERLOOK

Aeolian Harp

This beautiful harp was made by local artist and musician Enrique S. Rueda, using local black walnut for the instrument's body. The harp uses wind energy to create sound, which can be heard through small listening tubes. Its "aeolian" name refers to Aeolus, Greek god of the wind.

Native and Adapted Plants

All the plants used on the rooftop are native and/or well adapted to the harsh conditions (wind, drought, and shallow soil depth) found on a rooftop. Not all native plants can survive these conditions, so a mixture of native and adapted plants—all locally grown—provides the best solution for a four-season, sustainable rooftop garden.

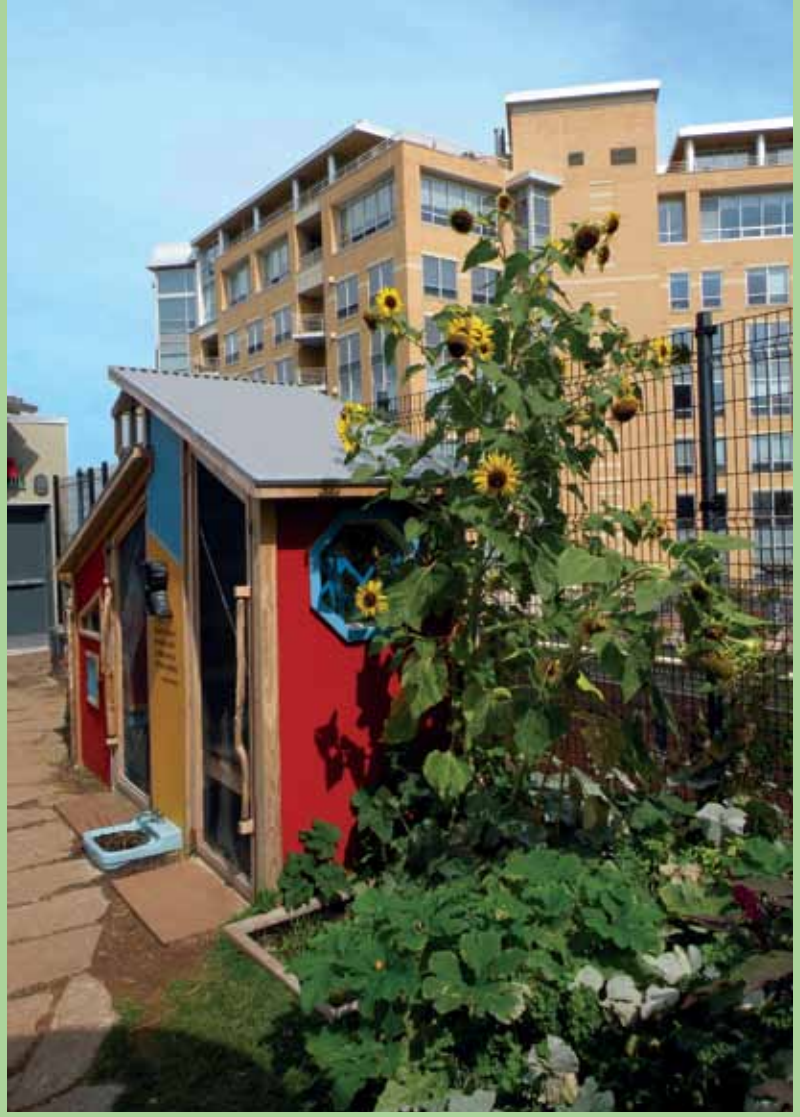
Dr. Evermor Sculpture ▸
This sculpture by the legendary and iconic figure Dr. Evermor is the sum of 72 years of art making and metal collecting. Dr. Evermor's piece is made entirely from steel artifacts from Wisconsin's industrial past, each with a story of its own. The birds' body is made from an old cheese kettle; this doubles as a house for bats, which help control the mosquito population.

Central City Site
This central city site not only connects the museum to a local transportation hub, but also connects visitors to the heart and soul of the community. A healthy city can best be summed up as one that is vibrant, inclusive, and resilient. The museum's site helps encourage growth and rejuvenation of Madison's dynamic downtown.

18 ROOFTOP RAMBLE GARDENS AND COOP

Eggs ▲

Our rooftop chicken flock is allowed to graze, and is fed homegrown organic chicken feed and fresh vegetables. This keeps our chickens healthy and strong, and results in eggs with bright orange yolks—a sign of high nutrients.



Compost
Compost bins help the museum recycle garden and kitchen waste, keeping food and garden scraps out of the landfill. Using compost on the rooftop gardens helps enrich the soil and adds much-needed nutrients to our lightweight rooftop planting medium.

Rain Barrels
Rain barrels, located on the rooftop and log cabin grounds, help minimize runoff, conserve water, and save money. Collected water is used to water plants. During summer months a rain barrel can save up to 1,300 gallons of water. The museum's rain barrels were donated by Sustain Dane and Lab Safety Supply.

Fresh Fruits and Vegetables ▲
Local, sustainable urban agriculture can help cities generate healthy, affordable foods to feed their residents. This demonstration garden will encourage families to create their own gardens in an empty pot, window box, or backyard plot—even a community garden.

19 ROOFTOP RAMBLE CLUBHOUSE EXTERIOR

PHOTOGRAPH BY ZANE WILLIAMS © 2010

Reclaimed Greenhouse ▲

Structures no longer needed at one location can find a second life in another. Generous community members donated this greenhouse when museum staff learned it was being dismantled at a local home. Museum architects modified existing plans to accommodate this gift, which will provide plants for education programs year-round.

solar panels send energy back to the grid

Solar Power

Solar electric (also called photovoltaic or PV) panels collect energy generated by the sun and produce direct current, which is then converted to useful household electricity with a power inverter. Using the sun's energy helps reduce dependence on fossil fuels. On the roof of the Clubhouse, solar panels donated by Madison Gas & Electric send energy back to the grid. These panels are specially designed to be shade tolerant for rooftops surrounded by taller buildings. The museum's Solar Oven and Solar Chicken exhibits help children understand how solar power works in a direct, hands-on way.

20 ROOFTOP RAMBLE CLUBHOUSE INTERIOR

Repurposed Bleachers

Bleacher boards here and in the Celebrations Room were salvaged from Oak Creek Junior High School outside of Milwaukee. The reclaimed wood was left unfinished and has a beautiful, worn patina that tells the story of its past. Look for student carvings in the boards from years ago!

Cleaning Supplies

Throughout the museum you'll notice the use of green cleaning supplies, which have GreenSeal certification and are safe for children's health. Cleaning supplies come highly concentrated, cutting down on transportation costs.

Worm Bins ▲

Worm composting, or vermiculture, uses worms (usually red wigglers) to help create a heterogeneous mixture of decomposing food waste, bedding materials, and vermicast or worm castings (worm waste). Vermicompost is the end product of the breakdown of organic matter by worms. Containing water-soluble materials, vermicompost is an excellent, nutrient-rich organic fertilizer and soil conditioner.

Native Animals ▼

The fish and animals in our Clubhouse tanks are native, offering a small sampling of the wildlife found throughout southern Wisconsin. Food—including crickets, small minnows, and vegetables—is grown on site to feed all animals.

Would you like to learn more?

Visit MadisonChildrensMuseum.org and click on the Green Initiative page under the About MCM tab for an electronic version of this guide, and links to contractors and green suppliers.

For more comprehensive information about green exhibits, go to GreenExhibits.org.

greenexhibits.org

a website developed by Madison Children's Museum devoted to green building

The Green Guide is made possible by Madison Gas & Electric Company.

A grant from The Kresge Foundation's Green Building Initiative
supported Madison Children's Museum's initial planning.

We thank donors to the
GREAT GREEN FUND
that supports our sustainable infrastructure and operations
as well as environmental education programs.

For information on the Great Green Fund,
please call 608.354.0535 or email *donate@madisonchildrensmuseum.org*.

madison children's museum

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DESIGN BY NADIA NIGGLI

PRINTED ON RECYCLED PAPER


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