



SPACE CASES

Cast-off bottles find a new life inside the walls of an earthship home in British Columbia. The upcycled glass lets light into the home of Sandra Burkholder and Chris Newton. Their home is featured on page 22.

THIS IS A STORY ABOUT REINVENTION—TAKING CONVENTIONAL IDEAS ABOUT HOW LIVING SPACES SHOULD BE ORGANIZED AND TURNING THEM ON THEIR HEADS

CARLETON UNIVERSITY GRADUATES
HAVE USED SKILL AND IMAGINATION TO
TRANSFORM THE SPACES THEY ENCOUNTER

IN NEW YORK CITY, A PLAYGROUND TAKES SHAPE ON A SCHOOL ROOFTOP. IN OTTAWA, A BACKYARD BECOMES THE SETTING FOR A GARDEN-SHED-SIZED OFFICE, WHILE A PLOT OF LAND IN DARFIELD, B.C., IS TRANSFORMED BY AN EARTHSHIP. IN PICKERING, ONT., A YURT BECOMES INTEGRAL TO A TRAVELLING ART SHOW. BUSY DOWNTOWN TORONTO, MEANWHILE, IS THE CHOSEN SPOT FOR A COMBINATION OFFICE AND HOME PLANNED AS A FLEXI-SPACE

CELEBRATING INSPIRED DESIGN

WRITTEN BY SARAH BROWN

CASE STUDY: PLAY SPACE

IN JAM-PACKED NEW YORK CITY, WHERE GREEN SPACE IS SCARCE, PETER PIVKO DESIGNS ROOFTOP PLAYGROUNDS SO THAT SCHOOLCHILDREN CAN PLAY OUTSIDE

In Canada, if the student population outgrows the school, administrators simply toss up a portable—or 10. In New York City, where space is at a premium, it's not so easy. "Here, we've got to design schools vertically," explains architect Peter Pivko, BArch/78. "That's how the rooftop playground was conceived." The open-air playground is a fairly new specialty. Less than a decade ago, teachers simply ferried their pupils to the nearest public park or playground for an outdoor gym class. But now, with traffic even more chaotic and sidewalks crammed, on-site playgrounds are a must. Pivko, who designs a couple of

The biggest dilemma facing the New York City School Construction Authority is the lack of available land. In this incredibly dense city, all new schools must be designed vertically. That's where architect Peter Pivko comes in—he designs rooftop playgrounds.



Photo: Jamie Kronick



Photo: Jamie Kronick

This on-site playground is accessible from inside the school, with doors opening from the classrooms into the “yard.” This play structure is located just four feet above the sidewalk (look closely, and you can see the fence and gate at the far end) but sits atop the school cafeteria.

rooftop play areas each year, says no two are exactly alike. “In a city like New York, there are different challenges with every project—you’re dealing with space constraints, budgets, the specific needs of each school, and NYC School Construction Authority rules.”

The Project: This 3,000-square-foot early childhood playground (for pre-kindergarten and kindergarten students) is located at Washington Heights Academy, a Manhattan-based school with a student population of close to 600 in pre-kindergarten through Grade 8.

The Location: The playground is four or five steps above street level and sits on top of the school cafeteria. NYC School Construction Authority rules stipulate that pre-kindergarten play areas must be located at ground level. There are two access points—through a door that opens straight into the school building or through a gated door that opens to the sidewalk. A second 6,000-square-foot rooftop space for older children is located three floors up, on top of the gymnasium. Fully fenced (including a wire mesh “roof”), it is designed more as a giant court, which allows older kids to use it for ball sports.

The Details: Pivko notes that the actual play structure at this site is exactly the same as those one might find in a park. The difference is below the ubiquitous rubber tiles, where an inverted roofing system allows water to seep between the tiles and quickly drain away through rainwater outlets.

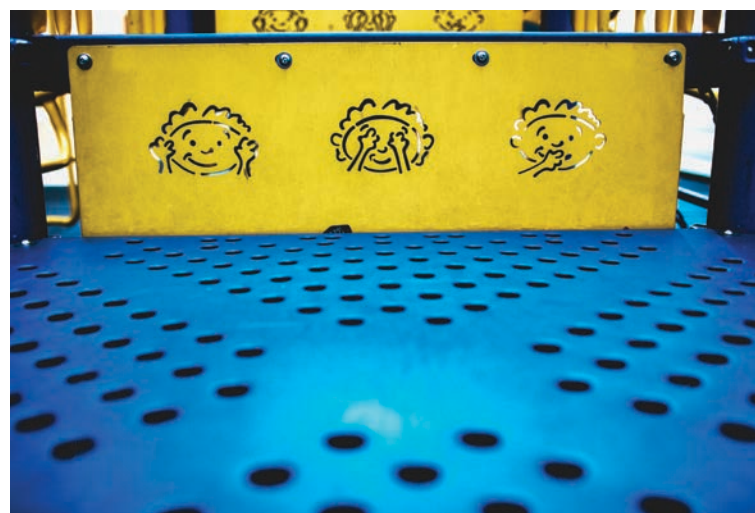


Photo: Jamie Kronick

The play structures installed on the sites that Pivko plans are exactly the same as those one might find in a park. The difference is in how they are secured to the roof and the design of the roofing system, which ensures that water drains away.

CASE STUDY: THE SOLO SPACE

ARCHITECT KEVIN DEEVEY RE-ENVISAGES THE HOME OFFICE, DESIGNING A SELF-CONTAINED AND COST-EFFECTIVE WORKSPACE THE SIZE OF A GARDEN SHED

Like many brilliant ideas, this one came about out of necessity. Ottawa-based architect Kevin Deevey's home office was about to become a nursery for his expected child. Inspired by the romantic precedents set by such creative notables as Steve Jobs (who got his start in a garage workspace) and Henry David Thoreau (who philosophized from his simple cabin at Walden Pond), Deevey, BArch/91, set about designing a stand-alone home office in his backyard. The original manhut, a term coined by his spouse, Elaine Yee, BArch/92, was built 12 years ago. It was initially used as a backyard office, though Deevey has since moved to a more conventional workplace as his practice has expanded. "You can't fit too many colleagues in a 100-square-foot shed," he jokes.

THE ANALYSIS

Deevey viewed the building of the original manhut as a test case of sorts: a design exploration that experiments with the English tradition of the garden shed as studio space. In countries where space is at a premium, people have been building small and efficient sheds in their backyards for years. In Canada, with its bigger yards, people tend to put an extension on their house when they want to expand. But while even a manhut-sized addition would be priced at \$70,000 or more, a stand-alone manhut comes in at \$20,000. And in Ottawa, at least, zoning bylaws state that if it's less than 100 square feet, your manhut is considered to be a shed. In other words, you can go right ahead and build, no permits needed.



THE SECOND MANHUT

Filmmaker Chris Mullington worked with Deevey to perfect his manhut, which was built four years ago. At the time, Mullington was paying just over \$1,000 a month for studio space, so the backyard manhut was an economical option. He loves the large windows, which face his house, allowing him to feel connected to his family even on deadline days, when he might spend 15 hours in the studio. And when inspiration strikes in the middle of the night, Mullington says, he can simply walk over to the manhut and get designing without disturbing his sleeping family.

PERFECTING THE MODEL

While Deevey's manhut is clad in plywood, Mullington's studio boasts maintenance-free fibre cement panels. "There were many things I learned while building my own manhut that I then used in Chris's design," Deevey explains. The high-efficiency door and windows make this a four-season studio, with sunlight and the heat given off by Mullington's computer equipment providing enough warmth to keep the small space cozy. In fact, Mullington says, he turns on the radiant floor heat only when temperatures dip below -15 C.

THE IDEAL TENANT

The manhut tends to appeal to introverts, says Deevey—thoughtful, artistic types who want to be close to home but need a private space in which to create. "It's quiet; it's peaceful. It's also an expression of economy—you're optimizing the space you need. In other words, you're the type of person who feels that it's not necessarily the space that's important, but what you do within it."



Photo: Rémi Thériault

At 100 square feet, the original manhut, built in the backyard of Kevin Deevey's New Edinburgh dwelling, boasted more than enough space to hold Deevey's office furniture—and store his prized motorbike.

Filmmaker Chris Mullington says that when he's on a tight deadline, he often spends 15 hours at a time in his studio. Built four years ago, his backyard manhut also allows him to work when inspiration strikes—often in the wee hours—without disturbing his family.



Photo: Rémi Thériault

CASE STUDY: ECO SPACE

SANDRA BURKHOLDER AND CHRIS NEWTON PUT THEIR GREEN PRINCIPLES INTO PRACTICE, BUILDING THEIR OWN VERSION OF THE “RADICALLY SUSTAINABLE” STRUCTURE KNOWN AS AN EARTHSHIP

When they began their earthship in 2009, they never imagined it would become a tourist attraction. In recent months, Sandra Burkholder, BJ/89, and her husband, Chris Newton, have had to start turning down requests to tour their handmade earthship in Darfield, B.C., north of Kamloops. Though they're keen to educate people on their eco-friendly house-in-progress, they have three teenagers to consult. “Our kids are old enough now that they're more aware of how great this house is—how special it is—but at the same time, they want to have some privacy,” says Burkholder. Still, it's little wonder that such an unusual house, with its “radically sustainable” *raison d'être* and adventurous recycled exterior, has generated buzz.

Although they've been around since the 1970s, earthships are still a novelty. First developed by New Mexico-based architect Michael Reynolds, these passive solar houses are meant to be environmentally

friendly and self-sustaining, made with the likes of old tires rammed full of dirt, as well as pop cans and bottles stacked using cob (an adobe-like mixture of clay, sand, straw, water, and earth). Burkholder and Newton studied Reynolds' designs and writings and knew his model fit with the lifestyle they had become committed to living.

In 2007, the couple, who at the time were running a busy log house company, decided it was time to take a voluntary step back and evaluate their lives. “We wanted to spend more time with the kids, and we wanted to live in a house that matched our values—a house built without debt and one that recognized the importance of addressing environmental sustainability,” says Burkholder.

They wound up their business and took six months to research and decide on their next move. Earthships, they determined, fit their criteria, rolling a whole host of sustainable concepts into one

The earthship takes all the sustainable concepts Chris Newton (near right) and Sandra Burkholder believe in and rolls them into one housing model. Newton is trained as an engineer so has many of the technical skills that were needed to build the house, while Burkholder, a journalism graduate, contributed much of the marketing and financial savvy to turn their earthship dream into a reality.



Photo: Luther Caverly



Photo: Luther Caverly

A view of the kitchen, with its gorgeous south-facing view to the mountains. The ladder is still up after a morning project. Newton had just finished installing the hood over the stove.



Photo: Luther Caverly

The glass bottles were cut in half before being embedded in the walls. Because they're exposed on both sides, the sun shines through them, creating random patterns on the walls inside. While Burkholder notes that more artistic earthship owners have embedded the coloured bottles in organized ways to create patterns, they took a random approach.

There are 862 earth-packed tires forming the back walls of the Newton-Burkholder earthship. They act as heat holders, absorbing warmth from the sun during the day and slowly warming the house overnight.



Photo: Luther Caverly

Features



Photo: Luther Caverly

This year, Burkholder bought fruits and vegetables from her neighbours, but the family plans to focus on building a large garden next year, experimenting with permaculture and mound gardening techniques. "We're not trying to be a pioneer family or hippies," says Burkholder. "But growing close to home is more sustainable, and it's important to know where your food comes from." She notes that canning remains a very popular practice in rural communities.

Located in the living room, the high-combustion stove is known as a rocket mass heater. The hot air is pushed through pipes within the bench, essentially made of rocks encased in cob. The rocks heat up, warming the bench and the building as a whole. The stove is so efficient that the family plans to add two or three more inches of cob to the bench. "It just gets too hot to sit on." The family moved into their house-in-progress this past December and used the stove until March, when the sun's heat kicked in.

Burkholder and Newton previously ran a log house company, so they were able to access big logs that didn't make house grade. Both the floors and the walls are made with cob—a mixture of clay, sand, straw, water, and earth. While the floors have been finished with linseed oil and sealed, the walls are a work-in-progress. They will eventually be covered with a thin layer of natural plaster, which can be tinted to produce different shades.



Photo: Luther Caverly



Photo: Luther Caverly



Photo: Luther Caverly



Photo: Luther Caverly

The family plans to hook up the shower to a grey-water system, which will be used for their garden. The walls will be tiled at some point. "There is lots of interior finishing left to do throughout the house," Burkholder explains, saying that they want to work on the house on a project-by-project basis in order to leave time for living. Because the wall faces east, the bathroom lights up in the morning courtesy of the exposed bottles.

The rubber-coated roof, which is gently sloped for drainage purposes, is equipped with skylights, which provide both light and ventilation. On hot days, the family opens both the rooftop skylights and the front south-facing windows to allow the warmer air to flow up and out.

building model. Because they had designed and sold log houses, they knew how to work within building codes, and Newton, an engineer by training, could work his way through all the technical aspects of earthship design and construction. They began building in 2009, moved in in December 2012, and continue to work on the interior finishing and long-term plans (a grey-water retrieval system and extensive food gardens, for example) in their spare time. "We don't want the earthship process to control our lives," explains Burkholder. "We try to take on projects one at a time and leave room for fun." Though their lives are busy—their kids are home-schooled and Newton works part-time as a network management consultant, Sandra as a freelance bookkeeper—the couple sees a long-term future in which they might hold workshops and consult on sustainable building projects. For now, they're taking it one project at a time while trying to keep up with all those tour and interview requests.



Photo: Luther Caverly

The front of the house faces south, the bank of windows slanted to minimize the entry of sunlight in summer and maximize it in the off seasons, when the sun sits lower on the horizon. If the house gets too warm, the series of smaller windows can be opened to allow air to circulate up through the house and out rooftop skylights.

CASE STUDY: MOBILE SPACE

KNOWN AS YURTAS, THE PORTABLE SHELTERS DESIGNED BY MARCIN PADLEWSKI AND ANISSA SZETO HAVE BEEN USED AS COTTAGES, STUDIOS, RUSTIC SHELTERS AND, MOST RECENTLY, AS PERFORMANCE SPACES IN A TRAVELLING ART EXTRAVAGANZA



Since meeting at Carleton University, Marcin Padlewski, BArch/97, and Anissa Szeto, BArch/99, have designed as a team. “We’re what you would call ‘serial entrepreneurs,’” Szeto jokes, noting that their passion for exploration has led them to create both small (exquisite light fixtures) and big (the Yurta) products that they have then successfully marketed on a larger scale.

The Yurta came into being about nine years ago as the couple experimented with portable dwellings inspired by nomadic peoples. They originally envisaged their lightweight structures being used for disaster relief but didn’t feel comfortable working in the corporate world inhabited by big international agencies. Their first client was a hostel owner who bought their initial three prototypes to rent to visitors.

For the past six or seven years, business has been steady, with about 30 Yurtas being sold each year. While most of their buyers are private campground owners and individuals looking to set up a comfortable temporary home on a cottage property, some Padlewski and Szeto clients have used the Yurta as a yoga studio, a cozy change hut (set up beside a hockey rink), an art studio, even a full-time home. Easy to set up and dismantle (it takes about two hours once you get the hang of it), the Yurta fits easily into a minivan or four-by-eight trailer. For their part, the couple alternately uses their personal Yurta, set up on their rural property in the Lanark Highlands, as a guest house, summer bedroom, and gallery space. This past September, the Yurta received huge exposure across the United States when seven of the structures were used as mobile performance spaces in a

travelling art show that crossed the country by train.

The Yurta Travels Across America

Organized by American multimedia artist Doug Aitken, *Station to Station* was an ambitious travelling art show that linked creators from the worlds of art, music, food, literature and film. Their mode of transport? A train, designed as a kinetic light sculpture, that crossed the United States in September, stopping in nine cities for a series of site-specific performances. Aitken ordered seven Yurtas for the journey, each custom-made and altered by various artists. The nomadic dwellings were turned into art pieces, performance spaces, and intimate galleries, each evolving as the train journeyed across the country.

The process: Padlewski and Szeto got the call in May and from there began a hectic two-month back-and-forth process to design seven completely customized Yurtas—four to be refurbished by artists, two for use by *Station to Station* sponsor Levi’s for its events, and one to be employed as a slow-food demo kitchen. “Everything was custom, from the fabrics and colours to the placement of doors,” explains Padlewski. “It was crazy and busy but also a lot of fun.” The orders went out in July, and within a month, the Yurtas were being shipped across the United States so that the artists could further customize them before the September *Station to Station* launch.

The setup: Padlewski and Patrick Ladisa (the third member of the Yurta team) travelled to New York City for three days in early September to teach the three-man *Station to Station* crew how to put up and take down the Yurtas. The Yurta duo stayed in New York for the first “happening,” as it was called in *Station to Station* parlance, then headed back to Canada. “They begged us to stay, but they had to sink or swim—if it was five or six years ago, then maybe,” says Padlewski with a laugh. “But now I’ve got too much going on to just stop everything and travel across America.”

The journey: Mobile micro-architecture at its finest—nine stops over 23 days. Padlewski and Szeto never imagined this use for the Yurta when they began planning it, but that’s the beauty of flexible design. Their schedule looked like this:

- Sept. 6—Riverfront Studios, New York City, New York
- Sept. 8—Union Station/The Pennsylvanian, Pittsburgh, Pennsylvania
- Sept. 10—Union Station, Chicago, Illinois
- Sept. 12—Union Depot, Minneapolis-Saint Paul, Minnesota
- Sept. 18—Santa Fe Railyard, Santa Fe, New Mexico
- Sept. 21—La Posada Hotel, Winslow, Arizona
- Sept. 24—The Skyline Drive-In Theatre, Barstow, California
- Sept. 26—Union Station, Los Angeles, California
- Sept. 28—16th Street Station, Oakland, California



Station to Station was an ambitious 2013 travelling art show in which a train crossed the United States, stopping in nine cities for a series of site-specific performances. Seven Yurtas, each custom-made and altered by various artists, were turned into art pieces, performance spaces and intimate galleries. Here, the Yurts are assembled at Chicago's Union Station.



Photo: John Packman

Marcin Padlewski, left, and Anissa Szeto are serial entrepreneurs. Their current project is the Yurta. They are easy to set up and dismantle (it takes about two hours once you get the hang of it). The Yurta is also compact, fitting easily into a minivan or four-by-eight trailer.



The first Station to Station "happening" took place at Riverfront Studios in New York City. Marcin Padlewski and Patrick Ladisa, the third member of the Yurta team, spent three days in New York teaching the three-man Station to Station crew how to put up and take down the Yurtas.

CASE STUDY: COMBINED SPACE

ANDRE D'ELIA AND MEG GRAHAM DITCH THE COMMUTE WITH A CLEVER RENOVATION THAT HAS GIVEN THEM A SPACIOUS HOME ABOVE THEIR OFFICE.

Andre D'Elia, BArch/93, and Meg Graham are the principals behind the Toronto-based superkül architecture firm. They're also a husband-and-wife team with two small children. Perhaps it only makes sense, then, that they work and play in the same building. When the couple bought a rundown two-storey storefront building on Dundas Street West in 2005, they did so with the plan to renovate it completely, turning the basement and ground floor into office space for their busy design practice and the upper level into home space. They added a third floor to the two-storey building, creating a spacious house on the upper two floors—room to sprawl a bit once they had children.

The couple chose the busy thoroughfare of Dundas West for the practical reason that buildings along the strip are zoned for mixed commercial and residential use, but they now love it equally for the neighbourhood. "It's a remarkably active spot, busy and interesting," says D'Elia, who jokes that their four-year-old daughter regards the living room window, which faces Dundas, as her personal television set. Graham says they also appreciate the simplicity of having office and home in one spot. "We're in the unique position that when one of us has to work late, the other can just walk upstairs to look after the kids and cook dinner."

The husband-and-wife team behind the superkül architecture firm took a rundown two-storey house and turned it into a three-storey building that houses their business in the basement and ground floor and their home on the upper two levels.



Photo: Ben Rahn / A-Frame Inc.



The Toronto-based architecture firm is led by associate Anya Moryoussef, left, and principals Andre d'Elia, centre, and Meg Graham.



Photo: Ben Rahm / A-Frame Inc.

Over the past seven years, the couple has undertaken a number of further renovations and additions, including expanding into the backyard area, as their firm (which now numbers 14) and their family (which now numbers four) has grown. "When we bought this building, we anticipated each phase of expansion," D'Elia explains, "so we've been able to renovate each time with minimal impact at the office or at home."

On the neighbourhood ...

Meg: We're at Dundas and Roncesvalles. It's an area full of coffee shops, independent grocers, small businesses—and there are lots of young kids. It's a thriving neighbourhood in the midst of change—great for the business and our family.

Andre: It's also a 10-minute walk from High Park and a 25-minute walk from the lake, with three transit lines and the subway within walking distance.

On living and working in one location ...

Meg: For a young firm, it's an ideal arrangement. We have two children [a four-year-old and a four-month-old], and in these early years of the practice and our family, I can't imagine anything better.

On having their daughter pop into the office ...

Meg: It's wonderful to get to see our daughter when she comes home from school. She can tell us about her day before she goes upstairs to the babysitter.

Andre: It's amazing watching her interact with the staff. It's a little break each day—she's so happy to see everybody, to look at what they're doing, to chat.

On their favourite aspects of the combined space ...

Meg: The integration of our home and office allows for more efficiencies as a family—there's an ease to organizing our days.

Andre: Living and working in one spot definitely takes out a lot of the stress. And although we live above the shop, the two spaces are quite separate, so work and home are distinct.

Both the public and private spaces in superkül's combined office/home are designed with the clean lines for which the firm is known. Below: The basement level accommodates superkül's well-lit boardroom and reference library, as well as a staff kitchen and bathroom. Above: In the home, the second-storey kitchen opens out to the dining room and a small family room that overlooks the busy streetscape.



Photo: Ben Rahm / A-Frame Inc.